

# Civil Aviation Organization Instrument Rating Written Exam

Jul 2017



# ***IN THE NAME OF GOD***

This book shares new upcoming issues and questions regarding nowadays ongoing aviation knowledge.

By developing aviation industry, continuously control for updating this question bank is highly in need of attention.

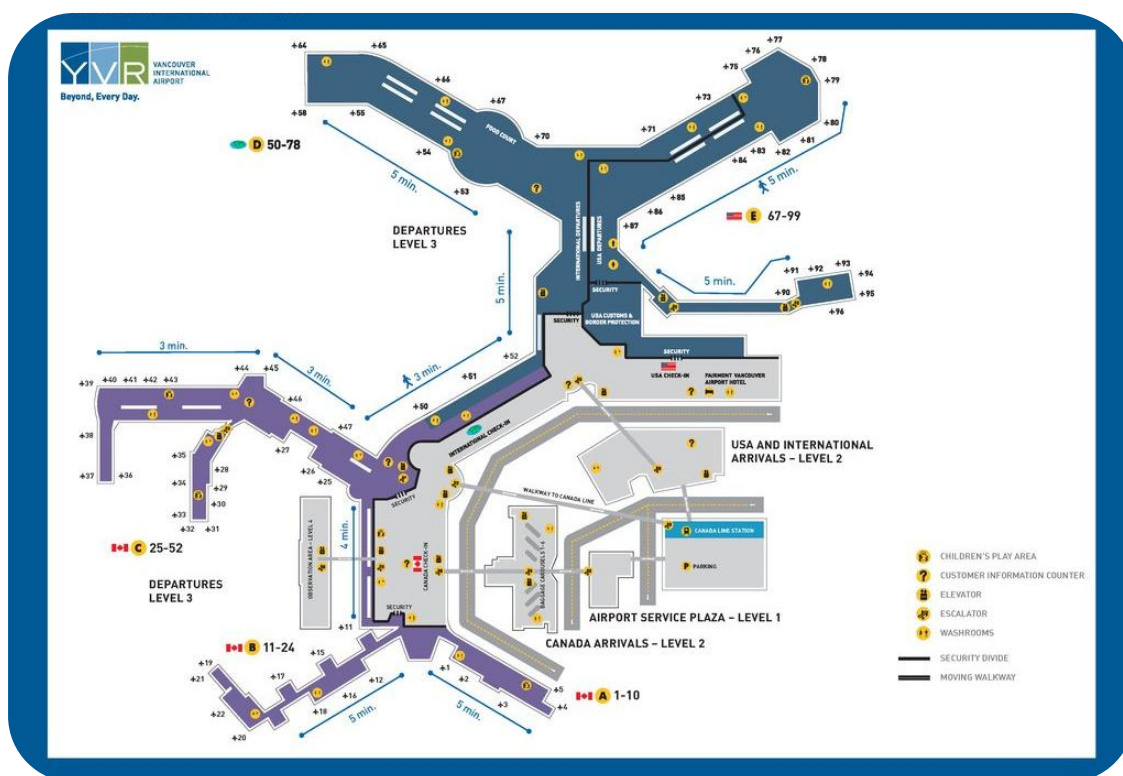
Please do not hesitate to contact us, if there is any suggestion for implementing in 3<sup>rd</sup> edition.

Jul 2017

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# AERONAUTICAL INFORMATION PUBLICATION





**1- What are the lower and upper vertical limits of Tehran UIR?**

- A) 28500 ft – Unlimited
- B) FL285 – Unlimited
- C) FL290 – FL410
- D) Nil

**2- What is the unusable area for ANARAK VOR/DME below 18000 ft AMSL?**

- A) 200°-180° clockwise
- B) 130°-360° counterclockwise
- C) 200°-180° counterclockwise
- D) 130°-360° clockwise

**3- What is transponder code for indicating transponder malfunction in Tehran FIR?**

- A) 2000
- B) 0000
- C) 7500
- D) 1200

**4- What is the altitude error between level readout and the reported level for verifying transponder Mode C malfunction?**

- A) 200 ft
- B) Less than 200 ft
- C) More than 200 ft
- D) Less than 150 ft

**5- Which type of flight(s) in Tehran FIR can use Code 0000 in transponder?**

- A) Domestic flights
- B) International flights
- C) Controlled flights
- D) Uncontrolled and controlled flights

**6- Which of the following statements regarding Air Move Display (AMD) is incorrect?**

- A) Improving efficiency and traffic observation.
- B) AMDs are suitable for radar vectoring.
- C) The information provided by AMD is derived from enroute radar service.
- D) It is used as supplementary facility.

**7- What is the magnetic direction from NABOX to DAVEP on ATS route A453?**

- A) 238°
- B) 058°
- C) 246°
- D) 066°

**8- What is the call sign of ATS unit within Sector 6 of Tehran FIR?**

- A) Tehran Radar
- B) Tehran Radar / Control
- C) Tehran Control
- D) Tehran ACC

**9- What is (are) the airspace(s) classification of Bandar Abbass CTA?**

- A) A, D
- B) C
- C) A
- D) D

**10- What is the center of Rasht CTA?**

- A) Rasht NDB
- B) Aerodrome Reference Point
- C) Rasht VORTAC
- D) Rasht DVOR

**11- Which unit does control the Ahwaz CTR?**

- A) Ahwaz Tower
- B) Ahwaz Approach
- C) Ahwaz Radar
- D) Ahwaz Ground

**12- Calculate ASDA RWY25 Ardabil airport.**

- A) 2600 ft
- B) 3659 m
- C) 3528 ft
- D) 2600 m

**13- What is the minimum take off visibility when runway is equipped with center line lighting and marking according to Iran AIP?**

- A) 500 m
- B) 400 m
- C) 300 m
- D) 200 m

**14- What is the aerodrome fire fighting category at which 27300 liters water available for production of level A foam?**

- A) 6
- B) 7
- C) 8
- D) 9

**15- How many enroute holding are established over Saveh NDB/DME?**

- A) 3
- B) 2
- C) 1
- D) Withdrawn

**16- According to Iran Air Traffic Flow Management (ATFM) criterias all departures should not be made ..... EOBT.**

- A) More than 15 minutes after
- B) More than 10 minutes after
- C) More than 15 minutes before
- D) More than 10 minutes before

**17- Which of the following aerodrome is not belong to major international aerodromes in Iran?**

- A) Bandar Abbass
- B) Yazd / Shahid Sadooghi
- C) Kish Island / Kish
- D) Tehran / Imam Khomeini

**18- Calculate the total mileage of ATS route UT211.**

- A) 217.6 NM
- B) 271.6 NM
- C) 200.8 NM
- D) 208.0 NM

**19- On which frequency DARBAND VOR/DME operates?**

- A) 113.700 MHz
- B) 114.500 MHz
- C) 117.300 MHz
- D) 115.400 MHz

**20- What is the time of activity of "OI R74" in Tehran FIR?**

- A) Continuous day and night service
- B) Sunset to sunrise
- C) Sunrise to sunset
- D) No specific working hours

**21- Regular amendments to Iran AIP will be issued:**

- A) Once a year
- B) Two times in a year
- C) Four times in a year
- D) Six times in a year

**22- What is the width of RWY 14R in Abadan airport?**

- A) 35 m
- B) 60 m
- C) 55 m
- D) 45 m

**23- Which ATS route is passing through significant points ALROT and ALKUP?**

- A) A416
- B) UP567
- C) UL333
- D) UL223

**24- What is the PCN of RWY13 in Persian Gulf airport?**

- A) 80
- B) 85
- C) 90
- D) 95

**25- Which type of fuel(s) is (are) available in Esfahan / Shahid Beheshti International airport?**

- A) Jet A1
- B) Jet A1 – 100LL
- C) Jet A1 – JP4
- D) Jet A1 – JP4 – 100LL

**26- Choose the correct definition of “Damp”.**

- A) The surface is soaked but there is no standing water.
- B) The significant patches of standing water are visible.
- C) The surface shows a change of color due to moisture.
- D) None.

**27- What is the ATS unit call sign controlling OISS CTR?**

- A) Shiraz Tower
- B) Shiraz Approach / Radar
- C) Shiraz Information
- D) Shiraz Ground

**28- What is the lower limit of Shiraz TMA?**

- A) FL245
- B) 24500 ft AMSL
- C) 11500 ft AMSL
- D) FL115

**29- Each flight plan either submitted individually or based on RPL criteria has a validity time of:**

- A) 30 minutes after EOBT for IFR flight
- B) 60 minutes after EOBT for VFR flight
- C) 60 minutes after EOBT for all controlled and uncontrolled flight
- D) A and B are correct

**30- How many times a flight plan can be modified?**

- A) One
- B) Two
- C) Three
- D) Not applicable

**31- What is the last AIRAC effective date on 2019?**

- A) 5<sup>th</sup> December
- B) 6<sup>th</sup> December
- C) 7<sup>th</sup> December
- D) 8<sup>th</sup> December

**32- What is the time (UTC) of sunset on 28<sup>th</sup> March at OITT?**

- A) 19:45
- B) 16:15
- C) 19:39
- D) 15:15

**33- What is the purpose of "Persian Gulf DVOR/DME"?**

- A) Aerodrome facility
- B) Enroute facility
- C) Aerodrome and Enroute facility
- D) Off route facility

**34- What is the magnetic variation at ARDABIL VOR/DME?**

- A) 5°E
- B) 4.5°E
- C) 4°E
- D) 5.5°E

**35- What is the firefighting category at OIHH during Hadj flights?**

- A) CAT 5
- B) CAT 6
- C) CAT 7
- D) CAT 8

**36- What is the minimum rate of climb when executing TULGU 1A DEP after crossing overhead VOR/DME at OITZ?**

- A) 375 ft/NM
- B) 250 ft/NM
- C) 310 ft/NM
- D) 300 ft/NM

**37- What is the OCH on straight approach RWY11 Jam airport?**

- A) 2800 ft
- B) 701 ft
- C) 1278 ft
- D) 668 ft

**38- The highest obstacle within 25 NM from YASOUJ NDB is .....**

- A) 13819 ft AMSL
- B) 15500 ft AMSL
- C) 13984 ft AMSL
- D) 11510 ft AMSL

**39- What is the speed restriction within Tehran TMA?**

- A) Maximum 250 KT TAS
- B) Maximum 270 KT IAS
- C) Maximum 250 KT IAS
- D) Maximum 270 KT TAS

**40- What is the speed restriction within Tehran CTR?**

- A) Maximum 230 KT TAS
- B) Maximum 200 KT IAS
- C) Maximum 230 KT IAS
- D) Maximum 200 KT TAS

**41- What is the minimum rate of climb during missed approach ILS 1 RWY29R at OIIE?**

- A) 350 ft/NM
- B) 300 ft/NM
- C) 250 ft/NM
- D) 200 ft/NM

**42- On which radial from ESFAHAN DVOR/DME the north initial approach fix is established?**

- A) R298
- B) R348
- C) R328
- D) R289



**43- What is the OCA in ILS 1 RWY29L OIII, when glide path is inoperative?**

- A) 4040 ft
- B) 246 ft
- C) 4450 ft
- D) 656 ft

**44- Where can you find the abbreviations used in AIS publication?**

- A) GEN 2
- B) GEN 3
- C) ENR 1
- D) ENR 3.1

**45- Which part of AIP contains the list of radio navigation aids?**

- A) ENR 1
- B) ENR 4
- C) GEN 2.5
- D) GEN 3

**46- Which part of AIP contains the radio navigation aids/systems?**

- A) ENR 4
- B) ENR 1
- C) GEN 2.5
- D) GEN3

**47- What is the accuracy of the location of navigational aids measured by GPS in Iran?**

- A)  $\pm 10$  meters.
- B)  $\pm 5$ m.
- C) Within 8 meters.
- D) B, C are correct.

**48- What is the accuracy of sunrise and sunset time published in AIP?**

- A) Less than 3 min
- B) Less than 2 min
- C) 2 min
- D) 3 min

**49- What is the color of regular AIP amendment cover sheet?**

- A) Light blue
- B) Pink
- C) Red
- D) Yellow

**50- What is the color of AIRAC amendment cover sheet?**

- A) Blue
- B) Pink
- C) Red
- D) Yellow

**51- The color of AIP supplement papers are .....**

- A) Blue
- B) Pink
- C) Red
- D) Yellow

**52- Which temporary changes may be included in AIP supplement?**

- A) 2 months
- B) 3 months and longer
- C) 1 month
- D) 4 month & longer

**53- Which section of AIP contains the information of "NOTAM"?**

- A) GEN 2.4
- B) ENR 3.5
- C) GEN 3.1
- D) ENR 1.7

**54- The series of international NOTAM is.....**

- A) A
- B) B
- C) C
- D) R

**55- Which class of VDF antenna has bearing accuracy  $\pm 10^\circ$ ?**

- A) A
- B) B
- C) C
- D) D

**56- What is the series of domestic NOTAM?**

- A) A
- B) B
- C) C
- D) S

**57- Name the chapter in the AIP where one can find a list of significant differences between national regulations and practices of the State and the related ICAO Standards, Recommended Practices and Procedures:**

- A) GEN 1.7
- B) AD 1.2
- C) ENR4
- D) GEN 2.5

**58- Detailed description of meteorological information provided at the aerodrome and an indication of which meteorological office is responsible, is in the following part of the AIP:**

- A) ENR
- B) GEN
- C) MET
- D) AD

**59- In which section of AIP are contained information elements relating to refueling facilities and limitations on refueling services?**

- A) ENR
- B) GEN
- C) SAR
- D) AD

**60- Each AIRAC AIP amendment page shall display:**

- A) Page number only.
- B) Date of issue only.
- C) The effective date, page number and date of issue.
- D) Color coding.

**61- Which section of the AIP contains information relating to the provision of Communication Services?**

- A) ENR
- B) AD
- C) SUPP
- D) GEN

**62- Prohibited, Danger, Restricted and caution areas must be designated by:**

- A) Country identifier, followed by P/D/R/C, followed by the identifier.
- B) Country identifier followed by P/D/R/C, followed by assigned number.
- C) P/D/R/C followed by the identifier.
- D) Country identifier followed by numbers.

**63- According to AIP “FBL” is the abbreviation of:**

- A) Fixed Beacon Location
- B) Forecastable
- C) Light
- D) Forecast based level

**64- What is the purpose of “KAZ NDB”?**

- A) Aerodrome & Enroute
- B) Enroute
- C) Aerodrome
- D) Airway fan marker

**65- What is the fire fighting category of Dezful airport?**

- A) CAT 7
- B) CAT 8
- C) CAT 5
- D) CAT 6

**66- All flights before entering Iran ADIZ (Tehran FIR) are required to contact the appropriate air defense radar station on ..... or ....., at least 10 minutes prior to entering Tehran FIR.**

- A) 121.500 MHz – 243.000 MHz
- B) 121.000 MHz – 243.000 MHz
- C) 127.000 MHz – 135.000 MHz
- D) 127.800 MHz – 135.100 MHz

**67- What is the location name of “OISR”?**

- A) Fasa
- B) Jahrom
- C) Lar
- D) Lamerd

**68- What is the time of sunrise in Ramsar city on 27<sup>th</sup> of April?**

- A) 06:25
- B) 06:18
- C) 06:23
- D) 06:21

**69- What is the radius of Esfahan / Shahid Beheshti international airport CTR?**

- A) 40 NM
- B) 5 NM
- C) 15 NM
- D) 30 NM

**70- What types(s) of fuel is (are) available in Abadan Airport?**

- A) 100 LL
- B) Jet A1, 100LL, JP4
- C) Jet A1
- D) Jet A1, JP4

**71- What is the vertical limit of Nowshahr CTR?**

- A) 6000 ft
- B) 15500 ft
- C) FL155
- D) B & C are correct

**72- What is the upper vertical limit of "OI D66"?**

- A) FL200
- B) FL240
- C) FL120
- D) FL150

**73- What is the transition altitude of Kerman airport?**

- A) 11000 ft MSL
- B) FL120
- C) 12000 ft MSL
- D) FL130

**74- What is the upper vertical limit and radius of Bandar abbas TMA?**

- A) 6500 ft – 60 NM
- B) FL275 – 70 NM
- C) FL065 – 70 NM
- D) FL245 – 60 NM

**75- What is the minimum flight altitude for entering Tehran FIR?**

- A) FL150
- B) 10000 ft MSL
- C) 16000 ft MSL
- D) FL100

**76- What is the ADIZ frequency?**

- A) 127.800 MHz
- B) 135.100 MHz
- C) 118.400 MHz
- D) A & B are correct

**77- How long before entering Tehran FIR an aircraft shall report to ADIZ?**

- A) At least 20 minutes
- B) At least 15 minutes
- C) At least 10 minutes
- D) At least 5 minutes

**78- What is the time zone (difference between local time and UTC) during summer period?**

- A) 03:30
- B) 04:30
- C) 05:30
- D) 02:30

**79- Where can we find clearway information?**

- A) AD 2
- B) ENR
- C) GEN
- D) AD 1

**80- Where can we find information about danger area?**

- A) GEN 4
- B) ENR 5
- C) AD 1
- D) ERN 6

**81- What is the speed limitation for IFR flights within class "C" airspace below 10000 ft AMSL?**

- A) 250 KT IAS.
- B) 260 KT IAS.
- C) 250 KT TAS.
- D) Not applicable.

**82- Which type of separation is provided for VFR flights within class "C" airspace?**

- A) IFR from VFR.
- B) VFR from IFR.
- C) IFR from SVFR.
- D) VFR from VFR.

**83- Within which class of airspace in Tehran FIR, IFR and VFR flights receive flight information service only?**

- A) A, C, D, G.
- B) A, C, D.
- C) G.
- D) F.



**84- In Iran, VFR flights are not authorized to fly within:**

- A) B airspace.
- B) A airspace.
- C) G airspace.
- D) E airspace.

**85- Which airspaces are not available in Iran?**

- A) A, C, D, G.
- B) B, E, F.
- C) A, B, E, F.
- D) C, E, F.

**86- What is the ATS route classification within TMA in Iran?**

- A) A, C, D, G.
- B) B, E, F.
- C) D, A
- D) A, C.

**87- Issued start up clearance by ATC unit is valid up to ----- from the time of startup clearance.**

- A) 10 to 15 minutes.
- B) 20 minutes.
- C) 15 minutes.
- D) 10 minutes.

**88- According to Iran AIP, flight plan is required for:**

- A) VFR flight.
- B) IFR flight.
- C) IFR flight only.
- D) A & B are correct.

**89- What is the lateral limit of ATS ROUTE UR660 between TABRIZ and RAKED?**

- A) 10 NM.
- B) 15 NM.
- C) 20 NM.
- D) 25 NM.

**90- What is the distance between SHIRAZ and VAVAS on ATS route G665?**

- A) 60.5 NM.
- B) 78.3 NM.
- C) 70.0 NM.
- D) 106.6 NM.

**91- What are the entry and exit point on ATS route R205?**

- A) DEHNAMAK and EGLUL.
- B) BUBUX and BOJNORD.
- C) ANARAK and BIRJAND.
- D) BUBUX and EGLUL.

**92- What is MOCA on ATS route UN440?**

- A) 13340 ft.
- B) 9100 ft.
- C) 10700 ft.
- D) 8100 ft.

**93- On which ATS route(s) significant point “SIVIM” is (are) used?**

- A) W8.
- B) W8, UP574.
- C) L124.
- D) W8, UL124.

**94- When will the critical snow banks outside runway and taxiway be reported?**

- A) Its height exceeds 20 cm.
- B) Its height exceeds 30 cm.
- C) Its height exceeds 60 cm.
- D) Its height exceeds 70 cm.

**95- Which of the following meteorological watch office(s) can issue SIGMET?**

- A) OIII.
- B) OIIE.
- C) OIFM.
- D) A & B are correct.

**96- What is the aerodrome elevation of Mashhad international airport?**

- A) 3423 ft.
- B) 3266 ft.
- C) 3254 ft.
- D) 3662 ft.

**97- The reported QNH is valid up to ..... in Iran:**

- A) CTR.
- B) 25 NM.
- C) 15 NM.
- D) TMA.

**98- Within which control airspace in IRAN the VFR flights are not authorized to fly?**

- A) Airway.
- B) TMA.
- C) TMA above FL200.
- D) TMA below FL200.

**99- Night in IRAN is:**

- A) 15 min after sunrise up to 15 min before sunset.
- B) 15 min before sunset up to 15 min before sunrise.
- C) 15 min after sunset up to 15 min before sunrise.
- D) 15 min before sunset up to 15 min after sunrise.

**100- In which chart you can find transition altitude?**

- A) Instrument approach
- B) SID
- C) STAR
- D) All answers are correct

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	D	26	C	51	D	76	D
2	C	27	B	52	B	77	C
3	B	28	C	53	C	78	B
4	C	29	D	54	A	79	A
5	A	30	A	55	C	80	B
6	B	31	A	56	B	81	D
7	A	32	D	57	A	82	B
8	C	33	A	58	B	83	C
9	C	34	D	59	D	84	B
10	D	35	C	60	C	85	B
11	A	36	B	61	D	86	D
12	D	37	B	62	B	87	D
13	C	38	C	63	C	88	D
14	C	39	B	64	C	89	C
15	B	40	C	65	A	90	C
16	D	41	D	66	D	91	C
17	C	42	B	67	D	92	B
18	B	43	C	68	B	93	A
19	A	44	A	69	D	94	C
20	C	45	C	70	C	95	A
21	A	46	A	71	C	96	B
22	D	47	B	72	D	97	B
23	C	48	B	73	C	98	C
24	D	49	A	74	D	99	C
25	B	50	B	75	A	100	D



# AIRCRAFT PERFORMANCE

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**1- What is the maximum operation speed during flight?**

- A)  $V_{FE}$
- B)  $V_{MO}$
- C)  $V_{NE}$
- D)  $V_{LS}$

**2- Density altitude increase when:**

- A) Temperature decrease
- B) Pressure increase
- C) Temperature increase
- D) Altitude decrease

**3- The primary reason for computing density altitude is to determine A/C performance.**

- A) True
- B) False

**4- When the aircraft will obtain the maximum grade of its performance?**

- A) High density altitude
- B) High Temperature
- C) High weight
- D) A, B & C are incorrect

**5- High density altitude cause ....**

- A) Engine power out decrease
- B) Propeller efficiency decrease
- C) Aerodynamic lift decrease
- D) All answers are correct

**6- In high humid air the piston engine performance decrease approximately as:**

- A) 10%
- B) 7 %
- C) 19%
- D) 21%

**7- In high relative humidity condition, takeoff and climb performance for piston engine aircraft reduce approximately as:**

- A) 7%
- B) 10%
- C) 14%
- D) 19%

**8- The most adverse effect on aircraft performance occur at .....**

- A) High altitude, hot, humid
- B) High altitude, cold, humid
- C) Low altitude, hot, humid
- D) Low altitude, cold, humid

**9- "Humidity has most effect on density altitude."**

- A) True
- B) False

**10- "Humidity "causes to ....."**

- A) Increase density altitude at lesser degree
- B) Decrease piston engine power output
- C) Decrease takeoff efficiency performance
- D) All answers are correct

**11- The maximum rate of climb that can be maintained at the absolute ceiling is:**

- A) 125 ft/min.
- B) 0 ft/min.
- C) 500 ft/min.
- D) 100 ft/min.

**12- Minimum drag speed ( $V_{MD}$ ) is:**

- A) Proportional to weight.
- B) A function of pressure altitude.
- C) A function of density altitude.
- D) Proportional to temperature.

**13- Which statement is correct for glide with maximum lift to drag ratio speed?**

- A) A tailwind component decreases the ground distance.
- B) A headwind component increases the ground distance.
- C) A tailwind component increases fuel and time to descent
- D) A headwind component decreases the ground distance.

**14- Which one gives the shortest gliding time?**

- A) Lower mass.
- B) A headwind.
- C) A tailwind.
- D) Higher mass.

**15- Flying the “backside of thrust curve” means:**

- A) The thrust required is independent of the airspeed.
- B) A lower airspeed requires more thrust.
- C) A thrust reduction results in an acceleration of the aeroplane.
- D) A lower airspeed requires less thrust because drag is decreased.

**16- In a glide by jet aeroplane the maximum range will be obtained by flying at:**

- A)  $V_{NE}$
- B)  $1.32 V_{MD}$
- C)  $V_{MD}$
- D)  $V_{MO} / M_{MO}$

**17- What condition is found at the intersection of the thrust available and the drag curve?**

- A) Un-accelerated flight in a climb.
- B) Accelerated climb.
- C) Un-accelerated level flight.
- D) Accelerated level flight.

**18- An aeroplane is flying at its maximum speed in level flight. Which of the following statements is correct?**

- A) Thrust is set for minimum drag.
- B) Aeroplane is flown at the best Lift to Drag ratio.
- C) Aeroplane has reached to maximum drag condition.
- D) Aeroplane has reached to minimum drag condition.

**19- Density altitude is the:**

- A) Pressure altitude corrected for nonstandard temperature.
- B) Altitude reference to the standard datum plane.
- C) Altitude read directly from the altimeter.
- D) Height above the surface.

**20- A reduction in air density causes:**

- A) An increase in  $C_L$ .
- B) An increase in takeoff distance.
- C) A decrease in takeoff distance.
- D) A decrease in  $C_L$ .

**21- Which one of the following statements is true concerning the effect of changes of ambient temperature on an areoplane's performance, assuming all other performance parameters remain constant?**

- A) An increase will cause a decrease in the landing distance required.
- B) An increase will cause a decrease in takeoff distance required.
- C) A decrease will cause an increase of the climb gradient.
- D) A decrease will cause an increase in the takeoff ground run.

**22- An aeroplane is climbing at a speed 10 kts lower than the speed for best rate of climb:**

- A) Angle of climb will decrease.
- B) Angle of climb will increase.
- C) Angle of climb will not change.
- D) Rate of climb will not change.

**23- In a power-off glide with piston engine aircraft in still air, to obtain the maximum glide range, the aircraft should be flown:**

- A) At a speed corresponding to the maximum lift to drag ratio.
- B) At a speed close to the stall.
- C) At a speed corresponding to the minimum drag coefficient.
- D) At a speed close to  $V_{NE}$ .

**24- If cruising into a 15 kts headwind and a 180° turn is made so the wind is directly behind the aircraft, the IAS would:**

- A) Be the same and the ground speed would increase by 30 kts.
- B) Be the same and the ground speed would increase by 15 kts.
- C) Decrease by 15 kts and the ground speed would increase by 15 kts.
- D) Increase by 30 kts and the ground speed would remain the same.

**25- How does the indicated airspeed for best angle of climb and best rate of climb vary with increasing altitude in jet aeroplane?**

- A) Both decrease.
- B) Both increase.
- C) Best angle of climb speed will constant while best rate of climb speed decreases.
- D) Best angle of climb decreases while best rate of climb increases.

**26- Considering TAS for maximum range and maximum endurance, if other factors remaining constant:**

- A) TAS for maximum range will increase with increased altitude while TAS for maximum endurance will decrease with increased altitude.
- B) Both will decrease with increasing altitude.
- C) Both will stay constant regardless of altitude.
- D) Both will increase with increasing altitude.

**27- Maximum endurance for jet aircraft:**

- A) Can be achieved in level unaccelerated flight with minimum fuel consumption.
- B) Can be achieved by flying at the best rate of climb speed in straight and level flight.
- C) Can be achieved in a steady climb.
- D) Can be achieved by flying at the absolute ceiling.

**28- Climbing to cruise altitude with a headwind will:**

- A) Increase time to climb.
- B) Decrease ground distance covered to climb.
- C) Decrease time to climb.
- D) Increase ground distance covered to climb.

**29- Suppose an aircraft is flying straight and level at specified height. If the mass were increased what actions would be necessary to maintain a constant angle of attack and altitude?**

- A) Decrease speed, increase power.
- B) Decrease speed, decrease power.
- C) Increase speed, decrease power.
- D) Increase speed, increase power.

**30- Climbing to cruise altitude in a tailwind will:**

- A) Decrease the time taken.
- B) Increase the ground distance covered.
- C) Increase the time taken.
- D) Increase the fuel flow rate.

**31- The effect of a decrease in air density is to:**

- A) Increase the takeoff distance and reduce the rate of climb.
- B) Decrease the takeoff distance and reduce the rate of climb.
- C) Decrease the takeoff distance and increase the rate of climb.
- D) Increase the takeoff distance and increase the rate of climb.

**32- Jet aeroplane is in a glide (power off descent) at the  $V_{MD}$ , if the pitch angle is increased the glide distance will:**

- A) Increase.
- B) Decrease.
- C) Remain constant.
- D) Depend on the aircraft.

**33- A higher temperature causes \_\_ in air density and \_\_ in lift.**

- A) Increase; decrease
- B) Decrease; increase
- C) Increase; increase
- D) Decrease; decrease

**34- How does an increase in aircraft mass affect the gliding range?**

- A) Has no effect on gliding range.
- B) Decreases gliding range.
- C) Increases gliding range.
- D) Decrease glide angle but gliding range increase.

**35- Uphill slope:**

- A) Increases the takeoff distance more than the accelerate stop distance required.
- B) Decreases the accelerate stop distance only.
- C) Decreases the takeoff distance only.
- D) Increases the allowed takeoff mass.

**36- A constant headwind component:**

- A) Increases the best rate of climb.
- B) Decreases the angle of climb.
- C) Increases the maximum endurance.
- D) Increases the angle of flight path during climb.

**37- The margin between the power available and the power required for jet engine aircraft:**

- A) Increases when the aircraft climbs.
- B) Decreases when the aircraft climbs.
- C) Decreases when the aircraft descends.
- D) Remains the same.

**38- What is the effect of increasing weight on  $V_s$ ?**

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Increases or decreases, depending on the amount of weight which increase.

**39- Relative to the ground, a headwind ..... the effective climb angle and a tailwind ..... the effective climb angle.**

- A) Increases, decreases
- B) Decreases, increases
- C) Increases, increases
- D) Decreases, decreases



**40- When does THRUST is equal to DRAG during flight?**

- A) Climbing at a constant IAS.
- B) Descending at a constant IAS.
- C) Flying level at a constant IAS.
- D) All answers are correct.

**41- Two identical aircraft, one with a light load and one with a heavy load, are in a glide descent from the same height in the same atmospheric conditions, the heavy aircraft will:**

- A) Require a faster speed to achieve the same descent angle as the lighter aircraft.
- B) Descend at the same angle with the same time in the descent but at a faster speed.
- C) Descend steeper, at a faster speed with a greater rate of descent.
- D) Descend at a steeper angle at a faster speed at the same rate of descent.

**42- What is the influence of the mass on maximum rate of climb (ROC) speed if all other parameters remain constant?**

- A) The ROC speed increases with increasing mass.
- B) The ROC speed decreases with increasing mass.
- C) The ROC is affected by the mass, but not the ROC speed.
- D) The ROC and the ROC speed are independent of the mass.

**43- For a given power setting in the climb, if the speed is increased:**

- A) The ROC will decrease if the speed is below  $V_y$ .
- B) The ROC will increase if the speed is below  $V_y$ .
- C) The gradient of climb will increase if the speed is above  $V_x$ .
- D) The gradient of climb will decrease if the speed is below  $V_x$ .

**44- What happens to the speeds,  $V_x$  and  $V_y$ , when lowering the aircraft's landing gear?**

- A)  $V_x$  increases,  $V_y$  decreases.
- B)  $V_x$  decreases,  $V_y$  decreases.
- C)  $V_x$  increases,  $V_y$  increases.
- D)  $V_x$  decreases,  $V_y$  increases.

**45- What happens to  $V_x$  and  $V_y$  in terms of TAS as altitude increases?**

- A)  $V_y$  remains constant and  $V_x$  decreases.
- B)  $V_y$  remains constant and  $V_x$  increases.
- C) Both will increase.
- D) Both remain constant.

**46- If the aircraft mass increases, how does the (i) rate of climb, and (ii) rate of climb speed change?**

- A) (i) Decreases, (ii) Increases.
- B) (i) Increases, (ii) Decreases.
- C) (i) Decreases, (ii) Decreases.
- D) (i) Increases, (ii) Increases.

**47- What effect has a downhill slope on the takeoff speeds? The slope:**

- A) Decreases the takeoff speed  $V_1$ .
- B) Decreases the TAS for takeoff.
- C) Increases the IAS for takeoff.
- D) Has no effect on the takeoff speed  $V_1$ .

**48- When in a gliding maneuver, in order to achieve maximum endurance, the piston engine aircraft should be flown at:**

- A) The speed for maximum lift.
- B) The speed for minimum drag.
- C) The speed for maximum lift/drag.
- D) The speed for minimum power.

**49- If the headwind is ... of takeoff speed the takeoff distance will decrease by ...**

- A) 19% - 10%
- B) 10% - 7%
- C) 10% - 19%
- D) 14% - 10%

**50- If tailwind is ..... take off speed the takeoff distance will increase by .....**

- A) 10% - 19%
- B) 14% - 21%
- C) 7% - 19%
- D) 10% - 21%

**51- What is the maximum allowable crosswind component of aircraft for which the  $V_{SO}$  is 70 kts?**

- A) 120 kts
- B) 15 kts
- C) 12 kts
- D) 14 kts

**52- Which statement is not correct about effect of increase weight on aircraft performance?**

- A) Increase service ceiling
- B) Increase takeoff distance
- C) Decrease climb performance
- D) Decrease acceleration

**53- Which of the following item has adversely effect on takeoff performance but is beneficial for landing performance?**

- A) Increase weight
- B) Positive runway gradient
- C) Negative runway gradient
- D) Humidity

**54- Negative runway gradient is good for landing but is not preferable for takeoff.**

- A) True
- B) False

**55- The maximum amount of friction is on .....**

- A) Wet runway
- B) Slushy runway
- C) Dry runway
- D) Grass runway

**56- “Hydroplaning “ is caused by .....**

- A) Thin layer of water that decrease braking action.
- B) Thin layer of snow that increase braking action.
- C) Thin layer of snow that separate the tires from runway.
- D) Thin layer of water that separate the tires from runway.

**57- “Dynamic Hydroplaning “ is defined as:**

- A) Standing water about one-tenth of one inch or more.
- B) Standing water or slush about one-thousands inch.
- C) A thin film of water, more than one-thousands inch.
- D) A thin film of water, not more than one- tenth of an inch.

**58- A lower temperature causes \_\_\_\_\_ in air density and \_\_\_\_\_ in drag.**

- A) Increase, decrease
- B) Decrease, increase
- C) Increase, increase
- D) Decrease, decrease

**59- Which runway has a minimum amount of braking action?**

- A) Dry
- B) Grass
- C) Wet
- D) All answers are correct

**60- One which Runway braking action completely lost?**

- A) Dry
- B) Slushy
- C) Wet
- D) Ice

**61- On which runway, aircraft roll-out increase:**

- A) Ice
- B) Slushy
- C) Wet
- D) All answers are correct

**62- Which statement is correct?**

- A)  $V_X$  is best angle of climb speed.
- B)  $V_X$  increase by altitude increase for piston engine aircraft.
- C)  $V_X$  increase engine temperature.
- D) All answers are correct.

**63- Which statement is correct?**

- A)  $V_X$  use for climb and obstacle clearance
- B)  $V_X$  is best angle of climb speed
- C)  $V_Y$  decrease by altitude increase for piston engine aircraft
- D) All answers are correct

**64- Which statement is correct?**

- A)  $V_X$  is difference between thrust horse power and thrust required.
- B)  $V_Y$  is difference between thrust horse power available and thrust horse power required.
- C) Max altitude gains in short distance when climb by  $V_X$ .
- D) B and C are correct.

**65- Which statement is correct?**

- A) Thrust required is constant by altitude increase.
- B) Maximum rate of climb in service ceiling is 100 ft/min for piston engine aircraft.
- C) Maximum rate of climb at absolute ceiling is zero.
- D) All answers are correct.

**66- Which statement is correct about absolute ceiling?**

- A) The point that  $V_x$  is equal to  $V_y$
- B) The rate of climb is zero
- C) The speed of aircraft in absolute ceiling is  $V_{ZRC}$
- D) All answers are correct

**67- High temperature reduces gas turbine engine performance about:**

- A) 7%
- B) 14%
- C) 20%
- D) 40%

**68- "Humidity" effects on:**

- A) Reciprocating engine more than jet engine.
- B) Reciprocating engine but has no effect on jet engine.
- C) Jet engine but has no effect on reciprocating engine.
- D) Jet engine more than reciprocating engine.

**69- Which symbol indicates minimum steady flight speed when airplane is still controllable?**

- A)  $V_S$
- B)  $V_{S1}$
- C)  $V_{S0}$
- D)  $V_{SC}$

**70- At which speed the pilot can control the airplane when critical engine is in operative but other engine is in Take-Off power.**

- A)  $V_S$
- B)  $V_{MC}$
- C)  $V_1$
- D)  $V_{MV}$

**71- " $V_1$ " is the speed defined as:**

- A) Lift off speed
- B) The safety speed
- C) Take off must be aborted when engine failure below  $V_1$
- D) All answers are correct

**72- " $V_R$ " is the speed defined as:**

- A) Rotation speed
- B)  $V_R$  may not be less than  $V_1$
- C) Wake turbulence commence from  $V_R$
- D) All answers are correct

**73- Which speed represents the takeoff safety speed?**

- A)  $V_{MC}$
- B)  $V_{LOF}$
- C)  $V_{MU}$
- D)  $V_2$

**74- At which speed the aircraft first becomes airborne?**

- A)  $V_{MC}$
- B)  $V_{LOF}$
- C)  $V_{MU}$
- D)  $V_2$

**75- Profile drag is:**

- A) Inversely proportional to the square root of the speed.
- B) Directly proportional to the square of the speed.
- C) Inversely proportional to the square of the speed.
- D) Directly proportional to the square root of the speed.

**76- What is the effect of head wind on angle and rate of climb during departure with constant IAS?**

- A) Improves angle and rate of climb.
- B) Does not have any effect on the angle of flight path during climb.
- C) Has no effect on rate of climb.
- D) Decreases angle and rate of climb.

**77- As speed is reduced below  $V_{MD}$ :**

- A) Drag decreases and speed stability increases.
- B) Drag decreases and speed stability decreases.
- C) Drag increases and speed stability increases.
- D) Drag increases and speed stability decreases.

**78- In jet engine aeroplane achieve the maximum range over ground with headwind the airspeed should be:**

- A) Reduced to the gust penetration speed.
- B) Equal to the speed for maximum range cruise with no wind.
- C) Lower compared to the speed for maximum range cruise with no wind.
- D) Higher compared to the speed for maximum range cruise with no wind.

**79- For a jet engine aircraft, the rate of climb is maximum when:**

- A) Angle of climb is maximum.
- B) Excess thrust is maximum.
- C) Lift is maximum.
- D) Excess power is maximum.

**80- What does density altitudes signify?**

- A) Pressure altitude.
- B) Flight levels.
- C) ISA altitude.
- D) An accurate indication of aircraft and engine performance conditions.

**81- In order to achieve the maximum rate of climb, jet aircraft should be flown at the indicated airspeed which:**

- A) Gives the best lift to drag ratio.
- B) Gives maximum excess power.
- C) Gives the best thrust to drag ratio.
- D) Give the best speed to drag ratio.

**82- For an aircraft gliding at its best glide range speed if angle of attack is reduced:**

- A) Glide distance will increase
- B) Glide distance will remain unaffected
- C) Glide distance will decrease
- D) Glide distance

**83- A change in aeroplane weight affects:**

- A) Glide angle.
- B) Glide speed.
- C) Glide angle and glide speed.
- D) Neither glide angle nor glide speed.

**84- Which of the following factors lead to the maximum flight time of a glide?**

- A) High mass.
- B) Headwind.
- C) Tailwind.
- D) Low mass.

**85- The landing distance required will be decreased as a result of:**

- A) Higher aircraft mass, higher air density, uphill runway slope.
- B) Higher aircraft mass, higher air density, downhill runway slope.
- C) Low aircraft mass, lower air density, uphill runway slope.
- D) Low aircraft mass, high air density, uphill runway slope.

**86- In term of indicated airspeed for jet aeroplane, the  $V_x$  and  $V_y$  with takeoff flaps will be:**

- A) Same as that for clean configuration.
- B) Higher than that for clean configuration.
- C) Lower than that for clean configuration.
- D) Changed so that  $V_x$  increases and  $V_y$  decreases compared to clean configuration.

**87- The pilot of a single engine aircraft has established the climb performance. The carriage of additional pieces of baggage will cause the climb performance to be:**

- A) Unchanged, if a short field takeoff is adopted.
- B) Improved.
- C) Unchanged.
- D) Degraded.

**88- Any acceleration in climb, with a constant power setting:**

- A) Decreases rate of climb and increases angle of climb.
- B) Improves the climb gradient if the airspeed is below  $V_x$ .
- C) Improves the rate of climb.
- D) Decreases the rate of climb and the angle of climb.

**89- Which of the following factors will lead to an increase of ground distance during a glide, while maintaining the appropriate minimum glide angle speed?**

- A) Decrease of aircraft mass and head wind.
- B) Increase of aircraft mass.
- C) Tailwind.
- D) Headwind.

**90- A headwind will:**

- A) Increase the flight path angle.
- B) Increase the angle of climb.
- C) Increase the rate of climb.
- D) Shorten the time of climb.

**91- A decrease in ambient temperature causes the absolute ceiling to:**

- A) Decrease.
- B) Increase.
- C) Remain unchanged.
- D) Increase subject to its relation to ISA.



**92- To maintain climb airspeed following an increase in temperature the rate of climb is:**

- A) Reduced
- B) Increased
- C) Zero
- D) Unaffected

**93- Which of the following will decrease the value of  $V_S$  in jet aeroplane?**

- A) The CG in an aft position within the CG envelope.
- B) Decrease altitude.
- C) Decreased weight.
- D) All answers are correct.

**94- With increasing altitude, the rate of climb:**

- A) Decreases because power available decreases and power required is constant.
- B) Increases because density and drag decrease.
- C) Decreases because power available decreases and power required increases.
- D) Decreases because power available is constant and power required increases.

**95- On a jet engine aeroplane, with increasing altitude at constant gross mass, angle of attack and configuration, the power required:**

- A) Increases and the TAS increases by the same percentage.
- B) Increases but TAS remains constant.
- C) Decreases slightly because of the lower air density.
- D) Remains unchanged but the TAS increases.

**96- An upward runway slope:**

- A) Decreases the accelerated stop distance available.
- B) Increases the accelerated stop distance available.
- C) Increases the takeoff distance required.
- D) Decreases the takeoff distance required.

**97- A higher outside air temperature:**

- A) Does not have any noticeable effect on climb performance.
- B) Increases the angle of climb but decreases the rate of climb.
- C) Reduces the angle and the rate of climb.
- D) Reduces the angle of climb but increases the rate of climb.

**98- As you accelerate in level flight from the speed at  $V_S$  to  $V_{MO}$  the total drag:**

- A) Decreases.
- B) Increases then decreases.
- C) Increases.
- D) Decreases then increases.

**99- The induced drag of an aeroplane:**

- A) Is independent of the airspeed.
- B) Increases with increasing airspeed.
- C) Decreases with increasing airspeed.
- D) Decreases with increasing gross weight.

**100- The best rate of climb speed at a constant gross mass:**

- A) Decreases with increasing altitude since the thrust available decreases due to the lower air density.
- B) Increases with increasing altitude since the drag decreases due to the lower air density.
- C) Increases with increasing altitude due to the higher true airspeed.
- D) Is independent of altitude.

**101- The angle of climb with flaps extended, compared to that with flaps retracted, will normally be:**

- A) Not changed.
- B) Larger.
- C) Smaller.
- D) Increase at moderate flap setting, decrease at large flap setting.

**102- Which of the following combinations adversely effect on takeoff and initial climb performance?**

- A) Low temperature and low relative humidity.
- B) Low temperature and high relative humidity.
- C) High temperature and low relative humidity.
- D) High temperature and high relative humidity.

**103- What is the minimum power required for jet engine aircraft?**

- A) Usually a constant at all altitudes.
- B) Minimum drag speed ( $V_{MD}$ )
- C) Above  $V_{MD}$
- D) Below  $V_{MD}$

**104- In a power-off glide, an increase in aircraft mass will:**

- A) Increase the glide angle and increase the speed for minimum glide angle.
- B) Not affect the glide angle, but increase the speed for minimum glide angle.
- C) Increase the glide angle, but not affect the speed for minimum glide angle.
- D) Not affect the glide angle, and not affect the speed for minimum glide angle.

**105- To obtain the maximum rate of climb:**

- A) Power available must be less than the power required.
- B) Power required must be less than the power available.
- C) Power available must be equal to power required.
- D) Thrust must exceed drag by the greatest margin.

**106- To maintain the same angle of attack and at a higher gross weight an aeroplane needs:**

- A) Less airspeed and same power.
- B) Same airspeed.
- C) More airspeed and less power.
- D) More airspeed and more power.

**107- Compared to ( $V_x$  and  $V_y$ ) in lower mass, ( $V_x$  and  $V_y$ ) in higher mass will be:**

- A) Lower.
- B) Same.
- C) Higher.
- D)  $V_x$  higher and  $V_y$  lower.

**108- During a climb with jet engines aircraft, the altitude where the rate of climb reduces to 500 ft/min is called:**

- A) Absolute ceiling.
- B) Service ceiling.
- C) Thrust ceiling.
- D) Maximum transfer ceiling.

**109- When flying in a headwind, the speed for maximum range should be:**

- A) Slightly decreased.
- B) Slightly increased.
- C) Unchanged.
- D) Should be increased or decreased depending on the strength of the wind.

**110- For a jet engine aeroplane, the speed for maximum range is:**

- A) That which gives the maximum value of lift.
- B) 1.32 times of  $V_{MD}$ .
- C) That which gives the minimum lift to drag ratio.
- D) 1.4 times the Stall speed in clean configuration.

**111- If the thrust available exceeds the thrust required for level flight:**

- A) The aeroplane decelerates if the altitude is maintained.
- B) The aeroplane descends if the airspeed is maintained.
- C) The aeroplane decelerates if it is in the region of reversed command.
- D) The aeroplane accelerates if the altitude is maintained.

**112- Which of the equations below expresses approximately the unaccelerated percentage climb gradient for small climb angles?**

- A)  $\text{Climb Gradient} = ((\text{Thrust} - \text{Drag}) \div \text{Weight}) \times 100$
- B)  $\text{Climb Gradient} = ((\text{Thrust} + \text{Drag}) \div \text{Lift}) \times 100$
- C)  $\text{Climb Gradient} = ((\text{Thrust} - \text{Mass}) \div \text{Lift}) \times 100$
- D)  $\text{Climb Gradient} = (\text{Lift} \div \text{Weight}) \times 100$

**113- The TODA is:**

- A) Declared runway length plus clearway and stopway.
- B) Declared runway length plus stopway.
- C) Declared runway length plus clearway.
- D) Declared runway length only.

**114-  $V_1$  has to be:**

- A) Higher than  $V_R$ .
- B) Equal to or higher than  $V_2$ .
- C) Equal to or higher than  $V_{MCG}$ .
- D) Equal to or higher than  $V_{MCA}$ .

**115-  $V_R$  must be:**

- A) Between  $1.05 V_{MCA}$  and  $V_1$ .
- B) Greater than  $V_{MCA}$  and greater than  $1.1 V_1$ .
- C) Greater than  $1.05 V_{MCA}$  and not less than  $V_1$ .
- D) No greater than  $0.95 V_{MU}$ .

**116- What happens to the field limited Takeoff Mass with runway slope?**

- A) It increases with a downhill slope.
- B) It is unaffected by runway slope.
- C) It decreases with a downhill slope.
- D) It increases with an uphill slope.

**117- For a turbojet aeroplane the 3<sup>rd</sup> segment of takeoff climb begins when:**

- A) Acceleration to flap retraction speed begins (min 400 ft).
- B) Landing gear is fully retracted.
- C) Acceleration from  $V_{LOF}$  to  $V_2$  begins.
- D) Flaps are fully retracted.

**118- For a turbojet aeroplane the 2<sup>nd</sup> segment of the takeoff climb begins when:**

- A) Accelerating from  $V_2$  to flap retraction speed begins.
- B) Landing gear is fully retracted.
- C) Flap retraction begins.
- D) Flaps are fully retracted.

**119- The speed  $V_2$  is defined for jet aeroplane as:**

- A) Takeoff safety speed.
- B) Lift off speed.
- C) Takeoff decision speed.
- D) Critical engine failure speed.

**120- The speed  $V_1$  is defined as:**

- A) Takeoff decision speed.
- B) Takeoff climb speed.
- C) Speed for best angle of climb.
- D) Engine failure speed.

**121- What is the stalling speed at specific configuration?**

- A)  $V_{S0}$
- B)  $V_S$
- C)  $V_{ST}$
- D)  $V_{S1}$

**122- Which factor does effect on  $V_{S1}$  in jet aeroplane?**

- A) Weight
- B) Configuration
- C) Altitude
- D) All answers are correct

**123- The stalling speed for piston engine aircraft at specific configuration increase significantly by altitude increase.**

- A) True
- B) False

**124- Which factor does effect on  $V_{S1}$  for piston engine aircraft?**

- A) Weight
- B) Configuration
- C) Altitude
- D) A and B are correct

**125- Which statement regarding  $V_1$  is correct?**

- A) When determining  $V_1$ , reverse thrust may only be used on the remaining symmetric engines.
- B) The correction for upslope on the balanced  $V_1$ , is negative.
- C)  $V_R$  may not be lower than  $V_1$ .
- D)  $V_1$  may not be higher than  $V_{MCG}$ .

**126- A balanced field exists if:**

- A)  $TORA = EDA$ .
- B)  $TORA = TODA$ .
- C)  $TODA$  is greater than  $EDA$ .
- D)  $TODA = ASDA$ .

**127- During takeoff the third segment begins:**

- A) When acceleration starts from  $V_{LOF}$  to  $V_2$ .
- B) When flap retraction is completed.
- C) When acceleration to flap retraction speed is started.
- D) When landing gear is fully retracted.

**128- When climbing at a constant Mach number in the troposphere, what is the effect on (i) IAS and (ii) TAS?**

- A) (i) increases, (ii) decreases
- B) (i) remains constant, (ii) decreases
- C) (i) decreases, (ii) increases
- D) (i) decreases, (ii) decreases

**129- In a constant Mach number climb, how does True Airspeed vary?**

- A) Remains constant.
- B) Decreases.
- C) Increases.
- D) Increases then decreases.

**130- When climbing at a constant Mach number through the troposphere, TAS:**

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Increases then decreases.

**131- A jet aeroplane is climbing at constant Mach number below the tropopause. Which of the following statements is correct?**

- A) IAS increases and TAS decreases.
- B) IAS increases and TAS increases.
- C) IAS decreases and TAS increases.
- D) IAS decreases and TAS decreases.

**132- As altitude increases the stalling speed of an aircraft in terms of IAS \_\_\_\_\_, TAS \_\_\_\_\_ and Mach number \_\_\_\_\_. (with constant Thrust Available)**

- A) Remains constant, increases, decreases
- B) Increases, increases, decreases
- C) Remains constant, increases, increases
- D) Increases, decreases, increases

**133- A jet aeroplane is climbing at a constant IAS and maximum climb thrust, how will the climb angle / the pitch angle change?**

- A) Reduce / decrease.
- B) Reduce / remain constant.
- C) Remain constant / decrease.
- D) Remain constant / become larger.

**134- The optimum cruise altitude increases:**

- A) If the temperature (OAT) is increased.
- B) If the tailwind component is decreased.
- C) If the aeroplane mass is increased.
- D) If the aeroplane mass is decreased.

**135- Specific Range will:**

- A) Decrease if CG is moved further forward of the CP.
- B) Increase if CG is moved further forward of the CP.
- C) Not be affected by CG position.
- D) Only be affected by CG position, if it is behind the CP.

**136- The optimum altitude:**

- A) Decreases as mass decreases.
- B) Increases as mass decreases and is the altitude at which the specific range reaches its maximum.
- C) Is the altitude at which the specific range reaches its minimum.
- D) Is the altitude up to which cabin pressure of 8000 ft can be maintained.

**137- Maximum endurance:**

- A) Can be flown in a steady climb only.
- B) Is the same as maximum specific range with wind correction.
- C) Is achieved in unaccelerated level flight with minimum fuel consumption.
- D) Can be reached with the best rate of climb speed in level flight.

**138- " $V_2$ " is the speed that define as:**

- A) Must be attained before reaching a height of 35 ft AGL with all engine operative.
- B) Takeoff decision speed.
- C) Meet the requirement of climb gradient to 3000 ft.
- D) In some case would be less than  $V_{2min}$ .

**139- What is the stalling speed with the landing configuration?**

- A)  $V_{S1}$
- B)  $V_S$
- C)  $V_{SO}$
- D)  $V_{ST}$

**140- Which one is correct?**

- A)  $V_1 < V_R < V_{MU} < V_{2MIN} < V_2$
- B)  $V_1 < V_R < V_{MU} < V_{LOF} < V_{2MIN} < V_2$
- C)  $V_1 < V_{MU} < V_R < V_{LOF} < V_{2MIN} < V_2$
- D)  $V_1 < V_R < V_{MU} < V_{2MIN} < V_{LOF} < V_2$

**141- Which one is correct?**

- A)  $V_{LOF}$  is a speed that aircraft first become airborne.
- B) The takeoff must be aborted if engine failure occurs at a speed above  $V_1$  but below  $V_2$ .
- C)  $V_{2min}$  is a speed that airplane can safely lift off the ground.
- D) All answers are correct.

**142- "ASDA" is defined as:**

- A) The length of runway plus stopway.
- B) Assuming the critical engine to fail at  $V_1$ .
- C) ASDA use for takeoff and landing.
- D) All answers are correct.

**143- The balance field length is area define as:**

- A)  $ASDA > TODA$
- B)  $TODA > ASDA$
- C) Stopway = Clearway
- D) Depend to Runway length

**144- Which is correct about clearway?**

- A) Minimum width is 500 ft
- B) Maximum climb gradient in clearway 1.25%
- C) Maximum length of clearway is one-half of the runway
- D) All answers are correct



**145- "Clearway " is the area defined as:**

- A) Is area on the ground.
- B) Clearway is suitable for stop after aborted takeoff.
- C) Is area extending into the air from the end of runway.
- D) A and B are correct.

**146- "Clearway " is the area defined as:**

- A) Clearway use for aborted takeoff.
- B) Provide additional takeoff distance for climb.
- C) Clearway use for computing ASDA.
- D) Clearway does not provide extra distance after liftoff.

**147- "Stopway " is the area defined as:**

- A) Area beyond takeoff runway which use for aborted takeoff.
- B) Over run is another name of stopway.
- C) Use for takeoff computation only.
- D) All answers are correct.

**148- "Takeoff distance" is the distance from:**

- A) Starting point up to 35 ft height AGL.
- B) The point of break releases up to 50 ft AGL with engine failure.
- C) Starting point up to 50 ft AGL with all engine operative.
- D) Starting point up to 35 ft height AGL with critical engine failure.

**149- Which statement is correct?**

- A) Takeoff distance with critical engine failure is from stating point up to 50 ft AGL.
- B) Takeoff distance with all engine operative is 1.15 times of TODR with critical engine failure.
- C) Take off distance with all engine operative is lesser then distance with critical engine failure.
- D) All answers are correct.

**150- "Takeoff Run" is a distance .....**

- A) From starting point up to mid-point of lift off and 35 ft height AGL with critical engine failure at  $V_1$ .
- B) From starting point up to lift off point.
- C) From starting point up to 50 ft height of AGL.
- D) None.

**151- Which statement is correct?**

- A) Takeoff run is a distance from starting point up to midpoint between lift off point and 35 ft height AGL for critical engine failure at  $V_1$ .
- B) Takeoff run for all engine operative is 1.15 times of takeoff run with critical engine failure.
- C) Takeoff run for all engine operative is greater than takeoff run with critical engine failure.
- D) All answers are correct.

**152- “Ground roll “ is a distance from .....**

- A) Starting point up to lift off point.
- B) Starting point up to 35 ft height AGL.
- C) Starting point up to 50 ft height AGL.
- D) Starting point up to mid-point between lift off point and 35 ft height AGL.

**153- “Landing distance” is measure from .....**

- A) 35 ft height above landing surface
- B) 50 ft height above landing surface
- C) 60 ft height above landing surface
- D) 70 ft height above landing surface

**154- Which statement is correct?**

- A) Landing distance is determined from 50 ft above landing surface until aircraft stop completely.
- B) Landing distance must not be greater than 60% of effective runway.
- C) Landing distance must not be greater than 60% of effective runway in alternate aerodrome.
- D) All answers are correct.

**155- Which statement is correct?**

- A) Climb gradient is the flight path achieved.
- B) Clearway begins at the end of stopway.
- C) Stopway use for both takeoff & landing computations.
- D) All answers are wrong.

**156- What is the takeoff distance with all engines are operating?**

**Distance between starting point and LOF point = 5000 ft**

**Distance between LOF point and 35 ft height = 1000 ft**

- A) 6000 ft
- B) 6900 ft
- C) 5000 ft
- D) 6325 ft

**157- Optimum altitude can be defined as:**

- A) The highest permissible altitude for an aeroplane type.
- B) The altitude at which an aeroplane attains the maximum specific air range.
- C) The altitude at which the ground speed is greatest.
- D) The altitude at which specific fuel consumption is highest.

**158- The optimum cruise altitude is:**

- A) The pressure altitude at which the best specific range can be achieved.
- B) The pressure altitude at which the fuel flow is a maximum.
- C) The pressure altitude up to which a cabin altitude of 8000 ft can be maintained.
- D) The pressure altitude at which the speed for high speed buffet as TAS is a maximum.

**159- The optimum altitude for a turbojet is:**

- A) When the stall speed equals  $V_{P\ MIN}$ .
- B) When the TAS at the buffet boundary is greatest.
- C) Where fuel consumption is highest.
- D) When specific range is a maximum.

**160- For a turbojet flying at maximum range speed the angle of attack:**

- A) Will be more than that for the maximum L/D ratio.
- B) Will be less than that for the maximum L/D ratio.
- C) Will be that for the maximum L/D ratio.
- D) Will be that for  $C_{L\ MAX}$ .

**161- Which of the following statements about the optimum flight level is true?**

- A) ATC never allow you to fly at it continuously.
- B) You should always fly at this level because it is the most economically variable.
- C) You should always fly above it.
- D) You should always fly below it.

**162- A jet aeroplane descends with constant Mach number, which of the following speed limits is most likely to be exceeded first?**

- A) Maximum operational Mach number.
- B) Never exceed speed.
- C) High speed buffet limit.
- D) Maximum operating speed.

**163- If an aircraft is descending at a constant Mach number:**

- A) The IAS will increase and the margin to low speed buffet will decrease.
- B) The IAS will increase and the margin to low speed buffet will increase.
- C) The IAS will decrease and the margin to low speed buffet will decrease.
- D) The IAS will decrease and the margin to low speed buffet will increase.

**164- When in a gliding maneuver with jet aeroplane, in order to achieve maximum endurance, the aircraft should be flown at:**

- A) The speed for maximum lift.
- B) The speed for maximum drag.
- C) The speed for maximum lift-to-drag ratio.
- D) The speed for minimum power.

**165- Given:**

**Distance from starting point to LOF point is 5000 ft**

**Distance from LOF point up to midpoint between liftoff and 35 ft height (AGL) is 500 ft**

**Find takeoff distance when critical engine is failed:**

- A) 6000 ft
- B) 6900 ft
- C) 5000 ft
- D) 6325 ft

**166- Find "Takeoff distance" for aircraft with critical engine failure when:**

**Distance from starting point up to LOF point = 5000 ft**

**Distance from LOF point up to 35 ft height AGL = 1000 ft**

- A) 6000 ft
- B) 6900 ft
- C) 5000 ft
- D) 6325 ft

**167- Find "ASDA" when:**

**Runway length = 8000 ft**

**Clearway = 6000 ft**

**Stopway = nil**

- A) 14000 ft
- B) 12000 ft
- C) 11000 ft
- D) 8000 ft

**168- Find "TODA" when:**

**TORA = 8000 ft**

**Clearway = 6000 ft**

**Stopway = 3000 ft**

- A) 14000 ft
- B) 12000 ft
- C) 11000 ft
- D) 8000 ft

**169- Find "TODA" when:**

**Runway length = 7000 ft**

**Stopway = 3000 ft**

**Clearway = 2000 ft**

- A) 7000 ft
- B) 10000 ft
- C) 9000 ft
- D) 8500 ft

**170- What is the length of displaced threshold?**

**Runway length = 9000 ft**

**Stopway = 800 ft**

**Clearway = 3000 ft**

- A) 9000 ft
- B) 8200 ft
- C) 6000 ft
- D) Zero

**171- What is the length of displaced threshold?**

**Runway length = 10000 ft**

**Landing distance available = 9500 ft**

**Stopway = 400 ft**

- A) 400 ft
- B) 500 ft
- C) 1000 ft
- D) 10000 ft

**172- What is the landing distance from 50 ft above surface when?**

**Landing runway length = 10000 ft**

**Stopway = 1000 ft**

- A) 10000 ft
- B) 11000 ft
- C) 6000 ft
- D) 10600 ft

**173- What is the Landing distance at destination alternate aerodrome?**

**Destination alternate runway length = 10000 ft**

**Destination aerodrome runway length = 8000 ft**

**Stopway = 4000 ft**

- A) 4800 ft
- B) 6000 ft
- C) 8400 ft
- D) 7200 ft

**174- The first segment of climb is .....**

- A) Actual lift off to landing gear retraction.
- B) Actual lift off to gear & flaps up.
- C)  $V_1$  point up to gear retraction.
- D)  $V_1$  point up to gear & flaps retraction.

**175- The second segment of climb is from .....**

- A) Gear & flaps retract up to 400 ft above AGL
- B) Gear retract up to 400 ft above AGL
- C) Gear & flaps retract up to 1500 ft above AGL
- D) Gear retract up to 1500 ft above AGL

**176- The third segment of climb is from .....**

- A) 400 ft AGL up to 1000 ft AGL
- B) Flap retraction up to 1500 ft AGL
- C) 400 ft AGL up to 1500 ft AGL
- D) Gear retraction up to 1000 ft AGL

**177- Which take off limitation for a turbine engine air carrier airplane must not exceed 11100 feet when (1) runway length is 8600 feet (2) stopway is 2500 feet and (3) the clearway is 4200 feet?**

- A) Take off path
- B) Take off distance
- C) Accelerate stop distance
- D) Take off run

**178- What is the maximum accelerate stop distance for a turboprop powered air carrier airplane?**

**Runway length                      8800 feet**

**Clearway length                    4450 feet**

**Stopway length                    2700 feet**

- A) 13250 feet
- B) 11500 feet
- C) 10225 feet
- D) 8300 feet

**179- Defines  $V_{SO}$ , as the stalling speed or the minimum steady flight speed:**

- A) In the landing configuration
- B) In the takeoff configuration
- C) With the critical engine operative
- D) At which the airplane is controllable

**180- What approximate speed should you expect dynamic hydroplaning to occur if a tire has an air pressure of 95 PSI?**

- A) 84 knots
- B) 87 knots
- C) 90 knots
- D) 93 knots

**181- What approximate speed should you expect dynamic hydroplaning to occur if a tire has an air pressure of 115 PSI?**

- A) 89 knots
- B) 92 knots
- C) 95 knots
- D) 98 knots

**182- Which is the correct symbol for the stalling speed or the minimum steady flight speed at which the airplane is controllable?**

- A)  $V_{SO}$
- B)  $V_2$
- C)  $V_S$
- D)  $V_{S1}$

**183- What is the stall speed of an airplane under a load factor of 2 G's if the unaccelerated stall speed is 100 knots?**

- A) 66 knots
- B) 74 knots
- C) 84 knots
- D) 141 knots

**184- Which is the correct symbol for indicating absolute ceiling speed?**

- A)  $V_{s1}$
- B)  $V_s$
- C)  $V_{ZRC}$
- D)  $V_2$

**185- Which is the correct symbol for best endurance speed?**

- A)  $V_{BE}$
- B)  $V_s$
- C)  $V_{BR}$
- D)  $V_{2min}$

**186- Which is the correct symbol for best range speed?**

- A)  $V_{MA}$
- B)  $V_{MO}$
- C)  $V_{BE}$
- D)  $V_{BR}$

**187- What is the maximum takeoff run for a turbine engine transport category aircraft on the runway?**

<b>Runway length</b>	<b>8800 feet</b>
<b>Clearway length</b>	<b>3000 feet</b>
<b>Stopway length</b>	<b>1000 feet</b>

- A) 8800 feet
- B) 9000 feet
- C) 9500 feet
- D) 11000 feet

**188- Which computation must not exceed the length of a runway plus the length of the stopway for a turbine engine powered transport category airplane?**

- A) Take off run
- B) Accelerate stop distance
- C) Take off distance
- D) Take off path



**189- What is the maximum takeoff run for a turbine powered domestic air carrier airplane?**

Available runway length      6500 ft  
Length of clearway              3500 ft  
Length of stopway               1500 ft

- A) 10000 feet
- B) 9750 feet
- C) 3000 feet
- D) 6500 feet

**190- In a constant Mach descent which one of the following speeds will be exceeded first?**

- A)  $V_{NE}$
- B)  $V_D$
- C)  $V_{MO}$
- D)  $M_{MO}$

**191- A stall warning system is based on a measure of:**

- A) Attitude.
- B) Airspeed.
- C) Aerodynamic incidence.
- D) Ground speed.

**192- An airplane is in steady descent, the auto-throttle maintains a constant Mach number, if the total temperature remains constant, the calibrated airspeed:**

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Decreases if the static temperature is lower than the standard temperature, increases if above.

**193- An aeroplane is in steady cruise at FL270. The auto throttle maintains a constant calibrated airspeed. If the total temperature increases, the Mach number:**

- A) Decreases.
- B) Increases.
- C) Remains constant.
- D) Decreases if the outside temperature is higher than the standard temperature, increases if lower.

**194- An aeroplane is in steady cruise at FL270. The auto-throttle maintains a constant calibrated airspeed. If the total temperature decreases, the Mach number:**

- A) Increases if the outside temperature is higher than the standard temperature, decreases if lower.
- B) Increases.
- C) Decreases.
- D) Remains constant.

**195- An aeroplane is in steady descent. The auto-throttle maintains a constant calibrated airspeed. If the total temperature remains constant, the Mach number:**

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Increases if the static temperature is lower than the standard temperature, decreases if higher.

**196- An airplane is in steady cruise at FL290. The auto throttle maintains a constant Mach number. If the total temperature decreases, the calibrated airspeed:**

- A) Decreases if the outside temperature is lower than the standard temperature, increases if higher.
- B) Increases.
- C) Decreases.
- D) Remains constant.

**197- Considering the maximum operational Mach number ( $M_{MO}$ ) and the maximum operational speed ( $V_{MO}$ ) ft the captain of a pressurized aircraft begins his descent from a high flight level. In order to meet his scheduled time of arrival, he decides to use the maximum ground speed at any time of the descent. He will be limited:**

- A) Initially by the  $V_{MO}$  then by the  $M_{MO}$  below a certain flight level.
- B) By the  $M_{MO}$ .
- C) By the  $V_{MO}$  in still air.
- D) Initially by the  $M_{MO}$  then by the  $V_{MO}$  below a certain flight level.

**198- An airplane is cruising at FL190, the auto-throttle maintains a constant CAS, if the total temperature decreases, the Mach number:**

- A) Remains constant.
- B) Increases.
- C) Decrease.
- D) Decrease if OAT is lower than standard.

**199- At flight level and Mach number constant, if the total temperature decreases, the CAS:**

- A) Decreases if OAT is lower than standard temperature, increases in the opposite case.
- B) Increases.
- C) Decreases.
- D) Remains constant.

**200- Below the tropopause in standard conditions, when climbing at a constant Mach number:**

- A) TAS decreases.
- B) TAS increases.
- C) TAS remains constant.
- D) The difference between surrounding conditions and ISA must be known to deduce the TAS variation.

**201- Below the tropopause in standard conditions, when descending at a constant CAS:**

- A) Mach number and the velocity of sound decrease.
- B) Mach number increases and the velocity of sound decreases.
- C) Mach number and the velocity of sound increase.
- D) Mach number decreases and the velocity of sound increases.

**202- Below the tropopause in standard conditions, when descending at a constant Mach number:**

- A) TAS remains constant.
- B) TAS decreases.
- C) TAS increases.
- D) The difference between surrounding conditions and ISA must be known to deduce the TAS variation.

**203- During a climb at a constant calibrated airspeed (CAS) below the tropopause in ISA conditions:**

- A) The Mach number decreases and the speed of sound increases.
- B) The Mach number increases and the speed of sound decreases.
- C) The Mach number and the speed of sound increase.
- D) The Mach number and the speed of sound decrease.

**204- The Mach number is proportional to the ratio:**

**(Note: "a" indicates the local speed of sound)**

- A)  $EAS \div a$
- B)  $CAS \div a$
- C)  $TAS \div a$
- D)  $IAS \div a$

**205- The maximum TAS is obtained at:**

- A) The maximum flight level.
- B) The flight level at which simultaneously  $CAS = V_{MO}$  and  $M = M_{MO}$
- C) All the flight level(s) where  $CAS = V_{MO}$
- D) All the flight level(s) where  $M = M_{MO}$

**206- When climbing at a constant CAS in a standard atmosphere:**

- 1) TAS decreases.
- 2) TAS increases.
- 3) Mach number increases.
- 4) Mach number decreases.

**The combination regrouping all the correct statements is:**

- A) 1,4
- B) 2,4
- C) 1,3
- D) 2,3

**207- When climbing at a constant CAS:**

- A) Mach number decreases.
- B) Mach number increases.
- C) Mach number remains constant.
- D) The difference between surrounding conditions and ISA must be known to deduce the Mach number variation.

**208- You are flying at a constant FL290 and constant Mach number, the total temperature increases by 5°C, the CAS will:**

- A) Remain approximately constant.
- B) Increase by 10 kts.
- C) Decrease by 10 kts.
- D) Increase or decrease depending on whether you are above or below ISA.

**209- The yaw damper indicator supplies the pilot with information regarding the:**

- A) Yaw damper action only on the ground.
- B) Rudder displacement by the rudder pedals.
- C) Yaw damper action on the rudder.
- D) Rudder position.

**210- The yaw damper, which suppresses Dutch roll:**

- A) Controls the rudder, with Mach number as the input signal.
- B) Controls the ailerons, with Mach number as the input signal.
- C) Controls the rudder, with the angular rate about the vertical axis as the input signal.
- D) Controls the ailerons, with the angular rate about the vertical axis as the input signal.

**211- The yaw damper affects:**

- A) Ailerons only.
- B) All control surfaces in a coordinated way.
- C) Ailerons and rudder.
- D) Rudder only.

**212- The Yaw Damper system:**

- 1) Counters any wrong pilot action on the rudder pedals
- 2) Counters Dutch roll
- 3) Is active only when autopilot is engaged

**The combination regrouping all the correct statements are:**

- A) 1,2
- B) 1,2,3
- C) 2
- D) 2,3

**213- The correct sequence of speeds in climb is:**

- A)  $V_S$ ,  $V_X$ ,  $V_Y$ .
- B)  $V_X$ ,  $V_S$ ,  $V_Y$ .
- C)  $V_S$ , max range speed, max endurance speed.
- D) Max endurance speed,  $V_S$ , max range speed.

**214- The speed for best rate of climb:**

- A) May be higher or lower than the speed for best angle of climb depending on helicopter type.
- B) Will be the same as the speed for best angle of climb under any circumstances.
- C) Will be equal or higher than the speed for best angle of climb.
- D) Lower than the speed for the best angle of climb.

**215- An aircraft with a Centre of Gravity towards the aft limit will experience:**

- A) An increased range and increased stalling speed.
- B) A decreased range and increased stalling speed.
- C) An increased range and decreased stalling speed.
- D) A decreased range and decreased stalling speed.

**216- Changing the takeoff flap setting from flap 15° to flap 5° will normally result in:**

- A) A shorter takeoff distance and an equal climb.
- B) A longer takeoff distance and a better climb.
- C) A better climb and an equal takeoff distance.
- D) A shorter takeoff distance and a better climb.

**217- An aircraft has two certified landing flaps positions, 25° and 35°, if a pilot chooses 35° instead of 25°, the aircraft will have:**

- A) A reduced landing distance and better go-around performance.
- B) A reduced landing distance and degraded go-around performance.
- C) An increased landing distance and degraded go-around performance.
- D) An increased landing distance and better go-around performance.

**218- Aft center of gravity (within the approved limits):**

- A) Increases maximum range.
- B) Improves longitudinal stability.
- C) Decreases maximum range.
- D) Increases stalling speed.

**219- Heavy rain may temporarily cause:**

- A) Increased weight.
- B) Increased stalling speed.
- C) Reduced forward speed.
- D) All answers are correct.

**220- What is the effect of increased mass on the best rate of climb speed (all other factors considered unchanged)?**

- A) Speed for maximum rate of climb increases with increasing mass.
- B) Maximum rate of climb is dependent of mass, but not the speed for maximum rate of climb.
- C) Speed for maximum rate of climb decreases with increasing mass.
- D) Maximum rate of climb and the corresponding speed are dependent of mass.

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	B	26	D	51	D	76	C
2	C	27	A	52	A	77	D
3	A	28	B	53	B	78	D
4	D	29	D	54	B	79	D
5	D	30	B	55	C	80	D
6	B	31	A	56	A	81	B
7	B	32	B	57	A	82	C
8	A	33	D	58	C	83	B
9	B	34	A	59	C	84	D
10	D	35	A	60	D	85	D
11	B	36	D	61	D	86	C
12	A	37	B	62	D	87	D
13	D	38	A	63	D	88	D
14	D	39	A	64	D	89	C
15	B	40	C	65	D	90	A
16	B	41	A	66	D	91	B
17	C	42	A	67	C	92	A
18	C	43	B	68	B	93	D
19	A	44	B	69	A	94	C
20	B	45	C	70	B	95	A
21	C	46	A	71	C	96	C
22	B	47	A	72	D	97	C
23	A	48	D	73	D	98	D
24	A	49	C	74	B	99	C
25	C	50	D	75	B	100	A

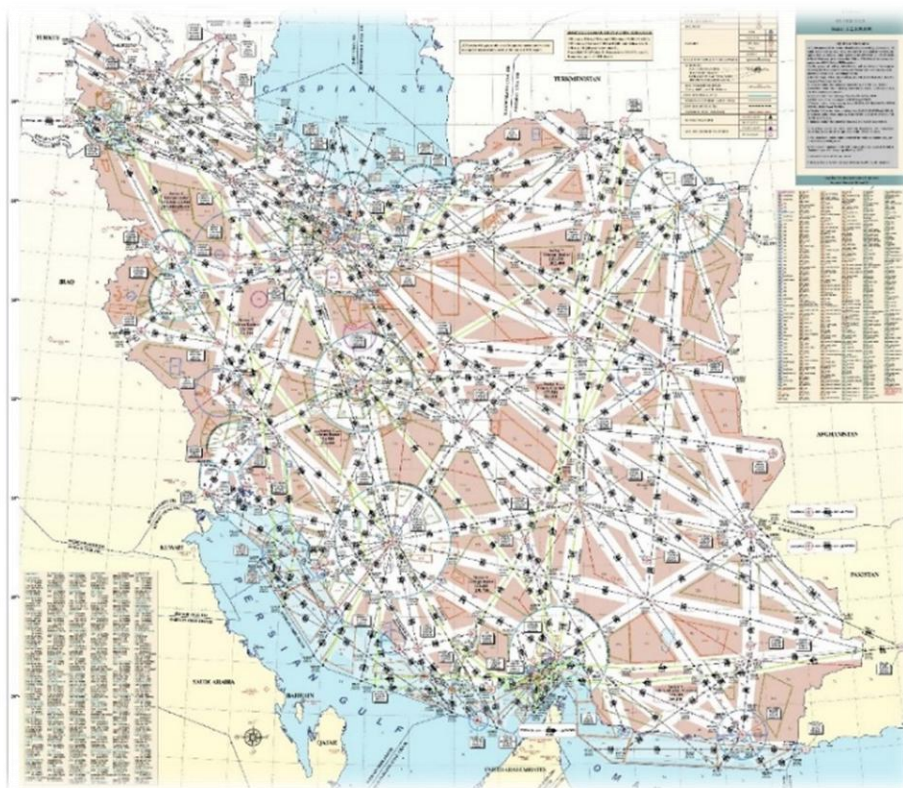
QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	C	126	D	151	D	176	C
102	D	127	C	152	A	177	C
103	B	128	D	153	B	178	B
104	B	129	B	154	D	179	A
105	B	130	B	155	D	180	A
106	D	131	D	156	B	181	B
107	C	132	C	157	B	182	C
108	B	133	A	158	A	183	D
109	B	134	D	159	D	184	C
110	B	135	A	160	B	185	A
111	D	136	B	161	A	186	D
112	A	137	C	162	D	187	A
113	C	138	A	163	B	188	A
114	C	139	C	164	C	189	D
115	C	140	B	165	A	190	C
116	A	141	A	166	A	191	C
117	A	142	A	167	D	192	A
118	B	143	C	168	B	193	C
119	A	144	D	169	C	194	D
120	A	145	C	170	D	195	B
121	D	146	B	171	B	196	D
122	D	147	D	172	C	197	D
123	B	148	D	173	B	198	A
124	D	149	B	174	A	199	D
125	C	150	A	175	B	200	A



QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
201	D	206	D	211	D	216	B
202	C	207	B	212	C	217	B
203	B	208	A	213	A	218	A
204	C	209	C	214	C	219	D
205	B	210	C	215	C	220	A



# AIRWAY MANUAL



➤ Issue Date February 2017

## ✓ INTRODUCTION

**1- What is the meaning of an “X” along an airway structure?**

- A) Mileage break.
- B) Turning point.
- C) Computer navigation fix.
- D) All answers are correct.

**2- What is the meaning of “O>” on an airway?**

- A) Odd and even level will be used in opposite direction.
- B) Odd level is used in the direction of arrow.
- C) Odd level is used on one-way airway on the direction of arrow.
- D) Even level will be used in opposite direction.

**3- What is the meaning of a waypoint placed within a circle on SID or STAR chart?**

- A) Turning point.
- B) Fly over fix.
- C) Fly by fix.
- D) Reporting point.

**4- When the geographical co-ordination of the site of a navigation aid may be shown on an en-route chart?**

- A) The facility used for high altitude.
- B) The facility used for low altitude.
- C) The facility used for VFR.
- D) A & B are correct.

**5- The “M” shown on an identification of a VOR or NDB on an en-route chart means this station is selected as?**

- A) Meteorological reporting station by MET office.
- B) Meteorological reporting station by ATS until.
- C) Meteorological reporting station by VOLMET.
- D) Meteorological reporting station by pilot.

**6- What is the meaning of “G” as a suffix to the level, indicated on an airway?**

- A) MORA
- B) GPS MEA
- C) GRID MORA
- D) MOCA

**7- How a ghost VOR may be shown on an enroute chart?**

- A) Within brackets.
- B) Remote site.
- C) Within parentheses.
- D) Above NAV aid name.

**8- The "⊥" symbol shown on the center line of a route on an airway chart mean?**

- A) Change of MOCA.
- B) Change of MORA.
- C) Change of MAA.
- D) All answers are correct.

**9- For which enroute facility change-over-point may be established?**

- A) VOR
- B) DME
- C) TACAN
- D) NDB

**10- What is the meaning of an asterisk on a frequency?**

- A) Operating all the time.
- B) Operating not continues.
- C) Operating when requested.
- D) Operating day time.

**11- What is the term of beginning of final approach segment of precision approach?**

- A) FAP (USA)
- B) FAP (ICAO)
- C) FAF (USA)
- D) B & C are correct

**12- The unboxed identification of navigation aid on a low and high altitude chart means:**

- A) En-route facility.
- B) Off airway facility.
- C) Off chart facility.
- D) VFR facility.

**13- How the MOCA may be shown on an enroute chart?**

- A) By (A)
- B) By (g)
- C) By (T)
- D) By (D)

**14- What is the meaning of shaded symbol on an en-route chart coverage diagram?**

- A) Main airport
- B) Area chart coverage
- C) CTA
- D) TMA

**15- The altitude of 5600 ft on a profile view of an approach chart means?**

- A) Maximum altitude.
- B) Mandatory altitude.
- C) Minimum altitude.
- D) Recommended altitude.

**16- How the location of FAF may be identified on the profile view of approach chart?**

- A) By Maltese cross symbol.
- B) By an asterisk.
- C) By the FAF.
- D) All above maybe used.

**17- What is the meaning of letter (R) after the air traffic service unit?**

- A) RNAV
- B) RNP
- C) Radar capability
- D) Radio

**18- What is the meaning of Grid MORA following by “±”?**

- A) Doubtful accuracy.
- B) Doubtful clearance.
- C) Doubtful position.
- D) Doubtful planning.

**19- How an uncontrolled airspace may be shown on an airway chart?**

- A) White
- B) Red
- C) Tint
- D) Yellow

**20- Location name in blue means?**

- A) Procedure are published.
- B) VFR procedure are published.
- C) IFR procedure are published.
- D) Controlled flight procedure are published.

**21- How database identifiers may be shown on STAR or SID charts?**

- A) Within a closed box.
- B) Within brackets.
- C) Within parentheses.
- D) Within a circle.

**22- Which instrument approach procedure on its profile view has the symbol of missed approach point?**

- A) Precision approach.
- B) Circling approach.
- C) Straight in approach.
- D) Non precision approach.

**23- The symbol "V" on a profile view of a non-precision approach means?**

- A) Visual approach point.
- B) Visual descend point.
- C) Minimum visual point.
- D) Visual maneuvering circling.

**24- What is the meaning of a small circle enclosing dot on an enroute chart H/L?**

- A) Radio facility.
- B) Remote communication site.
- C) Airport site.
- D) Navigation facility site.

**25- By which color the grid MORA may be shown?**

- A) Less than 10000 ft maroon, above 10000 ft green.
- B) Less than 10000 ft green, above 10000 ft maroon.
- C) Less than 10000 ft green, at and above 10000 ft maroon.
- D) Above 10000 ft maroon, at and below 10000 ft green.

**26- What is the meaning of letter (x) behind of a frequency on an approach chart?**

- A) Part time operation.
- B) H24 operation.
- C) Operating at night.
- D) On request.

**27- What is the meaning of "Full" on the landing minima of approach chart?**

- A) All facilities are operating.
- B) All parts of MLS are operating.
- C) All components of ILS are operating.
- D) All lights are operating.

**28- What is the meaning of the “PANS-OPS4” margin notation?**

- A) Holding speed is based on PANS-OPS fourth edition.
- B) Acceleration segment is deleted.
- C) Noise procedure is not applicable.
- D) “A” and “B” are correct.

**29- What is the minimum obstacle clearance of grid MORA in mountainous area provided by a state?**

- A) 1000 ft
- B) 2000 ft
- C) 1500 ft
- D) 2500 ft

**30- What is the obstacle clearance of grid MORA provided by JEPPESEN where highest elevation is 6700 ft?**

- A) 1000 ft
- B) 1500 ft
- C) 2000 ft
- D) 2500 ft

**31- What is the maximum wing span of DL category aircraft?**

- A) 65 m
- B) 70 m
- C) 75 m
- D) 80 m

**32- What is the maximum turn off speed on high speed taxiway?**

- A) 65 KT
- B) 60 KT
- C) 55 KT
- D) 50 KT

**33- For which radio fix on an airway the MOCA may be published?**

- A) TACAN
- B) VOR
- C) NDB
- D) VOR/DME



**34- What is the maximum lateral limits of route MORA derived by JEPPESEN?**

- A) 10 NM
- B) 12 NM
- C) 20 NM
- D) 22 NM

**35- Grid MORA provide for.....**

- A) Terrain clearance.
- B) Navigation signal coverage.
- C) Communication signal coverage.
- D) Radar coverage.

**36- What is the purpose of determination of MSA by "FAA"?**

- A) Direct route.
- B) Reception of NAVAID.
- C) Emergency use only.
- D) Visual contact.

**37- Which type of instrument approach procedures may have "VDP"?**

- A) Precision approach.
- B) Non-Precision (straight-in).
- C) Circling.
- D) Non-Precision.

**38- What is the dividing point of runway length indicated on the location name, labeled on an en-route chart?**

- A) 50 ft
- B) 60 ft
- C) 70 ft
- D) 80 ft

**39- What color is the grid MORA value of an obstacle with a height of 12700 FT?**

- A) Green
- B) Maroon
- C) Blue
- D) Red

**40- How the GPS MEA may be shown on an en-route chart?**

- A) By letter T.
- B) By letter A.
- C) By letter X.
- D) By letter G.

**41- What color is the grid MORA value of an obstacle with a height of 4900 FT?**

- A) Green
- B) Maroon
- C) Blue
- D) Red

**42- If the value of grid MORA on an en-route chart is shown 98, what will be the actual elevation of obstacle?**

- A) 7700 ft
- B) 8700 ft
- C) 8800 ft
- D) 7800 ft

**43- How the change of GPS MEA may be shown on an en-route chart?**

- A) By symbol T.
- B) By symbol X.
- C) By symbol A.
- D) By symbol G.

**44- The continues line of T symbols on en-route chart coverage is:**

- A) Telephone line.
- B) Time zone boundary.
- C) Sector boundaries.
- D) Communication boundaries.

**45- How the MEA and MAA change may be shown on an en-route chart?**

- A) By letter " T ".
- B) By letter " a ".
- C) By symbol " X ".
- D) By symbol " —|—".

**46- The indication of route designator with gap means:**

- A) PPR route.
- B) Gap in navigation aids coverage.
- C) Conditional route.
- D) Day light operation route.

**47- Which region supply conditional route based on figure 1, 2, 3 as a suffix of route designator?**

- A) MIDDLE EAST/SOUTH SEA
- B) NAT (NORTH ATLANTIC)
- C) NAM (NORTH AMERICAN)
- D) EUROPE

**48- Which conditional route (CDR) is required appropriate message?**

- A) CDR 1
- B) CDR 3
- C) CDR 2
- D) All CDRs

**49- The visual maneuver for landing on a parallel runway which is not more than 1200 ft from the runway that instrument approach is conducted, is called?**

- A) Sidestep maneuver
- B) Circle to land
- C) Circling approach
- D) Visual approach

**50- Which elevation above aerodrome level of man-made structure may be shown on a plan view of instrument approach chart?**

- A) Higher than 500 ft.
- B) Higher than 400 ft.
- C) 500 ft and higher.
- D) 400 ft and lower.

**51- Which of the following fixes have to label on the approach plan view?**

- A) IAF, FAF
- B) IAF, IF
- C) IF, FAF
- D) IAF, MAP

**52- How the approach transition track will be depicted on the approach plan view?**

- A) Heavy weight line.
- B) Heavy weight dashed line.
- C) Medium weight dashed line.
- D) Medium weight line.

**53- How the primary navigation aid will be indicated on the approach plan view?**

- A) Shadowed navigation aid box.
- B) Bold type.
- C) Navigation aids box.
- D) Unbox navigation aids.

**54- How the final approach course will be shown on the approach plan view?**

- A) Bold text.
- B) Bold text with directional arrow.
- C) Heavy weight line.
- D) Medium weight line.

**55- Which navigation aid is intended to provide final approach course?**

- A) Off-aerodrome navigation aid.
- B) On-aerodrome navigation aid.
- C) Primary navigation aid.
- D) Boxed navigation aid.

**56- If a runway length is 12965 ft. What figure may be shown on location name?**

- A) 130
- B) 129
- C) 129 ft
- D) 130 ft

**57- What is the meaning of underline below the NAV aid identifier?**

- A) Part time
- B) On-request
- C) BFO required
- D) Not co-located

**58- How the location of FAF may be identified on the plan view of approach chart?**

- A) By written FAF
- B) By an asterisk
- C) By Maltese cross symbol
- D) No indication on plan view

**59- What is the horizontal accuracy of GPS for civil use?**

- A) 50 meters
- B) 100 meters
- C) 150 meters
- D) 200 meters

**60- What are the three dimensional information translated by GPS receiver?**

- A) Position, velocity, level
- B) Position, bearing, time
- C) Velocity, level, time
- D) Position, velocity, time

**61- For which category aircraft, the additional OCA/H to be provided?**

- A) D
- B) DL
- C) E
- D) H

**62- Who is responsible to designate international airport?**

- A) ICAO
- B) Contracting state
- C) IATA
- D) None

**63- Between which radio fixes the MOCA may be published?**

- A) VOR+DME
- B) NDB+DME
- C) VOR
- D) TACAN

**64- Within what total width the MORA may be derived?**

- A) 20 NM
- B) 10 NM
- C) 15 NM
- D) 5 NM

**65- What changes in elevation within 10 NM shall be considered as mountainous area?**

- A) 4000 ft
- B) More than 5000 ft
- C) 3000 ft
- D) Exceed 3000 ft

**66- When you are using approved lighting system, by activating the mike 7 times within 5 seconds which lights will be available or off?**

- A) Medium intensity is available
- B) REIL off
- C) Highest intensity is available
- D) REIL in lower intensity

**67- What is the reference of aircraft height when using radio altimeter?**

- A) Surface
- B) Threshold
- C) Touchdown
- D) Airport

**68- What is the maximum coverage of airport surveillance radar (ASR)?**

- A) 40 NM
- B) 50 NM
- C) 60 NM
- D) 70 NM

**69- What is the maximum assuring navigation signal coverage of a route within USA airspace where MOCA is published?**

- A) Within entire route
- B) Within midpoint of route segment based on navigation aids
- C) Within 22 NM from VOR
- D) None

**70- Which system of runway edge lights in USA has no variable intensity?**

- A) RL
- B) MIRL
- C) HIRL
- D) LDIN

**71- Which portion of instrument runway in USA the runway edge lights are amber?**

- A) Last 1000 ft
- B) Last 2000 ft
- C) Last 1500 ft
- D) Last 2500 ft

**72- What color is the runway edge lights (ICAO) from beginning of runway up to displaced threshold in the approach direction?**

- A) Amber
- B) White
- C) Green
- D) Red

**73- How many categories of significant point may be specified on an ATS route or flight path for ATS purpose?**

- A) 1
- B) 2
- C) 3
- D) 4

**74- The high altitude en-route chart designed by JEPPESEN, has the information of .....**

- A) At and above FL200.
- B) Above FL200.
- C) At and above FL150.
- D) Above FL150.

**75- How many en-route charts, except area chart are designed by JEPPESEN?**

- A) 4
- B) 3
- C) 2
- D) 1

**76- What will be the index number of airport chart when it is printed on the reverse SID of the approach chart where the first approach chart is VOR approach?**

- A) (10-9)
- B) (11-1)
- C) (13-1)
- D) (16-1)

## ✓ **ENROUTE**

**77- How an area navigation airway (ICAO) may be identified on en-route chart?**

- A) By adding "V" as a prefix on the route designator.
- B) By adding "L" as a prefix on the route designator.
- C) By adding "Y" instead of "R" as a prefix.
- D) "Z" instead of "R" as a suffix.

**78- Which suffix of route designator shall not be used in voice communication?**

- A) F, G, Y or Z
- B) A, B, Y or Z
- C) K, U, or G
- D) L, M, N or P

**79- When the transponder shall be in "off" or "standby" position?**

- A) When the runway is vacated.
- B) When aircraft arrived on aircraft stand.
- C) After completing landing roll.
- D) When entering taxiway.

**80- What SSR code you may select when entering Jeddah FIR as an uncontrolled flight?**

- A) 2000
- B) 4000
- C) 7000
- D) None

**81- What is the meaning of (F) as a suffix when added after the basic designator of an ATS route?**

- A) ATC is provided.
- B) Advisory service is provided.
- C) Flight information is provided.
- D) All ATS services are provided.

**82- How the route designator of “UL426F” shall be used in voice communication?**

- A) Uniform Lima 426 foxtrot.
- B) Upper Lima 426.
- C) Uniform Lima 426.
- D) Upper Lima 426 foxtrot.

**83- When SSR must be switch on?**

- A) Prior to takeoff.
- B) After takeoff.
- C) After landing.
- D) Assign by ATSU.

**84- Which of the following transponder codes is not a valid SSR mode A squawk?**

- A) 0000
- B) 5678
- C) 7700
- D) 7777

**85- Before departure a SSR transponder is found to be inoperative and repair is not possible:**

- A) A flight can be continued only to the destination airport.
- B) A flight to the closest airport, where a repair can be made is allowed.
- C) A flight cannot be made.
- D) A flight to the closest airport, where a repair can be made and insert appropriate code in flight plan.

**86- In the airway designator UA1Y, what does the prefix “U” mean?**

- A) Uniform.
- B) Upper.
- C) Undesignated.
- D) Unidirectional.



**87- Which of the following prefixes indicate an area navigation route which does not form part of the regional network of ATS routes?**

- A) G
- B) M
- C) H
- D) Q

**88- Which suffixes of route designator does not use in voice communication?**

- A) F, S, T
- B) R, Y, Z
- C) F, Y, Z
- D) Y, Z, U

**89- Who is responsible to direct the modes/codes for selection or reselection on transponder in normal condition?**

- A) Pilot-in-command
- B) Operator
- C) State
- D) ATC

**90- Which item of flight plan shall be inserted the appropriate code when the aircraft has no serviceable transponder?**

- A) 9
- B) 10
- C) 17
- D) 18

**91- Which section provide information regarding ATS route designator?**

- A) RADIO AIDS
- B) GENERAL
- C) TERMINAL
- D) ENROUTE

**92- Which section you can find the preferential route system?**

- A) RADIO AIDS
- B) GLOSSARY
- C) ENROUTE
- D) INTRODUCTION

**93- In which section you can find route restriction?**

- A) ENROUTE
- B) RADIO AIDS
- C) ATC
- D) GLOSSARY

### ✓ **RADIO AIDS & METEOROLOGY**

**94- What is the range of VHF transmission, when the height of aircraft is 35000 ft?**

- A) 200 NM
- B) 210 NM
- C) 220 NM
- D) 230 NM

**95- What is the frequency band for VOR (even and odd tenths MHz)?**

- A) 111.975-117.975
- B) 108.000-111.975
- C) 111.975-117.795
- D) 108.000-111.795

**96- Which ground facility may be used by ATS unite(s) to help a pilot to indicate the direction of aircraft, by pilot transmission, when the pilot is not aware of its position?**

- A) ADF
- B) VHF DF
- C) LORAN
- D) RADAR

**97- What is the CAIRO VOLMET frequency?**

- A) 126.00
- B) 126.20
- C) 127.27
- D) 128.80

**98- What is the NICOSIA VOLMET frequency?**

- A) 126.25
- B) 122.27
- C) 126.62
- D) 127.20

**99- What is the ANTALYA ATIS frequency?**

- A) 118.67
- B) 118.47
- C) 118.27
- D) 118.87

**100- What is the ARDABIL ATIS frequency?**

- A) 126.65
- B) 127.00
- C) 122.90
- D) 128.65

**101- What information do you expect to receive from ERZURUM VOLMET regarding ERZURUM airport?**

- A) METAR
- B) TREND
- C) SIGMET
- D) QNH

**102- Within which section of airway manual you can find ANKARA VOLMET frequency?**

- A) RADIO AIDS
- B) METEOROLOGY
- C) TERMINAL
- D) ENROUTE

**103- Within which section of airway manual you can find ANNEX 3 information?**

- A) RADIO AIDS
- B) METEOROLOGY
- C) TERMINAL
- D) ENROUTE

**104- Within which part of airway manual you can find METAR decoding information?**

- A) ENROUTE
- B) APT DIRECTORY
- C) EMERGENCY
- D) METEOROLOGY

**105- Within which section of airway manual you can find range of navigation facility frequency?**

- A) RADIO AIDS
- B) METEOROLOGY
- C) EMERGENCY
- D) ENROUTE

**106- Within which section of airway manual you can find class of VDF antenna?**

- A) RADIO AIDS
- B) METEOROLOGY
- C) TERMINAL
- D) ENROUTE

### ✓ **TABLES & CODES**

**107- The duration of a NOTAM may be indicated by:**

- A) Ten figure of date-time group
- B) PERM
- C) EST if duration is uncertain
- D) All answers are correct

**108- If the second and third letter of NOTAM code is not in NOTAM code and the subject of NOTAM is related to the runway, which of the following letter can be used?**

- A) CO
- B) AD
- C) AG
- D) RC

**109- What is the meaning of “QNMAS” in NOTAM code?**

- A) VOR is u/s
- B) DME is u/s
- C) VOR/DME is u/s
- D) ILS/DME is u/s

**110- How much of the depth of wet snow is changed requires to issue new SNOWTAM?**

- A) 10 mm
- B) 3 mm
- C) Greater than 10 mm
- D) Greater than 3 mm

**111- What is the pressure in inches of mercury if pressure is 994 hPa?**

- A) 29.23
- B) 29.26
- C) 29.35
- D) 29.41

**112- Within which part of airway manual you can find NOTAM information?**

- A) EMERGENCY
- B) TABLES & CODES
- C) TERMINAL
- D) ENROUTE

**113- Within which part of airway manual you can find country dial number?**

- A) EMERGENCY
- B) TABLES & CODES
- C) TERMINAL
- D) ENROUTE

**114- How long is the maximum validity of SNOWTAM?**

- A) 6 Hours
- B) 12 Hours
- C) 18 Hours
- D) 24 Hours

**115- The 50 km is equal to..... NM.**

- A) 27
- B) 26
- C) 25
- D) 24

**116- What is the NOTAM code "QMRLC"?**

- A) Runway active
- B) Runway closed
- C) Aerodrome active
- D) Aerodrome closed

**117- What pressure altitude corresponds to 23.58 inches of mercury?**

- A) 6432 ft
- B) 6444 ft
- C) 6455 ft
- D) 6466 ft

**118- What pressure altitude corresponds to 30.16 inches of mercury?**

- A) -202 ft
- B) -211 ft
- C) -220 ft
- D) -229 ft

**119- What pressure in inches of mercury corresponds to 1110 ft?**

- A) 28.71
- B) 28.72
- C) 28.73
- D) 28.74

**120- The pressure is 876 hPa, what is the value of pressure in inches of mercury?**

- A) 25.98
- B) 25.90
- C) 25.87
- D) 25.81

**121- What pressure in millimeter of mercury corresponds to 941.3 millibar?**

- A) 706
- B) 707
- C) 708
- D) 709

**122- The rate of climb is 16 MPS corresponds to .....FPM.**

- A) 3110
- B) 3130
- C) 3145
- D) 3150

**123- The 36 MPS corresponds to..... Knots.**

- A) 66
- B) 70
- C) 76
- D) 74

**124- The 17 MPS corresponds to..... Knots.**

- A) 38
- B) 36
- C) 33
- D) 30

**125- The 20 (°C) is equal to..... (°F).**

- A) 68
- B) 65
- C) 75
- D) 71

**126- The 50 (°F) is equal to..... (°C).**

- A) 16
- B) 7
- C) 14
- D) 10

**127- The 32 Kgs is equal to..... Lbs.**

- A) 70
- B) 75
- C) 79
- D) 80

**128- The 441 Lbs equal to..... Kgs.**

- A) 196
- B) 200
- C) 203
- D) 204

**129- The 40 KM is equal to..... NM.**

- A) 22.1
- B) 22.40
- C) 21.90
- D) 21.60

**130- The 60 NM is equal to..... SM.**

- A) 69.0
- B) 71.0
- C) 69.05
- D) 70.05

**131- The 67 Imp Gal is equal to..... US Gal.**

- A) 78
- B) 80
- C) 82
- D) 84

**132- The 211 US Gal is equal to..... Liters.**

- A) 799
- B) 803
- C) 804
- D) 806

**133- The -10 (°C) is equal to..... (°F).**

- A) 18
- B) 10
- C) 16
- D) 14

**134- The 42 (°C) is equal to..... (°F).**

- A) 106.7
- B) 107.0
- C) 107.6
- D) 108.0

**135- The 68 KTS is equal to..... MPS.**

- A) 37
- B) 38
- C) 31
- D) 35

**136- The “QNVAS” in NOTAM code means:**

- A) NDB is u/s
- B) DME is u/s
- C) VOR is u/s
- D) ILS is u/s

**137- The “QITAO” in NOTAM code means:**

- A) ILS CAT II is operational
- B) LLZ is operational
- C) OM is operational
- D) DME is operational

**138- What is the specific gravity of wet snow?**

- A) 0.5 up to 0.8
- B) 0.35 up to but not including 0.5
- C) 0.5 and over
- D) 0.35 up to 0.5



**139- What units of measurement shall be used for issuance of SNOWTAM?**

- A) MM
- B) Inches
- C) FT
- D) Metric

**140- How the time of observation shall be indicated in SNOWTAM?**

- A) By 10 figure date/time group
- B) 24 HR
- C) By 8 figure date/time group
- D) 12 HR

**141- How many sections, the runway length shall be divided for the measurement and issuance of SNOWTAM?**

- A) 4
- B) 3
- C) 2
- D) 1

**142- What symbol may be used, if mean depth of deposit is not significant or is not measurable?**

- A) TT
- B) MM
- C) XX
- D) AA

**143- What is the value of temperature correction for each 10 (°C) ISA deviation?**

- A) 5%
- B) 3%
- C) 4%
- D) 2%

**144- Snow which can be blown if loose or, if compacted by hand, will fall apart again upon release, called as:**

- A) Wet snow
- B) Dry snow
- C) Slush
- D) Compacted snow

## ✓ **AIR TRAFFIC CONTROL**

**145- When acknowledging mode/code setting instruction pilots shall:**

- A) Read back the mode and code to be set.
- B) Read back only the code to be set.
- C) Use only the word WILCO.
- D) Use only the word ROGER.

**146- When the aircraft carries serviceable Mode C equipment, the pilot:**

- A) Shall continuously operate this mode only when directed by ATC.
- B) Shall continuously operate this mode unless otherwise directed by ATC.
- C) Shall continuously operate this mode regardless of ATC instructions.
- D) Shall continuously operate this mode only when the aircraft is within controlled airspace.

**147- How many aircraft proximity, on the opinion of a pilot or ATS personnel are classified?**

- A) One
- B) Two
- C) Three
- D) Four

**148- If the stall speed of an airplane with maximum mass and landing configuration over threshold is 126 kts what will be its category?**

- A) A
- B) B
- C) C
- D) D

**149- What is the reference of "DH"?**

- A) Aerodrome elevation
- B) Threshold elevation
- C) Runway elevation
- D) Elevation of "GP" site

**150- What is the minimum climb gradient with all engine operation during departure if climb gradient is not specified on departure procedure?**

- A) 152 ft/NM
- B) 200 ft/NM
- C) 250 ft/NM
- D) 300 ft/NM

**151- What amount of wind will be considering to design SID?**

- A) 20 kts
- B) 30 kts
- C) 10 kts
- D) 40 kts

**152- What bank angle considers for constructing missed approach procedure?**

- A) 25°
- B) 20°
- C) 15°
- D) 30°

**153- How many entry procedures may be applied for an Omni-directional holding?**

- A) 1
- B) 3
- C) 2
- D) 4

**154- What is the distance of buffer area of a holding?**

- A) 5 km
- B) 3 km
- C) 3 NM
- D) 5 NM

**155- How many phases have a missed approach procedure?**

- A) 1
- B) 2
- C) 3
- D) 4

**156- What is the maximum holding speed of jet airplane at FL100 during normal condition according to second edition of PANS-OPS?**

- A) 220 kts
- B) 210 kts
- C) 240 kts
- D) 265 kts

**157- The noise abatement procedure is not to be initiated less than? (NADP 1 or 2)**

- A) 1000 ft.
- B) 800 ft.
- C) 600 ft.
- D) 400 ft.

**158- What is the height reference of MDH of circle-to-land?**

- A) Threshold elevation
- B) Elevation of site of NAV AIDS
- C) Runway elevation
- D) Aerodrome elevation

**159- VMC descend maybe authorized within airspace of:**

- A) Class ``D``
- B) Class ``E``
- C) Class ``G``
- D) Class ``D`` and ``E``

**160- What significant change of crosswind shall be transmitted to an airplane in the final approach?**

- A) 4 kts
- B) 5 kts
- C) 3 kts
- D) 2 kts

**161- When the cloud information shall be transmitted to arriving aircraft?**

- A) Cloud below 5000 ft
- B) Cloud below minimum sector altitude
- C) "A" or "B" whichever is greater
- D) "A" or "B" whichever is lower

**162- Within which ICAO region, the B-RNAV is implemented?**

- A) Middle-east
- B) ASIA pacific
- C) Europe
- D) North ATLANTIC

**163- Which edition of PANS-OPS has no acceleration portion for missed approach?**

- A) First
- B) Second
- C) Third
- D) Fourth

**164- What is the maximum speed for CAT B during turning departure?**

- A) 120 kts
- B) 290 kts
- C) 165 kts
- D) 300 kts

**165- What is the maximum rate of descent during final with no FAF for CAT C?**

- A) 590 ft/min
- B) 655 ft/min
- C) 1000 ft/min
- D) 800 ft/min

**166- What is the maximum speed during final for CAT C?**

- A) 100
- B) 160
- C) 185
- D) 130

**167- What bank angle will be considering to design of a turning departure between 1000 ft up to 3000 ft?**

- A) 25°
- B) 20°
- C) 15°
- D) 10°

**168- What is the total time of flight technical tolerances for turning departure?**

- A) 3 Sec
- B) 5 Sec
- C) 6 Sec
- D) 4 Sec

**169- How many separate segments may have an instrument approach procedure?**

- A) 3
- B) 4
- C) 5
- D) 6

**170- What wind factor considers for constructing circling area?**

- A) 10 kts
- B) 15 kts
- C) 20 kts
- D) 25 kts

**171- What is the outbound time of a holding at 14000 ft?**

- A) 4 min
- B) 1 min
- C) 1.5 min
- D) 5 min

**172- Who is responsible to develop and implement standard operating procedures (SOPs) for aerodrome surface operation?**

- A) Aerodrome authority
- B) Operator
- C) State
- D) ATS authority

**173- What is the minimum rate of descend during final with no FAF for CAT D?**

- A) 590 ft/min
- B) 1000 ft/min
- C) 655 ft/min
- D) 750 ft/min

**174- Area navigation (RNAV) equipment may be used to determine the aircraft position are?**

- A) VOR, DME, INS
- B) GNSS, LORAN "C"
- C) VOR, GNSS
- D) NDB cannot support RNAV

**175- The total flight technical tolerance for turning departure is:**

- A) 5 seconds
- B) 3 seconds
- C) 6 seconds
- D) 10 seconds

**176- What is the maximum initial approach speed for CAT C?**

- A) 120 kts
- B) 240 kts
- C) 160 kts
- D) 290 kts

**177- What is the maximum initial approach speed for CAT B during base turn?**

- A) 150 kts
- B) 180 kts
- C) 140 kts
- D) 110 kts

**178- What is the minimum MOC for the final of non-precision with FAF?**

- A) 492 ft
- B) 392 ft
- C) 246 ft
- D) 295 ft

**179- What is the MOC for circling for CAT B?**

- A) 320 ft
- B) 246 ft
- C) 295 ft
- D) 350 ft

**180- A MSA provides at least:**

- A) 300 m obstacle clearance within 46 km of the homing facility associated with the approach procedure for aerodrome.
- B) 300 ft obstacle clearance within 20 NM of the homing facility associated with the approach procedure for that aerodrome.
- C) 300 ft obstacle clearance within 25 NM of the homing facility associated with the approach procedure for that aerodrome.
- D) 300 m obstacle clearance within 20 km of the homing facility associated with the approach procedure for that aerodrome.

**181- The approach categories of aircraft are based upon:**

- A) 1.3 times the stalling speed in clean configuration at maximum certified landing mass.
- B) 1.3 times the stalling speed in clean configuration at minimum certified landing mass.
- C) 1.3 times the stalling speed in the landing configuration at maximum certified landing mass.
- D) 1.3 times the stalling speed in the landing configuration at minimum certified landing mass.

**182- Normally a procedure will be designed to provide protected airspace and obstacle clearance for aircraft up to and including:**

- A) Category A.
- B) Category B.
- C) Category C.
- D) Category D.

**183- For a non-precision approach, the elevation of the relevant runway threshold is used for OCH reference if:**

- A) The threshold elevation is more than 2 m below the aerodrome elevation.
- B) The threshold elevation is less than 2 m below the aerodrome elevation.
- C) The threshold elevation is more than 2 m above and below the aerodrome elevation.
- D) The threshold elevation is less than 2 m above and below the aerodrome elevation.

**184- When constructing a turning missed approach the pilot reaction time taken into account is:**

- A) 0 - 3 seconds.
- B) 0 - 5 seconds.
- C) 3 - 5 seconds.
- D) 3 - 4 seconds.

**185- The climb gradient of a missed approach can be reduced to:**

- A) 2% if the necessary survey and safeguarding can be provided with the approval of the appropriate authority.
- B) 0.8% if the necessary survey and safeguarding can be provided with the approval of the appropriate authority.
- C) 1.5% if the necessary survey and safeguarding can be provided with the approval of the appropriate authority.
- D) 3.3% if the necessary survey and safeguarding can be provided with the approval of the appropriate authority.

**186- If a turn of greater than 15° is required during a missed approach the turn is not allowed:**

- A) Until at least 50 ft vertical clearance has been ensured.
- B) Until at least 50 m vertical clearance has been ensured.
- C) Until at least 100 ft vertical clearance has been ensured.
- D) Until at least 100 m vertical clearance has been ensured.

**187- DME fix tolerance is:**

- A)  $\pm 0.46 \text{ km} + 0.25\%$  of the distance to the antenna.
- B)  $\pm 0.46 \text{ km} + 1.25\%$  of the distance to the antenna.
- C)  $\pm 0.46 \text{ km} + 1.5\%$  of the distance to the antenna.
- D)  $\pm 0.46 \text{ km} + 2\%$  of the distance to the antenna.

**188- Under which conditions may an aircraft on a straight-in VOR approach continue its descend below the OCA?**

- A) When it seems possible to land.
- B) When the aircraft is in visual contact with the ground and with the runway lights in sight.
- C) When the aircraft has the control tower in sight.
- D) When the aircraft is in contact with the ground but not with the runway in sight yet.

**189- Which is the obstacle clearance in the primary area of the intermediate approach segment in an instrument approach procedure?**

- A) 150 m (492 ft).
- B) 300 m (984 ft).
- C) 450 m (1476 ft).
- D) 600 m (1968 ft).

**190- During a standard arrival procedure under an IFR flight plan in VMC in airspace class D, traffic avoidance is the responsibility of:**

- A) The area controller.
- B) The pilot-in-command.
- C) The approach controller.
- D) A and C are correct.



**191- In an approach procedure, a descent or climb conducted in a holding pattern is called:**

- A) Base turn.
- B) Racetrack pattern.
- C) Procedure turn.
- D) Shuttle.

**192- In case of a straight-in non-precision approach, the angle between the extended runway center line and the final approach track is ----- or less.**

- A) 30°
- B) 20°
- C) 15°
- D) 10°

**193- Which of the following would be regarded as "established" on the localizer of an ILS approach?**

- A) Within 10° of the published track.
- B) Within 5° of the published track.
- C) Within half-scale deviation of the CDI.
- D) Not specified until the OM has been passed.

**194- What is the minimum visibility for a circling approach for a Category B aircraft?**

- A) 1600 m
- B) 1900 m
- C) 2800 m
- D) 3500 m

**195- For a non-precision or circling approach, the Minimum Descent Height (MDH) cannot be lower than:**

- A) 200 ft.
- B) The Obstacle Clearance Height (OCH).
- C) 350 ft.
- D) 400 ft.

**196- On a non-precision approach with FAF, what is the maximum permissible descent gradient during the final approach?**

- A) 3°
- B) 5%
- C) 6.5%
- D) 4.5°

**197- How can pilot descend below MDH on a VMC descend?**

- A) Threshold in view, able to keep visual reference to terrain.
- B) Clearance from ATC, threshold in view, insight aerodrome traffic zone.
- C) Runway visual, 5 km visibility and clear of cloud.
- D) Visual glide path indication of "on glide path" and VMC exists.

**198- Why the descent gradient shall be kept as low as possible in the intermediate approach segment?**

- A) This is the segment in which speed and configuration are adjusted.
- B) It is not possible to guarantee full obstacle clearance in this segment.
- C) Usually track guidance is poor in this segment resulting in a requirement for a high MOC.
- D) Pilots cannot cope with track maintenance in a high rate of descent.

**199- In a holding pattern all turns are to be made at a:**

- A) Rate of  $3^\circ$  per second.
- B) Rate of  $3^\circ$  per second or at a bank angle of  $25^\circ$ , which ever requires the lesser bank.
- C) Maximum bank angle of  $25^\circ$ .
- D) Rate of  $3^\circ$  per second or at a bank angle of  $20^\circ$ , which ever requires the lesser bank.

**200- Standard airway holding pattern (FAA) below 14000 ft?**

- A) Left hand turns /1 minute outbound.
- B) Right hand turns /1.5 minutes outbound.
- C) Right hand turns /1 minute outbound.
- D) Left hand turns /1.5 minutes outbound.

**201- What is the deviation allowed either side of track between entry sectors when joining a hold?**

- A) 5 degrees.
- B) 2.5 degrees.
- C) 100 degrees.
- D) 20 degrees.

**202- Regarding to the three entry sectors in a holding pattern, there is a zone of flexibility on either side of the sectors boundaries of:**

- A) 20 degrees.
- B) 15 degrees.
- C) 5 degrees.
- D) 10 degrees.

**203- What is the minimum obstacle clearance guaranteed at the edge of the buffer area (5 NM) outside of the holding area of a holding pattern?**

- A) 300 m (1000 ft) (2000 ft in mountainous areas).
- B) 150 m (500 ft).
- C) 90 m (300 ft).
- D) 0 m (0 ft).

**204- You are flying inbound on radial 232° towards VOR CDI. When you are required to hold overhead the VOR on radial 052, what type of entry will you perform?**

- A) A direct entry.
- B) A parallel or offset entry.
- C) An offset entry.
- D) A reciprocal entry.

**205- What is the outbound timing in a holding pattern below FL140 (no wind)?**

- A) 1.5 minutes.
- B) 1 minute.
- C) 2 minutes.
- D) 1 minute or 2 minutes, depending on the actual IAS.

**206- In a holding pattern, the pilot should attempt to maintain the ----- by making allowance for wind by applying corrections to ----- during entry and while flying the holding pattern.**

- A) Track; heading
- B) Heading; time
- C) Track; heading and time
- D) Heading; track and time

**207- You have received holding instructions for a radio fix. The published holding procedure is: "All turns to the right, 1 minute outbound, inbound MC 052". You are approaching the fix on an inbound magnetic track 232°. Select the available entry procedure:**

- A) Either "offset" or "parallel"
- B) Offset
- C) Parallel
- D) Direct

**208- In a standard holding pattern (FAA) turns are made:**

- A) In a direction depending on the entry.
- B) To the left.
- C) To the right.
- D) In a direction depending on the wind direction.

**209- Unless otherwise published or instructed by ATC, all turns after initial offset entry into the holding pattern shall be made into which direction?**

- A) Teardrop to the left and then to the right.
- B) To the left.
- C) First right and then to the left.
- D) To the right.

**210- The maximum angle of bank to be used in a holding pattern is:**

- A) 15°
- B) 25°
- C) 30°
- D) 35°

**211- In a standard holding pattern with parallel entry first turn should be made:**

- A) To the right.
- B) To the left.
- C) To the right except otherwise described by the appropriate authority.
- D) Left or right depending on the entry procedure.

**212- Which is the normal still air outbound time in a holding pattern?**

- A) One and one half minute for altitudes above 14000 ft.
- B) One and one half minute for altitudes above 10000 ft.
- C) One minute for altitudes above 14000 ft.
- D) All answers are incorrect.

**213- In relation to the three entry sectors, the entry into the holding pattern shall be according to:**

- A) Bearing
- B) Course
- C) Heading
- D) Track

**214- If the holding is at FL060, what is the normal holding speed for jet aircraft (PANS-OPS Second Edition)?**

- A) 170 kts
- B) 210 kts
- C) 230 kts
- D) 150 kts

**215- You are flying towards a VOR on the 320° radial and have been told to hold on the 045° radial at FL060. What type of entry to the standard holding pattern is required?**

- A) Direct.
- B) Parallel.
- C) Offset.
- D) Either parallel or offset.

**216- When holding at FL110, what is the normal outbound leg time?**

- A) 30 seconds.
- B) 1 minute 30 seconds.
- C) 1 minute 15 seconds.
- D) 1 minute.

**217- The minimum permissible holding level provides a clearance above the obstacles of at least - ----- in the holding area.**

- A) 984 ft.
- B) 492 ft.
- C) 394 ft.
- D) 197 ft.

**218- In a holding pattern, turns are to be made:**

- A) At a bank angle of 20° or at a rate of 3° per second, whichever requires the lesser bank.
- B) At a bank angle of 15° or at a rate of 3° per second, whichever requires the lesser bank.
- C) At a bank angle of 30° or at a rate of 3° per second, whichever requires the lesser bank.
- D) At a bank angle of 25° or at a rate of 3° per second, whichever requires the lesser bank.

**219- The entry into a holding pattern shall be according to:**

- A) Magnetic heading in relation to the three entry sectors.
- B) Magnetic track in relation to the three entry sectors.
- C) True heading in relation to the three entry sectors.
- D) True track in relation to the three entry sectors.

**220- You are required to carry out a teardrop entry into a holding pattern. Having reached the fix, the aircraft is turned onto a heading to make good a track making an angle of ..... degrees from the reciprocal of the inbound track on the holding site.**

- A) 20
- B) 30
- C) 45
- D) 60

**221- In a standard holding pattern (FAA), all turns should be made:**

- A) To the right at a bank angle of  $25^\circ$  or at a rate of  $3^\circ$  per second, whichever requires the lesser bank.
- B) To the left at a bank angle of  $25^\circ$  or at a rate of  $3^\circ$  per second, whichever requires the lesser bank.
- C) The right at a bank angle of  $25^\circ$  or at a rate of  $3^\circ$  per second, whichever requires the higher bank.
- D) To the left at a bank angle of  $25^\circ$  or at a rate of  $3^\circ$  per second, whichever requires the higher bank.

**222- What is the longest period of time that can fly the  $30^\circ$  leg of a teardrop procedure when joining a holding pattern?**

- A) 1 minute 30 seconds.
- B) 2 minutes 30 seconds.
- C) 3 minutes.
- D) 30 seconds.

**223- An aircraft is flying on heading  $190^\circ$  (M) toward holding fix with inbound track  $010^\circ$  (M) The correct entry type would be:**

- A) Parallel or direct.
- B) Offset or direct.
- C) Parallel or offset.
- D) Reciprocal or direct.

**224- Is the length of the outbound leg of a holding pattern always expressed in terms of time?**

- A) Yes.
- B) No, where DME is used it may be specified in terms of distance.
- C) Yes, even where DME is used, the maximum length is always in time.
- D) No, where G/S is less than 65 kts, the outbound leg must be at least 2 NM long.

**225- If an airplane cannot SQUAWK IDENT, which of the following is a valid method by ATC can identify an airplane that is squawking mode A codes?**

- A) Switch SSR to ON then STANDBY.
- B) Switch SSR from ON to OFF.
- C) Switch SSR to ON then STANDBY then ON again.
- D) Switch SSR to STANDBY then ON again.

**226- The speed limitation for both IFR flights and VFR flights inside ATS airspace classified as B, when flying below 3050 m (10000 ft) AMLS, is:**

- A) 250 kts IAS.
- B) Not applicable.
- C) 250 kts TAS.
- D) 260 kts IAS.

**227- Which of the following approach speed ranges ( $V_{at}$ ) is applicable for Category B aircraft?**

- A) 224 km/h to 261 km/h.
- B) 121 kts to 141 kts.
- C) 261 km/h to 307 km/h.
- D) 91 kts to 120 kts.

**228- The ILS glide path is normally intercepted between:**

- A) 5 and 10 NM.
- B) 3 and 7 NM.
- C) 4 and 8 NM.
- D) 3 and 10 NM.

**229- What is the fix tolerance of terminal area surveillance radar within 20 NM?**

- A)  $\pm 0.8$  NM
- B)  $\pm 0.9$  NM
- C)  $\pm 1.0$  NM
- D)  $\pm 0.7$  NM

**230- What is the fix tolerance of en-route surveillance radar within 40 NM?**

- A)  $\pm 2$  NM
- B)  $\pm 1.9$  NM
- C)  $\pm 1.8$  NM
- D)  $\pm 1.7$  NM

**231- What is the amount of DME fix tolerance as a terminal fix provided on OISS TMA?**

- A)  $\pm 1.125$  NM
- B)  $\pm 1.2$  NM
- C)  $\pm 1.215$  NM
- D)  $\pm 1.175$  NM

**232- What is the amount of DME fix tolerance as a terminal fix provided on OIFM TMA?**

- A)  $\pm 1.1$  NM
- B)  $\pm 1$  NM
- C)  $\pm 0.9$  NM
- D)  $\pm 0.9$  NM

**233- What is the area width at a VOR for splaying?**

- A) 1.25 NM
- B) 1.5 NM
- C) 2.0 NM
- D) 2.5 NM

**234- What is the splaying angle at NDB facility?**

- A)  $10.3^{\circ}$
- B)  $6.9^{\circ}$
- C)  $7.8^{\circ}$
- D)  $6.2^{\circ}$

**235- What is the splaying angle at VOR facility?**

- A)  $6.9^{\circ}$
- B)  $6.2^{\circ}$
- C)  $7.8^{\circ}$
- D)  $6.2^{\circ}$

**236- What is the width of splaying area for NDB?**

- A) 2 NM
- B) 2.15 NM
- C) 2.4 NM
- D) 2.5 NM

**237- What is the track accuracy of VOR as a providing track?**

- A)  $\pm 5^{\circ}$
- B)  $\pm 5.2^{\circ}$
- C)  $\pm 5.4^{\circ}$
- D)  $\pm 5.6^{\circ}$

**238- What is the track accuracy of NDB not providing track?**

- A)  $\pm 7.8^{\circ}$
- B)  $\pm 6.9^{\circ}$
- C)  $\pm 6.2^{\circ}$
- D)  $\pm 6^{\circ}$

**239- What is the track accuracy of ILS for providing track?**

- A)  $\pm 2.1^{\circ}$
- B)  $\pm 2.2^{\circ}$
- C)  $\pm 2.3^{\circ}$
- D)  $\pm 2.4^{\circ}$

**240- What is the track accuracy of NDB for providing track?**

- A)  $\pm 6.9^{\circ}$
- B)  $\pm 7^{\circ}$
- C)  $\pm 7.2^{\circ}$
- D)  $\pm 7.6^{\circ}$



**241- What is the VOR tolerance as an airborne receiver?**

- A)  $\pm 2.5^\circ$
- B)  $\pm 2.7^\circ$
- C)  $\pm 2.9^\circ$
- D)  $\pm 3^\circ$

**242- What is the NDB tolerance an airborne receiver?**

- A)  $\pm 4.5^\circ$
- B)  $\pm 5^\circ$
- C)  $\pm 5.4^\circ$
- D)  $\pm 6^\circ$

**243- What is the ILS tolerance as an airborne receiver?**

- A)  $\pm 1^\circ$
- B)  $\pm 1.2^\circ$
- C)  $\pm 1.4^\circ$
- D)  $\pm 1.6^\circ$

**244- What bank angle will be considered during missed approach?**

- A)  $30^\circ$
- B)  $25^\circ$
- C)  $20^\circ$
- D)  $15^\circ$

**245- What amount of wind will be considered during departure?**

- A) 25 Kts
- B) 30 Kts
- C) 20 Kts
- D) 35 Kts

**246- How long as pilot reaction time will be considered for holding?**

- A) 3 Sec
- B) 4 Sec
- C) 5 Sec
- D) 6 Sec

**247- What amount of wind will be considered for construction of a holding with a height of 9000 ft?**

- A) 65 Kts
- B) 50 Kts
- C) 45 Kts
- D) 30 Kts

**248- What amount of wind will be considered for circling area?**

- A) 40 Kts
- B) 35 Kts
- C) 30 Kts
- D) 25 Kts

**249- What time as a bank establishing time will be considered for dead reckoning segment?**

- A) 5 Sec
- B) 6 Sec
- C) 3 Sec
- D) 10 Sec

**250- What bank angle will be considered between 1000 ft and 3000 ft for departure?**

- A) 15°
- B) 20°
- C) 25°
- D) 30°

**251- What bank angle will be considered below 1000 ft for departure?**

- A) 20°
- B) 30°
- C) 15°
- D) 25°

**252- What time will be considered as pilot reaction time for circling area?**

- A) 15 Sec
- B) 20 Sec
- C) 25 Sec
- D) None

**253- Who is responsible to developed contingency procedure?**

- A) Operator
- B) State
- C) ICAO
- D) ATC

**254- The reduced power take-off is not required when visibility is less than ..... .**

- A) 1.7 KM
- B) 1.8 KM
- C) 1.9 KM
- D) 2 KM

**255- The reduced power take-off is not required when crosswind component exceeds ..... .**

- A) 20 KTS
- B) 15 KTS
- C) 10 KTS
- D) 25 KTS

**256- Under which of the following condition, the reduced power for take-off is not required?**

- A) Wind shear
- B) Thunderstorm
- C) Hail
- D) A or B is correct.

**257- What MOC will be considered on the turn area of departure?**

- A) 295 ft
- B) 310 ft
- C) 350 ft
- D) 405 ft

**258- If the PDG is not published on an SID, what PDG is provided on departure?**

- A) 0.8%
- B) 2%
- C) 2.5%
- D) 3.3%

**259- What is the minimum ROC during departure?**

- A) 152 ft/NM
- B) 200 ft/NM
- C) 295 ft/NM
- D) 398 ft/NM

**260- Turning departure means a turn more than ..... is required.**

- A) 25°
- B) 20°
- C) 15°
- D) 10°

**261- The straight departure means a turn of not more than ..... is provided.**

- A) 15°
- B) 10°
- C) 20°
- D) 25°

**262- Within what distances, the track guidance shall take place during straight departure?**

- A) 8.8 NM
- B) 10.8 NM
- C) 12.6 NM
- D) 15 NM

**263- Within what distances, the track guidance shall take place after completion of turn of turning departure?**

- A) 10.3 NM
- B) 7.8 NM
- C) 6.8 NM
- D) 5.4 NM

**264- If turning altitude is not published on the SID, what is the lowest level for the turn?**

- A) 320 ft
- B) 355 ft
- C) 394 ft
- D) 440 ft

**265- What is the maximum speed for CAT "C" aeroplane for turning departure?**

- A) 265 kts
- B) 280 kts
- C) 295 kts
- D) 310 kts

**266- What is the maximum speed for CAT "B" aeroplane for turning departure?**

- A) 120 kts
- B) 165 kts
- C) 180 kts
- D) 195 kts

**267- How many segments may have an instrument approach procedure?**

- A) 2
- B) 3
- C) 4
- D) 5

**268- How many types of instrument approach procedures may be provided?**

- A) 2
- B) 3
- C) 4
- D) 5

**269- When an instrument approach procedure, required descend gradient higher than maximum value, then the procedure will be promulgated as:**

- A) Precision
- B) Circle-to-land
- C) Circling
- D) Visual approach

**270- If stalling speed of an aeroplane over threshold is 107 kts, what will be its category?**

- A) D
- B) C
- C) B
- D) A

**271- For which category of aeroplane the maximum initial approach speed for racetrack procedures is limited to 140 kts?**

- A) A
- B) B
- C) C
- D) D

**272- For which category of aeroplane the maximum initial approach speed for reversal procedures is limited to 110 kts?**

- A) A
- B) B
- C) C
- D) D

**273- Who is responsible to define landing configuration to be taken into consideration for providing instrument procedures?**

- A) State
- B) Pilot
- C) Operator
- D) ICAO

**274- If stall speed of an aeroplane over threshold is 111 kts what will be its category?**

- A) A
- B) B
- C) C
- D) D

**275- Who is responsible to approve permanent lower landing mass for determining  $V_{AT}$  may impose by an operator?**

- A) IATA
- B) State of the operator
- C) Manufacture
- D) Pilot

**276- What is the maximum descent gradient, with FAF for CAT C aeroplane during final approach?**

- A) 5.6%
- B) 6.5%
- C) 5.2%
- D) 6.1%

**277- What is the optimum descent gradient, with FAF for CAT B aeroplane during final approach?**

- A) 5.2%
- B) 5.7%
- C) 6.1%
- D) 6.5%

**278- What is the maximum descent gradient, with FAF for CAT B aeroplane during final approach?**

- A) 5.2%
- B) 5.7%
- C) 6.1%
- D) 6.5%

**279- What is the minimum rate of descent during final approach with no FAF for CAT D aeroplane?**

- A) 394 ft/min
- B) 590 ft/min
- C) 655 ft/min
- D) 1000 ft/min

**280- What is the maximum rate of descent during final approach with no FAF for CAT B aeroplane?**

- A) 394 ft/min
- B) 590 ft/min
- C) 655 ft/min
- D) 1000 ft/min

**281- What is the minimum obstacle clearance with no FAF for straight-in landing?**

- A) 210 ft
- B) 245 ft
- C) 270 ft
- D) 295 ft

**282- What is the minimum obstacle clearance with FAF for straight-in landing?**

- A) 210 ft
- B) 246 ft
- C) 270 ft
- D) 295 ft

**283- What is the minimum obstacle clearance for CAT C and D aeroplane for circling approach?**

- A) 394 ft
- B) 355 ft
- C) 270 ft
- D) 245 ft

**284- What is the maximum interception angle from initial approach segment to IF for precision approach?**

- A) 120°
- B) 110°
- C) 100°
- D) 90°

**285- What is the maximum interception angle from initial approach segment to IF for non-precision approach?**

- A) 120°
- B) 110°
- C) 100°
- D) 90°

**286- What type of maneuver(s) do you expect to design where suitable IAF or IF is not available?**

- A) Racetrack procedure
- B) Reversal procedure
- C) A or B is correct
- D) None

**287- How long the straight leg without track guidance shall take place by CAT C aeroplane on 45°/180° of procedure turn?**

- A) 30 Sec
- B) 45 Sec
- C) 60 Sec
- D) 75 Sec

**288- What angle from outbound track of a procedure turn, the direct entry may be done to carry out the instrument approach procedure?**

- A)  $\pm 15^\circ$
- B)  $\pm 20^\circ$
- C)  $\pm 30^\circ$
- D)  $\pm 35^\circ$

**289- When do you start the required descent after inbound turn of reversal procedure based on VOR?**

- A) Within full scale of deflection
- B) Within half full scale of deflection
- C) Within  $5^\circ$
- D) Within  $5.6^\circ$

**290- When do you start the required descent after inbound turn of racetrack procedure based on NDB?**

- A) Within  $\pm 10.3^\circ$
- B) Within  $\pm 7.8^\circ$
- C) Within  $\pm 6.5^\circ$
- D) Within  $\pm 5^\circ$

**291- What will be the maximum length of dead reckoning segment?**

- A) 10 NM
- B) 9 NM
- C) 8 NM
- D) 7 NM

**292- At what angle the dead reckoning track will intersect the localizer?**

- A)  $25^\circ$
- B)  $35^\circ$
- C)  $45^\circ$
- D)  $55^\circ$

**293- What is the minimum descent rate on inbound track of reversal procedure for CAT D aeroplane?**

- A) 394 ft
- B) 590 ft
- C) 804 ft
- D) 655 ft



**294- What is the maximum rate of descent per minute on an inbound leg of racetrack procedure for CAT B aeroplane?**

- A) 590 ft
- B) 755 ft
- C) 804 ft
- D) 655 ft

**295- What is the maximum rate of descent per minute during outbound leg of procedure turn 80°/260° for CAT D aeroplane?**

- A) 755 ft
- B) 1197 ft
- C) 1000 ft
- D) 804 ft

**296- What will be the optimum distance of FAF (non-precision) from threshold?**

- A) 10 NM
- B) 8 NM
- C) 6 NM
- D) 5 NM

**297- What will be the maximum distance of FAF (non-precision) from threshold?**

- A) 12 NM
- B) 11 NM
- C) 10 NM
- D) 9 NM

**298- What will be the optimum descent gradient during final approach?**

- A) 2.5°
- B) 3°
- C) 3.3°
- D) 3.5°

**299- Who is responsible to include in SOP, the specific guidance for using on-board technology with ground-based aids?**

- A) Operator
- B) State
- C) State of the operator
- D) Manufacture

**300- How many OCA/H are to be published, when stepdown fix is incorporated on the final approach segment?**

- A) Only one
- B) minimum two
- C) One
- D) Two

**301- How many stepdown fix may be depicted on the final approach segment where suitably DME is located?**

- A) One
- B) Several
- C) Two
- D) Only one

**302- When an aerodrome is served by a single facility as an aerodrome facility, the facility is intended to indicate.....and ..... fix?**

- A) IAF, FAF
- B) IF, FAF
- C) IF, MAPt
- D) IAF, MAPt

**303- What maximum glide path angle do you expect for CAT I operation?**

- A) 4°
- B) 3°
- C) 3.5°
- D) 2.5°

**304- What will be the maximum glide path angle or elevation angle for CAT III operation?**

- A) 4°
- B) 3°
- C) 3.5°
- D) 2.5°

**305- For which category of operation, the obstacle free zone has been established for the protection of balked landing?**

- A) CAT II
- B) CAT III
- C) Both CAT II and III
- D) None

**306- How many phases has a missed approach procedure?**

- A) 1
- B) 2
- C) 3
- D) 4

**307- When the missed approach procedure in precision approach must be initiated?**

- A) At MAPt
- B) Runway not in sight
- C) VDP
- D) Not lower than DA/H

**308- What is the minimum missed approach climb gradient?**

- A) 2.5 %
- B) 2.6 %
- C) 2.7 %
- D) 2.8 %

**309- What is the maximum turn during initial phase of missed approach?**

- A) 15°
- B) 20°
- C) 25°
- D) None

**310- What is the maximum turn from final approach track to the intermediate phase of missed approach?**

- A) 10°
- B) 15°
- C) 20°
- D) 25°

**311- What is the MOC in primary area for the en-route phase in mountainous areas, where variation in terrain elevation is between 3000 ft and 5000 ft?**

- A) 2000 ft
- B) 1000 ft
- C) 1476 ft
- D) 1969 ft

**312- What is MOC in primary area for the en-route phase in mountainous areas where the variation in terrain elevation is greater than 5000 ft?**

- A) 1969 ft
- B) 1476 ft
- C) 2500 ft
- D) 3000 ft

**313- What is the maximum holding speed based on second edition of PANS-OPS at 13000 ft for jet aeroplane in normal condition?**

- A) 230 kts
- B) 240 kts
- C) 220 kts
- D) 210 kts

**314- What is the maximum holding speed at 16000 ft based on TERPS criteria?**

- A) 205 kts
- B) 215 kts
- C) 245 kts
- D) 265 kts

**315- What will be MOC in the holding area?**

- A) 500 ft
- B) 492 ft
- C) 984 ft
- D) 1000 ft

**316- What is width of holding buffer area?**

- A) 4 NM
- B) 5 NM
- C) 3 NM
- D) 2 NM

**317- For which type of aeroplane the noise abatement procedure is designed?**

- A) Propeller
- B) Turboprop
- C) Turbojet
- D) All answers are correct

**318- Who is responsible to specify the location of noise sensitive area and/or the location noise monitors of an aerodrome?**

- A) State
- B) ATC
- C) Operator
- D) Aerodrome authority

**319- Who has the authority to decide not to execute a noise abatement departure procedure if conditions preclude safety?**

- A) Pilot-in-command
- B) Operator
- C) ATC
- D) State

**320- Which document specified the power or thrust setting which are needs for engine anti-icing during departure?**

- A) CDL
- B) Flight manual
- C) MMEL
- D) Aircraft operating manual

**321- Who is responsible to develop the noise abatement procedure?**

- A) State
- B) Operator
- C) State of the operator
- D) State of design

**322- Who is responsible to approve the developed noise abatement procedure?**

- A) State
- B) Operator
- C) State of the operator
- D) State of design

**323- Where the noise abatement approach procedure is developed, the aeroplane shall be on the final landing configuration only?**

- A) After passing OM
- B) After passing MM
- C) After intercepting of GP
- D) At 10 NM

**324- When an arriving aeroplane shall be on the final landing configuration where the noise abatement procedure is developed?**

- A) 9 NM from threshold.
- B) 7 NM from threshold.
- C) 5 NM from threshold.
- D) 3 NM from threshold.

**325- When the published noise procedure should not be required to comply?**

- A) Ceiling is lower than 500 ft
- B) Tailwind is exceeding 5 kts
- C) Horizontal visibility is less than 1.9 km
- D) All answers are correct

**326- When the published noise procedure should not be required where crosswind component?**

- A) Exceeds 15 kts
- B) Exceeds 12 kts
- C) Exceeds 10 kts
- D) All answers are correct

**327- What is the noise initiation speed?**

- A)  $V_2+10$  kts
- B) Not less than  $V_2+10$  kts
- C) Not more than  $V_2+10$  kts
- D)  $V_2+20$  kts

**328- When reduction may take place in (NADP 1)?**

- A) Above 800 ft
- B) Below 800 ft
- C) At or above 800 ft
- D) At or below 800 ft

**329- When the normal transition, for en-route climb is to be made (NADP 2)?**

- A) Above 3000 ft
- B) Below 3000 ft
- C) At and below 3000 ft
- D) At and above 3000 ft

**330- When entry of an arriving aircraft cannot be made on a procedure where a turn at IAF less than 110° on TAA, what procedure shall be flown?**

- A) Reversal procedure
- B) Racetrack procedure
- C) Holding procedure
- D) All answers are correct

**331- When the GNSS or FMC shall not be used by pilot?**

- A) Database is not approved
- B) Database has no information
- C) Database has no DEP or APP procedure
- D) All answers are correct

**332- What is the CDI sensitivity for en-route mode in basic GNSS receivers?**

- A)  $\pm 10$  NM
- B)  $\pm 8$  NM
- C)  $\pm 6$  NM
- D)  $\pm 5$  NM

**333- What is the basic GNSS receiver mode for en-route alert?**

- A)  $\pm 2$  NM
- B)  $\pm 3$  NM
- C)  $\pm 4$  NM
- D)  $\pm 5$  NM

**334- What is the basic GNSS receiver mode for approach?**

- A)  $\pm 2$  NM
- B)  $\pm 1$  NM
- C)  $\pm 0.5$  NM
- D)  $\pm 0.3$  NM

**335- What is the CDI sensitivity for terminal mode?**

- A)  $\pm 2$  NM
- B)  $\pm 1$  NM
- C)  $\pm 0.5$  NM
- D)  $\pm 0.3$  NM

**336- How many kinds of turn may be defined for RNAV departure procedure?**

- A) 2
- B) 3
- C) 4
- D) 5

**337- What maximum speed should be used in the holding associated with airway structure?**

- A) 280 kts
- B) 265 kts
- C) 240 kts
- D) 230 kts

**338- What is the minimum height of transition altitude above the aerodrome?**

- A) Not less than 6000 ft
- B) Not less than 3000 ft
- C) Not less than 4000 ft
- D) Not less than 5000 ft

**339- When above transition altitude, the QNH may be used?**

- A) After approach clearance
- B) Descent to land is begun
- C) At EAT
- D) A and B are correct

**340- When a pilot is not required to make pressure and temperature correction?**

- A) Off route flying
- B) Flying along advisory route
- C) Vectoring by radar
- D) All answers are correct

**341- What is the QFE reference tolerance of serviceable altimeter indication between (0 to 30000 ft)?**

- A)  $\pm 50$  ft
- B)  $\pm 55$  ft
- C)  $\pm 60$  ft
- D)  $\pm 65$  ft

**342- When pressure correction shall be made by pilot?**

- A) Using 1013 hPa
- B) Using QNH
- C) Using QFE
- D) Using QFF

**343- What altimeter correction shall be made per each hPa when pressure is below 1013 hPa?**

- A) 15 ft
- B) 20 ft
- C) 25 ft
- D) 30 ft



**344- What altimeter correction (percent) shall be made per every 10°C below standard temperature?**

- A) 5
- B) 4
- C) 3
- D) 2

**345- When the pilot shall SQUAWK IDENT?**

- A) Requested by the operator
- B) Requested by state
- C) Requested by ATC
- D) Requested by ADIZ

**346- When the pilot shall operate the serviceable transponder?**

- A) Requested by state
- B) All the time during flight
- C) Requested by ATC
- D) Above FL150

**347- What action shall be done by the pilot when "CONFIRM SQUAWK" requested by ATC?**

- A) Verify the mode A code
- B) Reselect assigned code
- C) Confirm to ATC the setting displayed on the controls
- D) All answers are correct

**348- When the pilot shall SQUAWK IDENT?**

- A) Requested by ATC
- B) Requested by operator
- C) Requested by state
- D) Requested by ATS authority

**349- When mode C is operated, what indication of level on the aeroplane altimeter shall include in voice communication?**

- A) Nearest 50 ft
- B) Nearest 100 ft
- C) Nearest 30 ft
- D) Nearest 75 ft

**350- The aircraft identification of aeroplane equipped with mode S shall correspond to which item of flight plan?**

- A) 5
- B) 6
- C) 7
- D) 8

**351- What action shall be taken by a pilot when there is a conflict between RA and ATC instruction?**

- A) Follow RA
- B) Follow ATC instruction
- C) Advice ATC
- D) Don't make any maneuver

**352- What will be the rate of climb or descend (ft/min) throughout of last 1000 ft?**

- A) 800 ft
- B) 1000 ft
- C) 1500 ft
- D) Less than 1500 ft

**353- When the vertical speed reduction shall be started by pilot?**

- A) 800 ft below clearance altitude
- B) 1500 ft below clearance altitude
- C) 500 ft below clearance altitude
- D) 1000 ft below clearance altitude

**354- Who is responsible to develop and implement SOP for aerodrome surface operation?**

- A) Operator
- B) Aerodrome authority
- C) ATC
- D) State

**355- Where you can find the stabilized approach parameters?**

- A) Flight manual
- B) SOP
- C) AIP
- D) PANS-ATM

**356- When an aeroplane shall be on stabilized approach in IMC?**

- A) Not lower than 500 ft
- B) Not lower than MDA/H
- C) Not lower than 1000 ft
- D) After passing OM

**357- When the go-around policy shall be reinforced?**

- A) Every 6 month
- B) Each calendar year
- C) Type rating exam
- D) Through training

**358- What non-specific items should be avoided in response of checklist?**

- A) Set, checked
- B) Switched
- C) Lights
- D) Levers

**359- Which frequency is used as a back-up for 121.5 MHz?**

- A) 243
- B) 40.5
- C) 123.45
- D) 122.5

**360- For which type of aeroplane the "Mach number technique" is used?**

- A) Turbo-jet
- B) Propeller
- C) Turbo-prop
- D) Turbo-fan

**361- The prescribed standard longitudinal separation "in time" between two aeroplane flying same level, over entry point on a particular track is?**

- A) 10 min
- B) 15 min
- C) 20 min
- D) 25 min

**362- Within which ICAO region the Basic RNAV (B-RNAV), without modification is implemented?**

- A) NAT
- B) MID
- C) MID/ASIA
- D) EUR

**363- How many automatic altitude-keeping device shall has an aeroplane for RVSM application within MID airspace?**

- A) One
- B) Two
- C) At least one
- D) At least two

**364- How many primary altimetry systems shall have an aeroplane for operation in MID RVSM airspace?**

- A) Only one
- B) One
- C) Two
- D) None

**365- How the operation of RVSM approved aircraft shall include the approval in the item 10 of flight plan for operation in MID region?**

- A) By letter X
- B) By letter W
- C) By letter Z
- D) By letter Y

**366- When the RVSM shall be suspended in MID region by ATC?**

- A) IMC
- B) CB activity
- C) Severe icing
- D) Severe turbulence

**367- What are the four-dimension information derived from ADS?**

- A) Time and level
- B) Level and speed
- C) Latitude and longitude
- D) A and C are correct

**368- What information are provided by AWOS-A/V?**

- A) Altimeter setting
- B) Visibility
- C) Temperature
- D) A & B are correct

**369- What is maximum speed that may be used by an aeroplane on high speed taxiway?**

- A) 50 kts
- B) 55 kts
- C) 60 kts
- D) 65 kts

**370- What is the reference of 25 NM for terminal arrival altitude (TAA)?**

- A) ARP
- B) Main facility
- C) IAF
- D) CTR

**371- What is the reference of OCH in precision approach (ICAO)?**

- A) Touchdown zone elevation
- B) Aerodrome elevation
- C) Threshold elevation
- D) QFE reference datum height

**372- What type of approach may be executed by an IFR before completing its instrument approach procedure?**

- A) VFR
- B) VMC
- C) Visual approach
- D) Visual contact

**373- How many waypoint(s) may be identified for the purpose area navigation (RNAV)?**

- A) 1
- B) 4
- C) 3
- D) 2

**374- What will be the altimeter error due to wind, if wind speed is 40 kts?**

- A) 201 ft
- B) 220 ft
- C) 250 ft
- D) 300 ft

**375- What is the maximum speed for CAT C during final phase of missed approach?**

- A) 240 kts
- B) 250 kts
- C) 260 kts
- D) 265 kts

**376- What is the maximum speed for CAT B during intermediate phase of missed approach?**

- A) 120 kts
- B) 125 kts
- C) 130 kts
- D) 135 kts

**377- What will be the MOC on the primary area of intermediate approach segment?**

- A) 450 ft
- B) 492 ft
- C) 518 ft
- D) 555 ft

**378- What is the MOC on the primary area of initial approach segment?**

- A) 900 ft
- B) 960 ft
- C) 950 ft
- D) 984 ft

**379- How many type of snow (on the ground) are defined?**

- A) 4
- B) 3
- C) 2
- D) 1

**380- For which instrument approach procedure the vertical path angle (VPA) based on ICAO shall be published?**

- A) BARO-VNAV
- B) Non precision
- C) Circling
- D) Precision CAT III

**381- Which surface to be considered for calculation of obstacle clearance altitude/height for precision approach?**

- A) Balked landing
- B) Obstacle assessment surface (OAS)
- C) Approach surface
- D) Precision surface

**382- Which navigation facility is used as a guidance for instrument approach operation by method of two dimensional (2D)?**

- A) Providing lateral and distance
- B) Providing lateral and vertical
- C) Providing lateral and slope
- D) Providing lateral only

**383- Which navigation facility is used as a guidance for instrument approach operation by method of three dimensional (3D)?**

- A) Providing lateral and distance
- B) Providing lateral and vertical
- C) Providing lateral and slope
- D) Providing lateral only

**384- Which type of instrument approach procedure may have a defined point as VDP?**

- A) Precision approach
- B) Circling approach
- C) Non-precision approach
- D) Non-precision (straight-in)

**385- How many phase may have an emergency situation?**

- A) 1
- B) 2
- C) 3
- D) 4

**386- What is the maximum speed for CAT C during turning departure?**

- A) 265 kts
- B) 290 kts
- C) 120 kts
- D) 300 kts

**387- What is the maximum speed for CAT B during final approach segment?**

- A) 160 kts
- B) 150 kts
- C) 140 kts
- D) 130 kts

## ✓ **EMERGENCY**

**388- Within which section of airway manual you can find intercepting procedure?**

- A) RADIO AIDS
- B) EMERGENCY
- C) TERMINAL
- D) ENROUTE

**389- Within which section of airway manual you can find search & rescue symbol?**

- A) RADIO AIDS
- B) EMERGENCY
- C) TERMINAL
- D) ENROUTE

**390- What frequencies are provided for distress / emergency?**

- A) 500 kHz
- B) 2182 kHz
- C) 8364 kHz
- D) All answers are correct

**391- Within which part of airway manual you can find international distress frequency?**

- A) EMERGENCY
- B) TABLES & CODES
- C) TERMINAL
- D) ENROUTE

**392- What frequency are provided for radiotelephony to be used when assistance is requested by an aeroplane from maritime service?**

- A) 121.5 kHz, 243 MHz
- B) 2182 kHz, 500 kHz
- C) 500 kHz, 121.5 kHz
- D) 2182 MHz, 243 MHz

**393- What ground-air visual signal shall be formed by survivors when required assistance?**

- A) V
- B) X
- C) Y
- D) N



**394- What ground-air visual signal shall be formed by survivors, when required medical assistance?**

- A) Y
- B) N
- C) X
- D) V

**395- What ground-air visual signal shall be formed by rescue units to indicate "we have found only some personnel"?**

- A) LLL
- B) LL
- C) XX
- D) ++

**396- What ground-air visual signal shall be formed by rescue units to inform "operation completed"?**

- A) LL
- B) LLL
- C) ++
- D) XX

**397- Within which section of airway manual you can find radio failure procedure?**

- A) EMERGENCY
- B) ENROUTE
- C) RADIO AIDS
- D) TERMINAL

### **✓ *AIRPORT DIRECTORY***

**398- Within which part of airway manual you can find airport ICAO identifier code?**

- A) ENROUTE
- B) AIRPORT DIRECTORY
- C) EMERGENCY
- D) METEOROLOGY

**399- Within which part of airway manual you can find runway ASDA information?**

- A) ENROUTE
- B) AIRPORT DIRECTORY
- C) EMERGENCY
- D) METEOROLOGY

**400- How can you classify aerodrome firefighting category?**

- A) Overall fuselage length
- B) Fuselage width
- C) Wing tip to wing tip
- D) A & B are correct

**401- How the operational hours of an aerodrome based on prior permission only may be specified?**

- A) PPR
- B) PNR
- C) PPO
- D) PTO

**402- Where can we find tire pressure limitation for runway PCN?**

- A) ENROUTE
- B) AIRPORT DIRECTORY
- C) TABLES & CODES
- D) TERMINAL

**403- What minor overload, may be occasionally accepted on rigid pavement?**

- A) Maximum 10%
- B) Maximum 5%
- C) Maximum 5 tone
- D) Maximum 10 tone

**404- What minor over load, occasionally maybe accepted for unknown pavements?**

- A) Maximum 3%
- B) Maximum 5%
- C) Maximum 10%
- D) Maximum 8%

**405- The "PCN" of Ahwaz is PCN 57/F/C/X/T, what is the type of pavement?**

- A) Flexible
- B) Rigid
- C) Unknown
- D) Asphalt

**406- How the operational hours of an aerodrome based on irregular time maybe specified?**

- A) O/T
- B) PPO
- C) HX
- D) HN

**407- Within which section of airway manual you can find ACN/PCN information?**

- A) RADIO AIDS
- B) AIRPORT DIRECTORY
- C) TERMINAL
- D) ENROUTE

**408- What will be the required fire category where the airplane over-all length is 42 meters and fuselage width is 4.5 meters?**

- A) 6
- B) 7
- C) 8
- D) 9

**409- What minor overload, may be occasionally accepted for flexible pavements?**

- A) Max 10%
- B) Max 3%
- C) Max 5%
- D) None

**410- How the operational hours of an aerodrome based on continuous operation may be specified?**

- A) O/R
- B) H24
- C) PTO
- D) HX

**411- Find the LCN of an airplane with single isolated wheel load of 45 Tone with tire pressure of 7 kg/cm<sup>2</sup>.**

- A) 86
- B) 88
- C) 90
- D) 92

**412- Which section provide information about length of TODA for RUNWAY 10 of Birjand airport?**

- A) AIRPORT DIRECTORY
- B) EMERGENCY
- C) INTRODUCTION
- D) ENROUTE

**413- Which section provide information about fire category of Bushehr airport?**

- A) AIRPORT DIRECTORY
- B) EMERGENCY
- C) INTRODUCTION
- D) ENROUTE

**414- What will be the airport rescue and firefighting category for an aeroplane with over-all length of 52 meters?**

- A) 8
- B) 7
- C) 9
- D) 6

**415- What will be the airport rescue and firefighting category for an aeroplane with over-all length of 28 meters?**

- A) 7
- B) 5
- C) 6
- D) 8

**416- What unit of measurement indicate the subgrade strength of flexible pavement?**

- A) MPA
- B) KELVIN
- C) NEWTON
- D) CBR

**417- The bearing strength of a pavement for aircraft with all-up mass equal to 5700 kg shall be available by reporting ----- .**

- A) Maximum allowable mass and pressure
- B) PCN
- C) Maximum allowable mass
- D) LCN/LCG

**418- Which document contain the information regarding SIWL/ESIWL?**

- A) Flight manual
- B) Airport operating manual
- C) Aircraft operations manual
- D) PANS-OPS (Doc. 8168)

**419- What is the purpose of providing a stopway for a runway?**

- A) Abandoned take-off
- B) Balked landing
- C) Take-off
- D) Landing

**420- What is the meaning of "U" regarding the fuel on an aerodrome?**

- A) Unknown octane of fuel
- B) Unknown type of fuel
- C) Unknown providing service
- D) B and C are correct

**421- What is the meaning of "X" in PCN 80/R/C/X/T?**

- A) Tire pressure is limited to 1.85 MPa
- B) Tire pressure is limited to 1.75 MPa
- C) Tire pressure is limited to 1.65 MPa
- D) Tire pressure is limited to 1.55 MPa

## ✓ **TERMINAL**

**422- Which section contain instrument approach charts?**

- A) RADIO AIDS
- B) GENERAL
- C) TERMINAL
- D) ENROUTE

**423- Within which section of airway manual you can find SHIRAZ AIRPORT chart?**

- A) RADIO AIDS
- B) METEOROLOGY
- C) TERMINAL
- D) ENROUTE

**424- Within which section of airway manual you can find SHIRAZ RADAR chart?**

- A) RADIO AIDS
- B) METEOROLOGY
- C) TERMINAL
- D) ENROUTE

**425- REF Shiraz instrument approach procedure (13-1) what is the maximum missed approach speed indicated on missed approach icon?**

- A) 180
- B) 185
- C) 200
- D) 205

**426- REF Chah Bahar instrument approach procedure (13-1), the lowest level up to lead radial may an aircraft descend is?**

- A) 390 ft.
- B) FL045.
- C) 3000 ft.
- D) 1900 ft.

**427- REF Bahrain chart (13-3), if QNH is 1016 hPa, what is the QFE?**

- A) 1016
- B) 1017
- C) 1018
- D) 1019

**428- REF Dubai chart (12-1) what is the name of final approach fix?**

- A) KUVON
- B) TOXOD
- C) VEDAG
- D) OSTIN

**429- REF Imam Khomeini chart (21-7) what is the minimum level from Varamin for ILS interception?**

- A) 6450 ft
- B) 6410 ft
- C) 6140 ft
- D) 6448 ft

**430- REF Imam Khomeini chart (21-7), what is the maximum holding speed over KAZ?**

- A) 220 kts
- B) 210 kts
- C) 230 kts
- D) 240 kts

**431- REF Shiraz chart (10-1R1), what minimum level do you expect between R 305 - R 310 within 8 NM?**

- A) 7000 ft
- B) 8000 ft
- C) 8500 ft
- D) 9000 ft

**432- REF Shiraz chart (10-3H), what is the track range of KATIB 2C to reach to KATIB?**

- A) 85 NM
- B) 90 NM
- C) 92 NM
- D) 98 NM

**433- REF Shiraz chart (10-3H), how many turning point/cross mileage are charted?**

- A) 3
- B) 2
- C) 1
- D) None

**434- REF Mehrabad aerodrome chart (10-9A), what is the height of jet barrier (net barrier) in ft?**

- A) 10
- B) 12
- C) 14
- D) 16

**435- REF Mehrabad aerodrome chart (10-9A), what is the direction of traffic circuit of 11L?**

- A) Right
- B) Left
- C) Both
- D) None

**436- REF Mehrabad aerodrome chart (10-9A), what is the distance of arrester gear (hock barrier) in meters from runway 29L?**

- A) 598
- B) 972
- C) 197
- D) 792

**437- REF Mehrabad aerodrome chart (10-9A), what is the angle of PAPI for runway 11R?**

- A) 3.3°
- B) 3.36°
- C) 3.22°
- D) 3.26°

**438- REF Mehrabad aerodrome chart (10-9A), what is the minimum take-off visibility for departure, when runway lighting are on?**

- A) 500 m
- B) 300 m
- C) 400 m
- D) 1200 m

**439- REF Mehrabad aerodrome chart (10-9A), what is the width of runway 29L?**

- A) 60 m
- B) 40 m
- C) 50 m
- D) 45 m

**440- REF Mehrabad chart (10-9), what is ASDA of runway 29L?**

- A) 13087 ft
- B) 13507 ft
- C) 13222 ft
- D) 13622 ft

**441- REF Mehrabad chart (10-9), which runway elevation is airport elevation?**

- A) 11R
- B) 11L
- C) 29L
- D) 29R

**442- REF Mehrabad chart (10-9), how many helicopter landing PAD are charted?**

- A) 4
- B) 1
- C) 3
- D) 2



**443- REF Imam Khomeini chart (21-1), if the ground speed of an aircraft is 220 kts during missed approach what is the ROC/minute?**

- A) 740 ft
- B) 735 ft
- C) 745 ft
- D) 750 ft

**444- REF Imam Khomeini chart (21-1), what is the RVR of straight-in landing, when ALS out?**

- A) 500 m
- B) 720 m
- C) 550 m
- D) 1200 m

**445- REF Dubai chart (11-1), what is DH minimum for CAT IIIA for the operator using issues standard chart format?**

- A) 50 ft
- B) 100 ft
- C) 150 ft
- D) 200 ft

**446- REF Dubai chart (11-1), what is the distance of FAF to "0" point?**

- A) 5.2 NM
- B) 7.3 NM
- C) 6.8 NM
- D) 6.4 NM

**447- REF Esfahan chart (11-1), what is minimum level after crossing lead radial?**

- A) 7000 ft
- B) 7500 ft
- C) 6800 ft
- D) None

**448- Within which section of airway manual you can find RNAV charts?**

- A) RADIO AIDS
- B) METEOROLOGY
- C) TERMINAL
- D) ENROUTE

**449- Which section contains instrument approach charts?**

- A) RADIO AIDS
- B) GENERAL
- C) TERMINAL
- D) ENROUTE

**450- REF Shiraz instrument approach procedure (13-1) what is the maximum holding speed, in normal condition?**

- A) 170 kt
- B) 230 kt
- C) 240 kt
- D) 250 kt

**451- REF Chah Bahar airport chart (13-1) what is the “ASDA” of runway 27L?**

- A) 9000 ft
- B) 10181 ft
- C) 9360 ft
- D) 11743 ft

**452- REF Bahrain chart (13-3), what is the time of outbound leg of holding?**

- A) 4 min
- B) 1.5 min
- C) 1 min
- D) 5 min

**453- REF Dubai chart (12-1) the [2.87°] means?**

- A) ILS glide slope
- B) VNAV
- C) MLS glide slope
- D) All answers are correct

**454- REF Dubai chart (12-1) the numbers shown on the line of descend angle means?**

- A) M/S
- B) ft/S
- C) ft/min
- D) M/min

**455- REF Imam Khomeini chart (21-7), what is the missed approach holding level?**

- A) 9000 ft
- B) 8000 ft
- C) 7000 ft
- D) 6000 ft

**456- REF Imam Khomeini chart (21-7) what is the recommended altitude at 5 DME?**

- A) 4850 ft
- B) 4848 ft
- C) 4840 ft
- D) 4830 ft

**457- REF Shiraz (10-3E), what is track range to reach over KASOL based on KASOL 2C?**

- A) 86
- B) 82
- C) 80
- D) 78

**458- REF Shiraz chart (10-3E), if ground speed of departing aircraft is 234 kts how long does it take to reach to KARAM via KARAM 2D?**

- A) 18 min
- B) 19 min
- C) 21 min
- D) 20 min

**459- REF Imam Khomeini aerodrome chart (20-9), how many locations the RVR are installed?**

- A) 1
- B) 2
- C) 3
- D) 4

**460- REF Imam Khomeini aerodrome chart (20-9), which runway has the precision approach with side row?**

- A) 29
- B) 11
- C) Both
- D) None

**461- REF Imam Khomeini aerodrome chart (20-9), what is distance between VOR and NDB?**

- A) 1800 ft.
- B) 2000 ft.
- C) 2100 ft.
- D) 2200 ft.

**462- REF Imam Khomeini aerodrome chart (20-9A), which runway equipped with touchdown zone lights?**

- A) 29
- B) 11
- C) Both
- D) None

**463- REF Imam Khomeini aerodrome chart (20-9A), which lights may be operational for LVP take-off?**

- A) Runway lights
- B) Runway center line lights
- C) A and B are correct
- D) VASI

**464- REF Imam Khomeini aerodrome chart (20-9A), what is the angle of PAPI of runway 29?**

- A) 2.9°
- B) 3.0°
- C) 3.1°
- D) 3.2°

**465- REF Imam Khomeini aerodrome chart (20-9A), what is the runway length (in ft) when using ILS?**

- A) 12801 ft
- B) 13773 ft
- C) 13005 ft
- D) 12900 ft

**466- REF Esfahan aerodrome chart (11-1), How many wind indicator is installed on the aerodrome?**

- A) 1
- B) 2
- C) 3
- D) 4

**467- REF Esfahan aerodrome chart (11-1), what is true direction of runway 26L?**

- A) 075
- B) 255
- C) 258
- D) 078

**468- REF Esfahan aerodrome chart (11-1), How many cross bar are shown on the approach light of runway 26L?**

- A) 5
- B) 4
- C) 3
- D) 2

**469- REF Esfahan aerodrome chart (11-1), what is the length of 26R (ASDA)?**

- A) 15600 ft
- B) 15607 ft
- C) 15610 ft
- D) 15617 ft

**470- REF Esfahan aerodrome chart (11-1), what is the distance of ILS glide slope antenna from threshold of runway 26R?**

- A) 1416 ft.
- B) 1426 ft.
- C) 1215 ft.
- D) 1216 ft.

**471- REF Esfahan aerodrome chart (11-1), what is the width of runway?**

- A) 48 M
- B) 45 M
- C) 50 M
- D) 52 M

**472- REF Esfahan chart (11-1), How many initial approach fix are provided?**

- A) 1
- B) 2
- C) 3
- D) 4

**473- REF Bahrain chart (13-3), what is the distance of intermediate fix from VOR?**

- A) 7 NM
- B) 4.8 NM
- C) 12 NM
- D) 10 NM

**474- REF Dubai chart (12-1), how many aircraft at the same time may hold over PINGO?**

- A) 5
- B) 4
- C) 3
- D) 2

**475- REF Imam Khomeini chart (21-7), what is the entry procedure of a missed approach aircraft for KAZ after missed approach?**

- A) Off set
- B) Direct
- C) Parallel
- D) A or C is correct

**476- REF Imam Khomeini chart (21-7), what is the missed approach climb gradient (ft/NM)?**

- A) 152
- B) 170
- C) 200.5
- D) 210

**477- REF Shiraz chart (10-3 H), what is the KATIB 2A track range?**

- A) 81 NM
- B) 85 NM
- C) 73 NM
- D) 89 NM

**478- REF Shiraz chart (10-3 H), what will be the minimum ROC/NM of departing aircraft to cross 15 DME at 10,000 ft based on airport elevation?**

- A) 353 ft
- B) 350 ft
- C) 369 ft
- D) 363 ft

**479- REF Esfahan aerodrome chart (11-1), which runway elevation is airport elevation?**

- A) 26R
- B) 26L
- C) 08L
- D) 08R

**480- REF Esfahan aerodrome chart (11-1), which runway is equipped with ILS?**

- A) 08R
- B) 08L
- C) 26L
- D) 26R

**481- REF Esfahan aerodrome chart (11-1), what is the distance of runway lights from each other?**

- A) 60 m
- B) 100 m
- C) 45 m
- D) 50 m

**482- REF Esfahan aerodrome chart (11-1) the N 32 45.1 E 051 51.8 related to:**

- A) VOR
- B) NDB
- C) ARP
- D) Control tower

**483- REF Esfahan aerodrome chart (11-1), how many cross bar has 26L approach lights?**

- A) 3
- B) 5
- C) 4
- D) 2

**484- REF Esfahan aerodrome chart (11-1), if the VAR is 3° E, what is the MAG track of runway 08L?**

- A) 075
- B) 255
- C) 258
- D) 078

**485- REF Esfahan aerodrome chart (11-1), what is TORA of runway 26L?**

- A) 8694 ft
- B) 15610 ft
- C) 14426 ft
- D) 14246 ft

**486- REF Esfahan aerodrome chart (11-1), what is ASDA of runway 08L?**

- A) 15617 ft
- B) 14426 ft
- C) 15610 ft
- D) 14462 ft

**487- REF Esfahan aerodrome chart (11-1), what is the TODA of runway 26L?**

- A) 8694 ft
- B) 8858 ft
- C) 7008 ft
- D) None

**488- REF Khark island aerodrome chart (10-9) what is the LDA of runway 31?**

- A) 7657 ft
- B) 6345 ft
- C) 6332 ft
- D) 6232 ft

**489- REF Khark island aerodrome chart (10-9), for which category of aircraft, the take-off minima is not applicable?**

- A) A
- B) B
- C) C
- D) D

**490- REF to KHARK island aerodrome chart (10-9), within which of the following area the KHARK aerodrome is located?**

- A) P
- B) R
- C) D
- D) C

**491- REF to KHARK island aerodrome chart (10-9), what type of air traffic service are provided to aircraft?**

- A) ATC
- B) Advisory
- C) AFIS
- D) All answers are correct

**492- REF to Esfahan chart (11-1), the missed approach icon indicated the turn of?**

- A) Less than 45°
- B) Straight
- C) 45°
- D) More than 45°



**493- REF to Esfahan chart (11-1), what is the localizer frequency?**

- A) 109.90
- B) 110.10
- C) 110.30
- D) 111.90

**494- REF to Esfahan chart (11-1), what is the minimum north holding altitude?**

- A) 11000 ft
- B) 10000 ft
- C) 9000 ft
- D) 8000 ft

**495- REF to Esfahan chart (11-1), what is the distance between R-166 and R-109 in 12 DME arc ISN?**

- A) 10 NM
- B) 11 NM
- C) 12 NM
- D) 13 NM

**496- REF to Esfahan chart (11-1), what is the maximum speed during circle to land for CAT D?**

- A) 100 kts
- B) 135 kts
- C) 180 kts
- D) 205 kts

**497- REF Shiraz chart (11-5), what is the maximum initial approach speed that restricted by chart?**

- A) 220 kts
- B) 230 kts
- C) 240 kts
- D) 250 kts

**498- REF Shiraz chart (11-5), what is the minimum missed approach climb gradient?**

- A) 6.3 %
- B) 6.0 %
- C) 5.5 %
- D) 5.1 %

**499- REF Shiraz chart (11-5), what is the distance of ILS/DME from threshold of runway 29L?**

- A) 0.4 NM
- B) 0.3 NM
- C) 0.2 NM
- D) 0.1 NM

**500- REF Shiraz chart (11-5), what is the minimum visibility for CAT C aircraft during circle to land?**

- A) 2000 m
- B) 3200 m
- C) 4200 m
- D) 4800 m

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	D	26	D	51	B	76	C
2	C	27	C	52	D	77	B
3	B	28	D	53	A	78	A
4	D	29	B	54	B	79	C
5	D	30	C	55	C	80	C
6	B	31	D	56	B	81	B
7	C	32	B	57	C	82	B
8	D	33	B	58	D	83	A
9	A	34	C	59	B	84	B
10	B	35	A	60	D	85	D
11	D	36	C	61	B	86	B
12	B	37	B	62	B	87	D
13	C	38	C	63	C	88	C
14	B	39	B	64	A	89	D
15	C	40	D	65	D	90	B
16	A	41	A	66	C	91	D
17	C	42	D	67	A	92	C
18	A	43	B	68	C	93	A
19	C	44	B	69	C	94	D
20	C	45	D	70	A	95	A
21	B	46	B	71	B	96	B
22	D	47	D	72	D	97	B
23	B	48	C	73	C	98	D
24	B	49	A	74	A	99	C
25	C	50	B	75	B	100	A

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	C	126	D	151	B	176	B
102	B	127	A	152	C	177	C
103	B	128	B	153	B	178	C
104	D	129	D	154	D	179	C
105	A	130	C	155	C	180	A
106	A	131	B	156	A	181	C
107	D	132	A	157	B	182	D
108	C	133	D	158	D	183	A
109	C	134	C	159	D	184	A
110	C	135	D	160	B	185	A
111	C	136	C	161	C	186	B
112	B	137	A	162	C	187	B
113	B	138	B	163	D	188	B
114	D	139	D	164	C	189	A
115	A	140	C	165	C	190	D
116	B	141	B	166	B	191	D
117	B	142	C	167	B	192	A
118	C	143	C	168	C	193	C
119	D	144	B	169	C	194	C
120	C	145	A	170	D	195	B
121	A	146	B	171	B	196	C
122	D	147	D	172	B	197	A
123	B	148	D	173	A	198	A
124	C	149	B	174	D	199	B
125	A	150	B	175	C	200	C

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
201	A	226	B	251	C	276	D
202	C	227	D	252	D	277	A
203	D	228	D	253	A	278	D
204	B	229	A	254	C	279	B
205	B	230	D	255	B	280	C
206	C	231	A	256	D	281	D
207	A	232	B	257	A	282	B
208	C	233	C	258	D	283	A
209	A	234	A	259	B	284	D
210	B	235	C	260	C	285	A
211	B	236	D	261	A	286	C
212	A	237	B	262	B	287	D
213	C	238	C	263	D	288	C
214	B	239	D	264	C	289	B
215	B	240	A	265	A	290	D
216	D	241	B	266	B	291	A
217	A	242	C	267	D	292	C
218	D	243	A	268	B	293	B
219	A	244	D	269	C	294	D
220	B	245	B	270	B	295	B
221	A	246	C	271	B	296	D
222	A	247	A	272	A	297	C
223	C	248	D	273	C	298	B
224	B	249	A	274	D	299	A
225	C	250	B	275	B	300	D

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
301	B	326	A	351	A	376	C
302	D	327	B	352	D	377	B
303	C	328	C	353	C	378	D
304	B	329	D	354	A	379	B
305	C	330	A	355	B	380	A
306	C	331	C	356	C	381	B
307	D	332	D	357	D	382	D
308	A	333	A	358	A	383	B
309	D	334	D	359	C	384	D
310	B	335	B	360	A	385	C
311	C	336	C	361	B	386	A
312	A	337	A	362	D	387	D
313	C	338	B	363	A	388	B
314	D	339	D	364	C	389	B
315	C	340	C	365	B	390	D
316	B	341	C	366	D	391	A
317	C	342	A	367	D	392	B
318	D	343	D	368	D	393	A
319	A	344	B	369	C	394	C
320	D	345	C	370	C	395	D
321	B	346	B	371	C	396	B
322	C	347	D	372	C	397	A
323	A	348	A	373	D	398	B
324	C	349	B	374	A	399	B
325	D	350	C	375	A	400	D

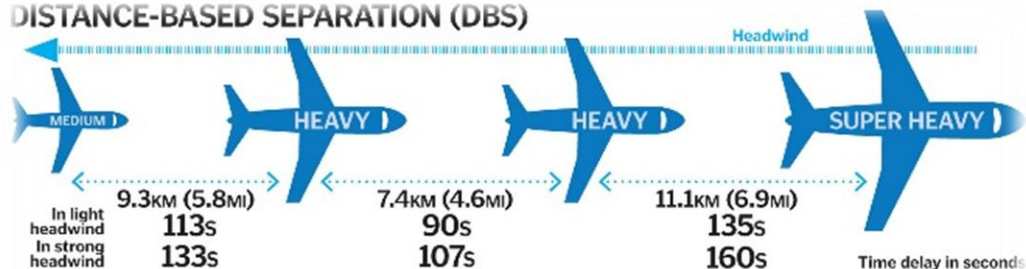
QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
401	C	426	C	451	A	476	C
402	B	427	A	452	B	477	B
403	B	428	B	453	B	478	D
404	B	429	A	454	C	479	D
405	A	430	C	455	D	480	D
406	C	431	B	456	A	481	A
407	B	432	B	457	A	482	C
408	B	433	A	458	D	483	B
409	A	434	B	459	B	484	A
410	B	435	A	460	A	485	C
411	C	436	D	461	B	486	C
412	A	437	B	462	A	487	D
413	A	438	C	463	C	488	C
414	A	439	A	464	B	489	D
415	C	440	C	465	A	490	B
416	D	441	B	466	B	491	C
417	A	442	D	467	C	492	D
418	C	443	B	468	A	493	A
419	A	444	D	469	D	494	B
420	D	445	A	470	C	495	C
421	B	446	C	471	B	496	D
422	C	447	A	472	C	497	A
423	C	448	C	473	D	498	B
424	C	449	C	474	D	499	C
425	B	450	B	475	C	500	D





# ANNEX 2

## DISTANCE-BASED SEPARATION (DBS)

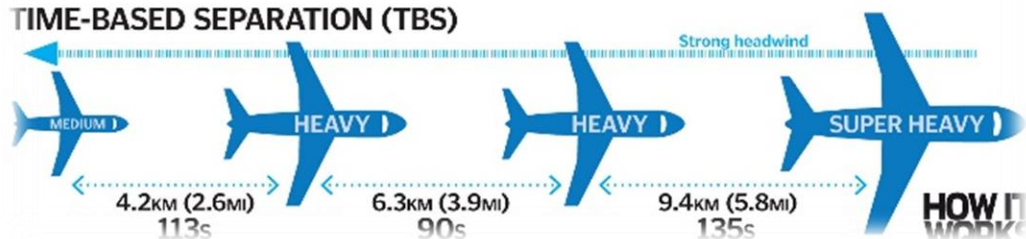


To solve this problem, NATS has developed a new system that separates the aircraft based on time instead of distance.

It discovered that when flying into strong headwinds, an aircraft's wake vortex dissipates more quickly, meaning the distance between them can be reduced. Using real-time wind data, the optimum distance between

aircraft is calculated for the specific conditions, helping the controller maintain a normal landing rate of about 40 aircraft per hour. This new system is being introduced at London Heathrow Airport in spring 2015, with the hope that it will significantly reduce the number of flight delays and cancellations.

## TIME-BASED SEPARATION (TBS)



**1- Which Annex to the Chicago Convention contain information about personal licensing?**

- A) ANNEX 16.
- B) ANNEX 17.
- C) ANNEX 1.
- D) ANNEX 15.

**2- What is a danger area?**

- A) An airspace of defined dimensions above the land areas or territorial waters of a State within which flight of aircraft is prohibited.
- B) An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.
- C) A NOTAM activated airspace where the general flight rules are disregarded.
- D) An airspace of defined dimensions within which air traffic control service is provided to IFR flights and to VFR flights in accordance with the airspace classification.

**3- What is Special VFR?**

- A) A flight in IMC for which the pilot and/or the airplane is unable to comply with the requirements of IFR.
- B) A VFR flight cleared by ATC to operate within a CTR in meteorological conditions below VMC.
- C) A VFR procedure to enable an airplane to transit a control zone or area in IMC without compliance with IFR.
- D) Any flight cleared by ATC to operate in conditions less than VMC in which the pilot is required to remain clear of cloud and in sight of the surface.

**4- Which type of traffic shall comply with rules of the air?**

- A) To all IFR traffic.
- B) To all VFR traffic.
- C) Only to aircraft registered in the State being over flown.
- D) Both A and B are correct.

**5- Which action shall be taken by an aircraft in the traffic pattern of an aerodrome, experiencing radio failure to indicate difficulties which compel it to land without requiring immediate assistance?**

- A) The repeated switching on and off of the landing lights.
- B) Switching on and off four times the landing lights.
- C) Switching on and off four times the navigation lights.
- D) Switching on and off three times the landing lights.

**6- You have filed a VFR flight plan. What do you put in field 16 (total estimated elapsed time)?**

- A) Time from brakes off to overhead the destination.
- B) Time from brakes off to landing time.
- C) Time from takeoff to overhead the destination.
- D) Time from takeoff to landing.

**7- An aircraft operated on, or in the vicinity of, an aerodrome shall whether or not within an ATZ:**

- 1) Observe other aerodrome traffic for the purpose of avoiding collision.
- 2) Conform with or avoid the pattern of traffic formed by other aircraft in operation.
- 3) Make all turns to the right, when approaching for landing or taking-off unless otherwise instructed.
- 4) Land and take off into the wind unless safety, the runway configuration, or an air traffic consideration determines that a different direction should be used.

**Which statements are correct?**

- A) 2,3,4
- B) 1,3,4
- C) 1,2,4
- D) 1,2,3

**8- Aircraft shall not be flown in formation except:**

- A) By pre-arrangement among the pilots taking part.
- B) By pre-arrangement among the PICs taking part.
- C) By pre-arrangement among the PICs taking part and if the flight is to be in control airspace in accordance with the conditions laid out by ICAO Annex 2.
- D) By pre-arrangement among the PICs taking part and if the flight is to be in control airspace in accordance with the conditions laid out by ICAO Annex 2 and supplemented by the national procedures.

**9- For which of the following condition in accordance with Annex 2, the flight plan must be submitted?**

- A) Any flight across an international border.
- B) Any IFR flight in advisory airspace.
- C) Any flight in controlled airspace and receive air traffic control service.
- D) All answers are correct.

**10- An aircraft is crossing your flight path from left to right, which light will you see?**

- A) Steady red.
- B) Steady green.
- C) Flashing green.
- D) White.

**11- On a VFR flight, your magnetic track is 005°, the magnetic heading 355°. Which of the following flight level is correct?**

- A) FL060
- B) FL055
- C) FL065
- D) FL070

**12- On a VFR flight, which of the following cruising levels would you select under the following conditions: True track 358°, variation 3°W, deviation 2°W?**

- A) FL080
- B) FL065
- C) FL070
- D) FL075

**13- When an aircraft is operating in class F airspace below 900 m AMSL, the minimum horizontal distance from cloud for VFR flight is:**

- A) 1500 Ft.
- B) 1500 m.
- C) 5 km.
- D) Clear of clouds and surface in sight.

**14- A VFR flight shall comply with the ATC clearances under which of the following conditions?**

- 1) When operated in Class A, B, C and D airspace.
- 2) When forming part of aerodrome traffic at a controlled aerodrome.
- 3) When operated as special VFR flights.

- A) 1, 2 are correct.
- B) 2, 3 are correct.
- C) 1, 3 are correct.
- D) All statements are correct.

**15- In areas where a separation minimum of 1000 ft is applied up to FL410, authorization for VFR flight shall not be granted above which flight level?**

- A) FL190
- B) FL200
- C) FL240
- D) FL290

**16- An aircraft used for simulated instrument flying must have:**

- A) Dual controls.
- B) Dual controls and a competent observer.
- C) A qualified safety pilot and fully functioning dual controls.
- D) A competent observer in the front seat.

**17- What is the appropriate IFR flight level for a magnetic track of 125° in non-RVSM airspace?**

- A) FL280
- B) FL290
- C) FL350
- D) FL310

**18- An aircraft intercepted by another aircraft, if equipped with SSR transponder shall, unless otherwise instructed by the appropriate ATS unit, select one of the following codes in mode A:**

- A) 7000
- B) 7700
- C) 7500
- D) 7600

**19- An intercepted aircraft is to attempt to communicate with the intercepting aircraft. Which frequency is to be used?**

- A) 121.500 MHz
- B) 118.100 MHz
- C) 249.000 MHz
- D) 123.450 MHz

**20- At or below the transition altitude, the altimeter setting should be:**

- A) QFE
- B) QNE
- C) 1013.2 hPa
- D) QNH

**21- The vertical position of an aircraft at or above the transition level will be reported:**

- A) As altitude.
- B) As height.
- C) As flight level.
- D) According to pilot's choice.

**22- At least which services have to be provided by ATS within a flight information region?**

- A) Flight information service and alerting service.
- B) Flight information service.
- C) Flight information service and air traffic advisory service
- D) Flight information service and air traffic control service.

**23- A TMA is:**

- A) An area in which submission of a flight plan is not required.
- B) A control airspace establishes at confluence of ATS route around one or major aerodrome.
- C) A CTR.
- D) Available at all times to VFR traffic.

**24- A controlled airspace extending upwards from the surface of the earth to a specified upper limit is:**

- A) Air traffic zone.
- B) Control area.
- C) Control zone.
- D) Advisory airspace.

**25- The definition of "Maneuvering Area" is:**

- A) That part of an aerodrome to be used for takeoff, landing and taxiing of aircraft, including apron(s).
- B) That part of an aerodrome to be used for takeoff, landing and taxiing of aircraft, excluding apron(s).
- C) That part of an aerodrome to be used for takeoff, landing and taxiing of aircraft, including movement area and apron(s).
- D) None.

**26- For an IFR flight to an airport equipped with navigation aids, the estimated time of arrival is the estimated time at which the aircraft:**

- A) Will leave the initial approach fix to start the final approach.
- B) Will land.
- C) Will stop on the parking area.
- D) Will arrive over the designated navigation facility.

**27- What is the objective of the alerting service?**

- A) To prevent collisions between aircraft.
- B) To provide the advisory service.
- C) To notify appropriate organizations regarding aircraft in need of assistance.
- D) Provide advice and information useful to the safe and efficient conduct of flights.

**28- A controlled flight is:**

- A) Any flight in C, D or E class airspace.
- B) Any flight in uncontrolled airspace.
- C) Any flight which is subject to an ATC clearance.
- D) Any IFR flight.

**29- FIS:**

- A) Provides an aerodrome and approach control service for the efficient conduct of flight.
- B) Provides flight plan services for the safe and efficient conduct of flight.
- C) Provides control useful for the safe and efficient conduct of flight.
- D) Provides advice and information useful for the safe and efficient conduct of flight.

**30- Approach control service is provided for:**

- A) All arriving and departing controlled flights.
- B) All arriving IFR traffic.
- C) Traffic within the CTA.
- D) All VFR traffic.

**31- The part of an aerodrome provided for the stationing of aircraft for the purpose of embarking and disembarking passengers, loading and unloading of cargo and refueling and parking is known as:**

- A) Movement area.
- B) Maintenance area.
- C) Apron.
- D) Maneuvering area.

**32- Which of the following signals is a distress signal?**

- A) A parachute flare showing a red light.
- B) The repeated switching on and off the landing lights.
- C) The repeated switching on and off the navigation lights.
- D) In radiotelephony the spoken word PANPAN.

**33- For which type of operation, the advisory service may be provided?**

- A) Controlled IFR
- B) SVFR
- C) CVFR
- D) IFR

**34- What is the purpose of air traffic control service?**

- A) Prevent collision between aircraft
- B) Expedite flow of traffic
- C) A and B are correct
- D) A or B is correct

**35- Airway is a control area in the form of:**

- A) Corridor
- B) Area
- C) Arrival route
- D) Uncontrolled route

**36- How many controlled airspaces are classified by ICAO?**

- A) 5
- B) 7
- C) 4
- D) 3

**37- Within which class of controlled airspace an IFR is not subject to control?**

- A) E
- B) C
- C) D
- D) All answers are incorrect

**38- Based on what facility the ACAS operate:**

- A) NAV AIDS
- B) SSR
- C) SSR transponder
- D) Communication

**39- What is vertical position of an aircraft, if set 1013.2 hPa?**

- A) Flight level
- B) Altitude
- C) Height
- D) None

**40- What will be the level of aircraft below lowest usable flight level?**

- A) Flight level
- B) Altitude
- C) Height
- D) None

**41- Who is the relevant authority for an aircraft operating over high seas?**

- A) State of manufacture
- B) State of design
- C) State of registry
- D) State of operator

**42- Chang over point may be established on a route which is equipped with:**

- A) DME
- B) NDB
- C) VOR
- D) ILS



**43- Who is responsible to establish minimum flight altitude?**

- A) State
- B) Operator
- C) Pilot-in-command
- D) All answers are correct

**44- Who is responsible for the operation of aircraft?**

- A) Pilot-in-command
- B) Operator
- C) State
- D) A person who recognize by ATCU

**45- Which navigation light of overtaken aircraft may not be seen at night?**

- A) Port
- B) Starboard
- C) Rear
- D) A or B is correct

**46- Which aircraft has right of way?**

- A) Landing
- B) Taking off
- C) Emergency
- D) Urgency

**47- What is the first action of pilots when two aircraft are approaching head-on, on the ground?**

- A) Alter its course to the left.
- B) Alter its course to the right
- C) Both aircraft shall stops
- D) Both aircraft alter heading to the right

**48- What is the purpose of using navigation light?**

- A) Indicate relative flight path
- B) Attract attention
- C) A and B are correct
- D) A or B is correct

**49- What is the purpose of ACAS?**

- A) Provide traffic and resolution advisory to pilot
- B) Provide advice to ATC
- C) Provide weather information
- D) Receive information by ADS

**50- Who is the appropriate authority of an aircraft operating over a territory of a state?**

- A) The state having sovereignty
- B) State of registry
- C) State of design
- D) State of manufacture

**51- The lowest layer of clouds is called ceiling when it is:**

- A) Below 6000 m
- B) Below 20000 ft
- C) Above 6000 m
- D) A or B are correct

**52- Which portion of flight is called "significant portion" of flight?**

- A) Cruise
- B) Climb
- C) Descend
- D) None

**53- Which area shall not be established over the high seas?**

- A) Prohibited area
- B) Restricted area
- C) Danger area
- D) A and B are correct

**54- When may an IFR flight cancel its IFR flight?**

- A) Ground in sight
- B) In VMC
- C) Uninterrupted ground in sight
- D) Uninterrupted VMC

**55- An IFR flight shall not operate?**

- A) Above MEA
- B) Above FL200
- C) Below minimum flight altitude
- D) Along advisory route

**56- Who are responsible to arrange a formation flight within uncontrolled airspace?**

- A) Pilots -in-command
- B) Appropriate authority
- C) Air traffic controller
- D) None

**57- What action shall be taken by an overtaking aircraft on the ground?**

- A) Contact with ATC
- B) Turn left
- C) Keep well clear
- D) All answers are correct

**58- Which lights may be switched off during flight?**

- A) Anti-collision lights
- B) Red anti-collision lights
- C) Any flashing lights
- D) Green flashing light

**59- How long after ETA or acknowledge expected approach time the radio failure aircraft must to be landed?**

- A) Within 3 min
- B) Within 20 min
- C) Within 30 min
- D) Within 40 min

**60- ADS stand for:**

- A) Automatic direction specification
- B) Aerodrome data system.
- C) Aviation development service
- D) Automatic dependent surveillance

**61- Acrobatic flight is a flight consist of manoeuvres performed by an aircraft involving abrupt changes in attitude or speed.....**

- A) Intentionally
- B) Compulsory
- C) Automatically
- D) All answers are correct

**62- Advisory route is....**

- A) A designated route along which air traffic control service is available.
- B) A designated control zone within which air traffic advisory service is available.
- C) A designated route along which air traffic control and advisory service is available.
- D) A designate route along which air traffic advisory service is available.

**63- Movement of helicopter/VTOL above the surface of an aerodrome is normally at a ground speed.....**

- A) More than 20Kt
- B) 20Kt
- C) Less than 20Kt
- D) 37Km

**64- Aeronautical information publication will be issued by:**

- A) State
- B) Operator
- C) ATC unit
- D) Flight standard

**65- An airspace of defined dimension established around an aerodrome for the protection of aerodrome traffic is.....**

- A) CTR
- B) ATZ
- C) CTA
- D) TMA

**66- Maneuvering area is consisting of:**

- A) Runway and Taxiway
- B) Runway, Taxiway and apron
- C) Runway, Taxiway and isolated parking
- D) All answers are correct

**67- All aircraft flying in the vicinity of an aerodrome and all traffic operating on the maneuvering area of an aerodrome is:**

- A) Controlled traffic
- B) Known traffic
- C) Aerodrome traffic
- D) Air traffic

**68- Altitude is measured from....**

- A) MSL
- B) AGL
- C) Aerodrome elevation
- D) Specific datum

**69- Who are safety-sensitive personnel?**

- A) Air traffic controllers
- B) Crew members
- C) Aircraft maintenance personnel
- D) All answers are correct

**70- An airspace extending upwards from surface of the earth is....**

- A) Control area
- B) Control zone
- C) ATZ
- D) TMA

**71- Radiotelephony is a form of radio communication in the form of:**

- A) Speech
- B) Signal
- C) Data link
- D) All answers are correct

**72- Taxiing is movement of an aircraft on the surface of an aerodrome under its own power.....**

- A) Including take-off roll
- B) Excluding take-off roll
- C) Excluding take-off and landing roll
- D) Including take-off and landing roll

**73- Advice provided by ATC unit specifying maneuvers to assist a pilot to avoid a collision is....**

- A) Traffic information
- B) Traffic resolution
- C) Traffic avoidance advice
- D) Resolution advisory

**74- By which reason, a pilot may depart from rules of the air or ATC clearance?**

- A) In case of radio communication failure
- B) Economic
- C) Urgency
- D) Interest of safety

**75- Which one of the following lights will indicate the aircraft flight path?**

- A) Navigation light
- B) Anti-collision light
- C) Landing light
- D) None

**76- EOBT is the time:**

- A) At which the aircraft will commence taxi associated to departure.
- B) At which the aircraft will request the start up.
- C) At which the aircraft will enter the runway for take-off.
- D) At which the aircraft will stop on runway holding position.

**77- An aircraft taxiing on the maneuvering area of an aerodrome shall stop and hold at .....**

- A) All runway holding positions
- B) At lighted stop bars
- C) All marking areas
- D) A and B are correct

**78- Which one of the following manner decreases the safety of aircraft operation?**

- A) Negligent
- B) Reckless
- C) Acrobatic
- D) All answers are correct

**79- In formation flight, the vertical separation between leader and each formation flight shall not exceed:**

- A) 100 ft.
- B) 200 ft.
- C) 50 ft.
- D) 150 ft.

**80- The actual time of leaving the holding fix for approach, depends on:**

- A) Estimated arrival time
- B) Expected approach time
- C) Approach clearance
- D) None

**81- Who has the final authority for disposition of an aircraft?**

- A) Pilot-in-command
- B) In-flight security
- C) Pilot
- D) Crew member

**82- What information shall be study carefully by pilot-in-command before beginning a flight as pre-flight action?**

- A) Current weather report
- B) Current weather forecast
- C) Fuel requirement
- D) All answers are correct

**83- Which one is considered as minima for VMC?**

- A) Flight visibility 5Km / distance from cloud 1500 ft horizontally, 1000 M vertically
- B) Flight visibility 5Km/ distance from cloud 1500 M horizontally, 1000 ft vertically
- C) Flight visibility 5Km/ distance from cloud 1000 M horizontally, 1500 ft vertically
- D) Flight visibility 5Km / distance from cloud 1000 ft horizontally , 1500 M vertically

**84- Which lights of the preceding aircraft will be observed by the overtaking aircraft?**

- A) Port
- B) Starboard
- C) Rear
- D) All answers are correct

**85- Air traffic advisory service is provided within advisory airspace to ensure separation between:**

- A) Aircraft which are operating on IFR flight plans.
- B) Aircraft which are operating on special VFR and VFR flight plans.
- C) Aircraft which are operating on VFR and IFR flight plans.
- D) Aircraft which are operating as special VFR.

**86- ..... is provided to notify appropriate organizations regarding aircraft in need of search and rescue service.**

- A) Advisory service.
- B) Alerting service.
- C) Area control service.
- D) Surveillance service.

**87- A controlled airspace extending upwards from a specified limit above the earth is called a:**

- A) Control zone.
- B) Control area.
- C) Control center.
- D) Terminal control area.

**88- ..... is responsible for the operation of the aircraft in accordance with the rules of the air.**

- A) The air traffic control unit.
- B) The pilot-in-command.
- C) The operation manager.
- D) The person manipulating the controls.

**89- What separation shall be maintained from the flight leader by each aircraft in a formation flight?**

- A) A distance not exceeding 500 meters laterally and longitudinally and 30 meters vertically.
- B) A distance not exceeding 1000 meters laterally and longitudinally and 100 meters vertically.
- C) A distance not exceeding 0.5 NM laterally and longitudinally and 100 feet vertically.
- D) A distance of 1 km laterally and longitudinally and 30 feet vertically.

**90- When two aircraft are approaching head-on or nearly so and there is a danger of collision, what action shall be take place by the pilots?**

- A) Both aircraft shall alter their headings to the left.
- B) Both aircraft shall alter their headings to the right.
- C) Both aircraft must make a climbing turn to the left.
- D) Both aircraft must make a climbing turn to the right.

**91- Which aircraft has the right-of-way when they are converging?**

- A) Airplane.
- B) Balloon.
- C) Glider.
- D) Airship.

**92- Unless otherwise prescribed by the appropriate ATS authority, a flight plan for a flight to be provided with air traffic control service or air traffic advisory service shall be submitted:**

- A) At least 15 minutes before departure.
- B) At least 30 minutes before departure.
- C) At least 60 minutes before departure.
- D) At least 90 minutes before departure.

**93- When operating under visual flight rules in class D airspace at altitudes above 10000 feet AMSL, you must maintain a vertical distance of at least ..... from clouds.**

- A) 1500 feet
- B) 300 feet
- C) 1000 feet
- D) 1000 meters

**94- When flying under visual flight rules in class C airspace at altitudes below 10000 feet AMSL and above 3000 feet AMSL, or 1000 feet above terrain, whichever is the higher, you must maintain a horizontal distance of at least ..... from clouds.**

- A) 5 kilometers.
- B) 1500 meters.
- C) 1000 feet.
- D) 2000 feet.



**95- To fly under VFR in class D airspace at or below 3000 ft AMSL, or 1000 feet above terrain, whichever is the higher, the flight visibility must be at least:**

- A) 5 kilometers.
- B) 5 nautical miles.
- C) 8000 meters.
- D) 1500 meters.

**96- To fly under VFR in class G airspace at and below 3000 ft AMSL or 1000 feet above terrain, whichever is the higher, you must:**

- A) Maintain a horizontal distance of at least 1500 meters from clouds.
- B) Maintain a vertical distance of at least 1500 meters from the clouds.
- C) Maintain a horizontal distance of at least 1500 feet from clouds.
- D) Remain clear of clouds and in sight of the surface.

**97- To fly under VFR in class C airspace at and above 10000 ft AMSL, the flight visibility must be at least:**

- A) 5 KM.
- B) 8 KM.
- C) 1500 meters.
- D) 3000 meters.

**98- Except when a clearance is obtained from an air traffic control unit, no VFR flight may take-off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or traffic pattern when:**

- A) The ceiling is less than 1000 ft, and the ground visibility is less than 3 km.
- B) The ceiling is less than 1500 ft, and the ground visibility is less than 5 statute miles.
- C) The ceiling is less than 1500 ft, and the ground visibility is less than 5 km.
- D) The ceiling is less than 450 ft, and the ground visibility is less than 5 km.

**99- You may not fly over any congested area of a city, town, or settlement at a height from which it would be impossible to land without undue hazard to persons or property on the surface in the event of an emergency arising, except:**

- A) When necessary for take-off or landing.
- B) When trying to remain clear of clouds and in sight of surface.
- C) When you receive a logbook endorsement from your instructor.
- D) When you receive visual ground signal from tower

**100- When QFE is set on the altimeter, the vertical position of the aircraft is expressed in terms of:**

- A) Altitude.
- B) Height.
- C) Flight level.
- D) Elevation.

**101- When climbing through the transition layer, the reference for the vertical position of the aircraft should be changed from ..... to .....**

- A) Flight levels – altitudes.
- B) Altitudes – height.
- C) Altitudes – flight levels.
- D) Transition layer – altitudes.

**102- Which signal shall be said by an aircraft when it has a very urgent message regarding another aircraft which is in fire?**

- A) MAY DAY
- B) PANPAN
- C) XXX
- D) SOS

**103- When an aircraft flying on a route with magnetic track of  $315^\circ$  what shall be its assign flight level (non RVSM airspace)?**

- A) 310
- B) 320
- C) 330
- D) 340

**104- Which of following aircraft on the final stage of landing, has the right of way?**

- A) Emergency
- B) Lower
- C) Faster
- D) Nearer

**105- Which light shall be displayed by an airplane for the purpose of indication of relative path?**

- A) Anti-collision
- B) Landing
- C) Navigation
- D) Beacon

**106- Who shall be permitted to switch off the any flashing light?**

- A) Pilot-in-command
- B) Operator
- C) ATC
- D) None

**107- When the revised estimated time shall be notified to ATS unit?**

- A) It is found that the error of estimate time to be exceed 5 min.
- B) It is found that the error of estimate to be exceed time 1 min.
- C) It is found that the error of estimate to be exceed time 2 min.
- D) It is found that the error of estimate to be exceed time 4 min.

**108- Above which flight level IFR flight is compulsory?**

- A) 30
- B) 90
- C) 10
- D) 200

**109- An aircraft is holding within transition layer, what shall be the term of its level?**

- A) Flight level
- B) Height
- C) Altitude
- D) None

**110- How much of the sky shall be covered by cloud when you consider it as ceiling?**

- A) 1/2 sky
- B) 1/3 sky
- C) 2/3 sky
- D) 4/8 sky

**111- What action shall be taken by an overtaking aircraft?**

- A) Alter its heading to the left
- B) Alter its level
- C) Alter its heading to the right
- D) Alter its speed

**112- Which lights may be displayed, when there is no adequate illumination to indicate aircraft structure?**

- A) Landing lights
- B) Navigation lights
- C) Anti-collision lights
- D) Strobe lights

**113- Who has the responsibility for operation of an aircraft in accordance with rules of the air?**

- A) Operator
- B) ATC
- C) Pilot-in-command
- D) Pilot at flight control

**114- The lowest cruising flight level for VFR is:**

- A) 200
- B) 35
- C) 45
- D) 50

**115- What shall be the minimum height for VFR flight over an open air assembly?**

- A) 500 ft
- B) 1000 ft
- C) 600 M
- D) 1500 ft

**116- When an IFR may cancel its IFR flight?**

- A) It is in VMC
- B) Encountering VMC
- C) Uninterrupted VMC
- D) For a reasonable period in uninterrupted VMC

**117- What is the first IFR flight level above FL290, if magnetic track is 105° (RVSM airspace)?**

- A) 300
- B) 310
- C) 320
- D) 330

**118- Which light fitted on aircraft may be switched-off by pilot?**

- A) Navigation lights
- B) Flashing lights
- C) Strobe lights
- D) Landing

**119- Which signal may be initiated by, an intercepted aircraft which is in distress?**

- A) Irregular flashing landing lights
- B) Irregular flashing navigation lights
- C) Regular flashing all lights
- D) Irregular flashing all available lights

**120- What SSR code shall be selected by, a hijacked airplane?**

- A) 7700
- B) 7600
- C) 7500
- D) 7400

**121- Which of the following aircraft on the final stage of landing has the right of way?**

- A) Lower airplane
- B) Faster airplane
- C) Glider
- D) Higher airplane

**122- When aircraft is running its engine on the movement area, shall display it's?**

- A) Landing light
- B) Anti-collision light
- C) Position light
- D) Landing light

**123- The first IFR FL above FL290 on a 020° magnetic track is (RVSM airspace):**

- A) 330
- B) 310
- C) 300
- D) 320

**124- The first westbound FL above FL280 is (RVSM airspace):**

- A) 300
- B) 320
- C) 290
- D) 310

**125- The aircraft has the right of way shall maintain its .....**

- A) Heading
- B) Speed
- C) level
- D) A and B are correct

**126- When communication facility at an aerodrome is not available, arrival report shall be made?**

- A) Before landing
- B) After landing
- C) 10 minutes after landing
- D) None

**127- Cargo sling loads by helicopters require air taxiing in order to reduce ground effect turbulence with a height of:**

- A) 25 ft
- B) Above 25 ft
- C) Less than 25 ft
- D) None

**128- Authorization for an aircraft to proceed under condition specified by air traffic control unit is:**

- A) Flight permission
- B) Authorized flight
- C) Controlled flight
- D) ATC clearance

**129- What is(are) the uncontrolled airspace(s)?**

- A) F
- B) G
- C) D, E
- D) G, F

**130- Flight visibility is the visibility forward from:**

- A) Cockpit of an aircraft on the ground
- B) Cockpit of an aircraft in flight
- C) RVR
- D) All answers are correct

**131- IMC is a meteorological condition.....**

- A) Equal to VMC
- B) Less than minima for VMC
- C) More than minima for VMC
- D) B and C are correct

**132- Runway- holding position is a designated position intended to.....**

- A) Protect runway
- B) Protect an obstacle limitation surface
- C) Protect an ILS/MLS critical/sensitive area
- D) All answers are correct

**133- Traffic avoiding advice will be provided by:**

- A) Operator
- B) Pilot-in-command
- C) ATS units
- D) Flight dispatcher

**134- What is the intent of traffic avoidance advice?**

- A) To make large separation
- B) To sequence the traffic
- C) To apply priority
- D) To avoid a collision

**135- What is the basis of expressing time in aeronautical operations?**

- A) UTC
- B) Local
- C) UTC and local
- D) GMT

**136- The accuracy of time in data link communication is expected to be within?**

- A) 5 second
- B) 1 second
- C) 30 second
- D) 10 second

**137- The obtaining of time check shall be made:**

- A) Prior to operating a controlled flight
- B) The other times during flight as may be necessary
- C) A and B are correct
- D) During night flight

**138- Which one is the urgency signal code?**

- A) SOS
- B) PANPAN
- C) MAYDAY
- D) Parachute flare red light

**139- Within which Iranian controlled airspace the VFR, is subject to control?**

- A) Airway.
- B) TMA.
- C) CTR.
- D) "A, B and C" but not above FL200.

**140- VFR flight is subject to control, when it is operating within:**

- A) Control zone.
- B) Controlled airspace.
- C) Airway.
- D) In class B, C, D.

**141- ETA for IFR flight with navigation aids is:**

- A) Estimated to arrive over facility intended for departure.
- B) Estimated to arrive over facility intended for instrument approach procedure.
- C) Estimated to arrive over aerodrome.
- D) Estimated to arrive over initial approach fix.

**142- An aircraft is operating on or in vicinity of an aerodrome shall make all turns to the:**

- A) Left.
- B) Left unless otherwise instructed by ATC.
- C) Right.
- D) Right unless otherwise instructed by ATC.

**143- Flight plan submission during flight shall be made at least:**

- A) 10 minutes before crossing airway or advisory route.
- B) 10 minutes before entering control area or advisory area.
- C) 10 minutes prior departure.
- D) A and B are correct.

**144- When arriving VFR aircraft entering Esfahan CTR and reported visibility is 3000 m, it shall:**

- A) Leave CTR.
- B) Return to departure point.
- C) Request SVFR.
- D) A or B is correct.

**145- When a controlled flight lost its radio in VMC shall:**

- A) Continue VMC to destination.
- B) Continue VMC to land at nearest and suitable aerodrome.
- C) Report its arrival by expeditious means to ATS unit.
- D) B and C are correct.

**146- Controlled radio failure aircraft in IMC may be landed within:**

- A) 30 minutes after ETA.
- B) 30 minutes after acknowledge EAT.
- C) A and B whichever is later.
- D) A or B whichever is later.



**147- Steady red signal to an aircraft on the ground means:**

- A) Cleared to taxi.
- B) Cleared for take-off.
- C) Stop.
- D) Return for landing.

**148- When an aircraft wishes to inform that a ship within sight is in fire shall say:**

- A) SOS.
- B) MAYDAY.
- C) PANPAN.
- D) XXX.

**149- Cruising level is a level maintained during:**

- A) Flight time.
- B) Flight duty time.
- C) Significant portion of flight.
- D) Take-off or landing.

**150- The elevation at highest obstacle on an airway over mountain area is 7654 ft. If magnetic track of IFR flight on route is 156°, what is the lowest usable flight level based on ICAO criteria?**

- A) FL110.
- B) FL120.
- C) FL130.
- D) FL160.

**151- An aeroplane is classified as a:**

- A) Rotorcraft.
- B) Power driven heavier than aircraft
- C) Airship.
- D) Lighter than air aircraft.

**152- The aircraft is:**

- A) A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.
- B) Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.
- C) A non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.
- D) Any aircraft supported chiefly by its buoyancy in the air.

**153- How is ground visibility defined?**

- A) The visibility forward from the flight deck of an aeroplane.
- B) The visibility at an aerodrome as reported by an accredited observer or by automatic systems.
- C) The visibility reported by a pilot currently flying in the vicinity.
- D) The forecast visibility at 3000 ft above the aerodrome.

**154- An ETA for an IFR flight with navigation facility is referred to:**

- A) IAF
- B) FAF/FAP
- C) Touchdown
- D) None of the above

**155- Transition altitude is defined as:**

- A) The altitude at or below which the vertical position of aircraft is expressed in reference to mean sea level.
- B) The altitude at or below which the vertical position of aircraft is expressed in reference to standard pressure.
- C) The altitude below which the vertical position of aircraft is expressed in reference to QFE.
- D) The altitude above the aerodrome at which the altimeter sub-scale is reset to 1.013 hPa and vertical position above that is then reported as a FL.

**156- Who is charged with the safe conduct of a flight?**

- A) The Pilot-in-Command.
- B) The ATC controller whenever the aircraft is flying in controlled airspace.
- C) The aircraft owner.
- D) The airline operator.

**157- The pre-flight actions for a flight leaving the local aerodrome area, is to include:**

- A) A careful study of the available meteorological reports and forecasts for the route.
- B) A careful study of the available weather charts.
- C) A careful briefing of the crew.
- D) A careful briefing of the passengers.

**158- Pre-flight briefing for flights away from the vicinity of an aerodrome and all IFR flights shall include which of the following?**

- 1) A meteorological information
  - 2) A consideration of the fuel requirements
  - 3) Alternative actions if the flight cannot be completed as planned
- A) 1
  - B) 1, 2
  - C) 1, 2, 3
  - D) 2, 3

**159- Which of the following flights has the greatest priority to land?**

- A) Emergency aircraft.
- B) Military aircraft.
- C) VIP (Head of state) aircraft.
- D) Hospital aircraft.

**160- On an IFR flight in airspace class G, you receive a traffic information from ATC, that a VFR flight is going to cross your flight path from right to left. Who has the right-of-way?**

- A) ATC decides who has the right-of-way and issues appropriate instruction.
- B) It is the task of ATC to separate VFR flights from IFR flights in airspace class D.
- C) I have the right-of-way as I am on an IFR flight.
- D) The VFR flight has the right-of-way.

**161- While flying at night another aircraft reports that you are on his 90 degrees relative bearing. Assuming you are on converging courses, you should see his:**

- A) White navigation light.
- B) Red navigation light.
- C) Green and white navigation lights.
- D) Green navigation light.

**162- Which of the following actions shall be taken in case a controlled flight deviates from the track?**

- A) Adjust the heading of aircraft to regain track as soon as practicable.
- B) Inform the ATC unit immediately.
- C) If VMC, maintain this condition, waiting for the ATC instructions.
- D) Notify ATC of the new track immediately and comply with instructions.

**163- Which one of the following lights will indicate the aircraft flight path?**

- A) Navigation light
- B) Anti-collision light
- C) Landing light
- D) None

**164- Which lights of the preceding aircraft will not be observed by the overtaking aircraft?**

- A) Port
- B) Starboard
- C) Rear
- D) A and B are correct

**165- You are outside controlled airspace on a VFR flight above 3000 ft Your distance from the cloud should be:**

- A) 1000 ft horizontally and 1000 ft vertically.
- B) 2000 ft and 3 NM horizontally.
- C) Clear of cloud and in sight of the surface.
- D) 1000 ft vertically and 1500 m horizontally.

**166- An airplane and a glider are converging, The glider has the airplane on its right. Which aircraft has the right of way?**

- A) Both should alter their headings to the right.
- B) The glider.
- C) The airplane.
- D) Both should alter their headings to the left.

**167- A VFR flight shall not be flown:**

- A) Over the congested areas of cities, towns or settlements or over an open air assembly of persons at a height less than 300 m (1000 ft) above the highest obstacle within a radius of 6000m from the aircraft.
- B) Elsewhere at a height less than 150 ft above the ground or water.
- C) Over the congested areas of cities, towns or settlements or over an open air assembly of persons at a height less than 300 m (1000 ft) above the highest obstacle within a radius of 600m from the aircraft.
- D) Elsewhere at a height less than 500 m above the ground or water.

**168- SVFR may be authorized when the ground visibility is not less than:**

- A) 1000 m
- B) 1500 m
- C) 1800 m
- D) 5 km

**169- What is the definition of level?**

- A) Flight level
- B) Altitude
- C) Height
- D) All answers are correct

**170- Aerodrome defines an area over:**

- A) Land
- B) Water
- C) A and B are correct
- D) A or B is correct

**171- Which signal shall be said by an aircraft when it has a very urgent message regarding another aircraft which is in distress?**

- A) Mayday
- B) PANPAN
- C) XXX
- D) SOS

**172- Above what flight level IFR flight is compulsory?**

- A) 30
- B) 90
- C) 10
- D) 200

**173- When flying on an airway on a heading of 255° (M) the correct flight level will be:**

- A) Usually odd.
- B) Always even.
- C) Always odd.
- D) Usually even.

**174- Which signal may be initiated by, an intercepted aircraft would not be complying from intercepting aircraft?**

- A) Irregular flashing landing lights
- B) Irregular flashing navigation lights
- C) Regular flashing all available lights
- D) Irregular flashing all available lights

**175- In areas where a vertical separation of 2000 ft has to be applied above FL290, which group of the following flight levels contains eastbound flight levels only?**

- A) FL330, FL350.
- B) FL310, FL370.
- C) FL350, FL430.
- D) FL330, FL410.

**176- In areas where a vertical separation minimum of 300 m (1000 ft) is applied between FL290 and FL410 inclusive an aircraft on a magnetic track of 350 would be expected to fly at:**

- A) FL405
- B) FL370
- C) FL390
- D) FL400

**177- Which of the following aircraft on the final stage of landing has the right of way?**

- A) Lower airplane
- B) Balloon
- C) Airship
- D) Higher airplane

**178- Over high terrain or mountainous areas, where no minimum flight altitude has been established, flights in accordance with IFR shall be flown at a level which is at least:**

- A) 1000 ft above the highest obstacle located within 8 km of the estimated position of the aircraft.
- B) 2000 ft above the highest obstacle located within 8 km of the estimated position of the aircraft.
- C) 1000 m above the highest obstacle located within 10 NM of the estimated position of the aircraft.
- D) 2000 m above the highest obstacle located within 10 NM of the estimated position of the aircraft.

**179- When flying over city or town and where no minimum flight altitude has been established, flights in accordance with IFR shall be flown at a level which is at least:**

- A) 1000 m above the highest obstacle located within 10 NM of the estimated position of the aircraft.
- B) 2000 m above the highest obstacle located within 10 NM of the estimated position of the aircraft.
- C) 1000 ft above the highest obstacle located within 8 km of the estimated position of the aircraft.
- D) 2000 ft above the highest obstacle located within 8 km of the estimated position of the aircraft.

**180- When an airplane and a balloon converging, which one has right of way:**

- A) Balloon
- B) Airplane
- C) Right side aircraft
- D) Left side aircraft

**181- The Vertical Separation Minimum (VSM) between reciprocal flights operating in accordance with IFR, within controlled airspace, above FL290, is:**

- A) 2000 ft (600 m).
- B) 1000 ft (300 m).
- C) 500 ft (150 m).
- D) 4000 ft (1200 m).

**182- The Vertical Separation Minimum (VSM) for reciprocal flight between flights operating in accordance with IFR, within controlled airspace, below FL290 is:**

- A) 2000 ft (600 m).
- B) 1000 ft (300 m).
- C) 500 ft (150 m).
- D) 2500 ft (750 m).

**183- You are flying IFR in IMC and you suspect communications failure. Which combination of the following actions would you take?**

- 1) Try to contact another aircraft for relay.**
- 2) Try to make contact with ATC on another frequency.**
- 3) Land at the nearest suitable aerodrome and report to ATC.**
- 4) Continue the flight according to the flight plan.**

- A) 1, 2, 3
- B) 1, 2, 4
- C) 2, 3, 4
- D) All answers are correct

**184- When communication facility at an aerodrome is available but ATSU work operationally part time when arrival report shall be made, if an aircraft will land during a time that ATC does not operate?**

- A) Before landing
- B) After landing
- C) 10 minutes after landing
- D) None

**185- While flying at night another aircraft reports that you are on his 270 degrees relative bearing. Assuming you are on converging courses, you should see his:**

- A) White navigation light.
- B) Red navigation light.
- C) Green and white navigation lights.
- D) Green navigation light.

**186- Transition from altitude to flight level, and vice versa is done:**

- A) At transition altitude during climb and transition level during descent.
- B) At transition level during climb and transition altitude during descent.
- C) Only at transition altitude.
- D) Only at transition level.

**187- "A surveillance technique in which aircraft automatically provide, via data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position and additional data as appropriate" is the definition for:**

- A) Secondary Surveillance Radar Systems (SSR).
- B) Automatic Terminal Surveillance System(ATSS).
- C) Automatic Dependent Surveillance (ADS).
- D) Automatic Enroute Surveillance (AES).

**188- Control Area is defined as follows:**

- A) A controlled airspace extending upwards from a height of 1000 feet above the Earth.
- B) A controlled airspace extending upwards from a height of 900 feet above the Earth.
- C) A controlled airspace extending upwards from the surface of the Earth to a specified limit.
- D) A controlled airspace extending upwards from a specified limit above the Earth.

**189- The expression "Expected Approach Time (EAT)" is defined as follows:**

- A) The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding point to complete its approach for a landing.
- B) The time at which the PIC expects that he will be able to leave the holding point to complete the approach for a landing.
- C) The time at which ATC expects that an arriving aircraft, following a delay, will leave its cruising level to complete its approach for a landing.
- D) The time at which ATC expects that an arriving aircraft, following a delay, will leave the FAF/FAP to complete its approach for a landing.

**190- Controlled airspace is:**

- A) An area within a FIR in which an ATC service is provided.
- B) An area within a FIR/UIR in which an ATC service is provided.
- C) An area within a UIR only in which an ATC service is provided.
- D) An area with a lower limit which is above ground level.

**191- The units providing Air Traffic Control Services are:**

- A) Area Control Centre - Advisory Centre - Flight Information Centre - Approach Control Office and Tower.
- B) Area Control Centre - Approach Control unit and Aerodrome Control Tower.
- C) Area Control Centre - Flight Information Centre - Approach Control Office - Aerodrome Control Tower and Air Traffic Services reporting office.
- D) Area Control Centre - Flight Information Region - Approach Control Office and Tower.

**192- The Approach Control Service is an Air Traffic Control Service:**

- A) For IFR flights arriving and departing.
- B) Provided for IFR and VFR flights within a Control Zone.
- C) Provided for IFR traffic within a Control Zone.
- D) Provided for the arriving and departing controlled flights.

**193- The responsible unit to control aerodrome traffic is:**

- A) TWR
- B) ACC
- C) APP
- D) GND



**194- Approach Control has the following duties:**

- A) Provide approach control service for arriving and departing aircraft.
- B) Inform aircraft before departure if the delay is greater than 45 minutes.
- C) Aircraft with first radio contact shall always be number one to land.
- D) During a visual approach, delegate the responsibility for separation to the aircraft.

**195- The pilot-in-command of an aircraft:**

- 1) Must comply immediately to all instructions received from ATC.
- 2) Is responsible only if he is the "pilot flying".
- 3) May deviate from air regulations for safety reasons.
- 4) May be exempted from air regulations in order to comply to an ATC instruction.
- 5) May ask for the modification of an unsatisfactory clearance.

**Which of the following combinations contain all of the correct statements?**

- A) 3, 4, 5
- B) 3, 5
- C) 1, 4
- D) 2, 3, 5

**196- What is the first action of pilots when two aircraft are approaching head-on, on the ground?**

- A) Alter its course to the left
- B) Alter its course to the right
- C) Both aircraft shall stops
- D) Both aircraft alter heading to the right

**197- What is the direction of turn when approaching for landing and after taking off?**

- A) Left
- B) Right
- C) Depend to pilot decision
- D) Depends to wind direction

**198- Which flight plan is used as a reference to continue flight on a specific route when total communication is lost?**

- A) Flight plan
- B) Filed flight plan
- C) Current flight plan
- D) RPL

**199- Within which class of airspace the VFR flight are not permitted?**

- A) Class B
- B) Class A
- C) Class C
- D) Class D

**200- An IFR flight shall not operate:**

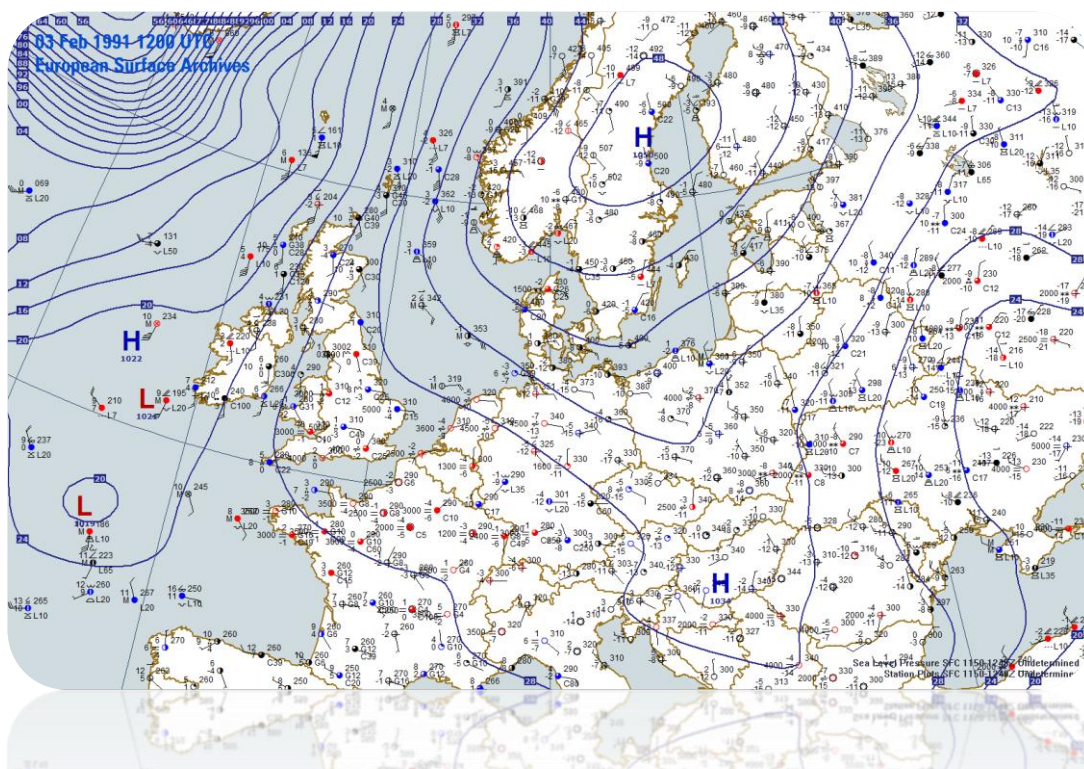
- A) Above MEA
- B) Above FL200
- C) Below minimum flight altitude
- D) Along advisory route

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	C	26	D	51	D	76	A
2	B	27	C	52	A	77	D
3	B	28	C	53	D	78	D
4	D	29	D	54	D	79	A
5	A	30	A	55	C	80	C
6	C	31	C	56	A	81	A
7	C	32	A	57	C	82	D
8	D	33	D	58	C	83	B
9	D	34	C	59	C	84	C
10	B	35	A	60	D	85	A
11	B	36	A	61	A	86	B
12	D	37	D	62	D	87	B
13	D	38	C	63	C	88	B
14	B	39	A	64	A	89	C
15	D	40	B	65	B	90	B
16	C	41	C	66	A	91	B
17	B	42	C	67	C	92	C
18	B	43	A	68	A	93	C
19	A	44	A	69	D	94	B
20	D	45	D	70	C	95	A
21	C	46	C	71	A	96	D
22	A	47	C	72	C	97	B
23	B	48	A	73	C	98	C
24	C	49	A	74	D	99	A
25	B	50	A	75	A	100	B

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	C	126	A	151	B	176	D
102	B	127	B	152	B	177	A
103	A	128	D	153	B	178	B
104	A	129	D	154	A	179	C
105	C	130	B	155	A	180	A
106	A	131	B	156	A	181	A
107	C	132	D	157	A	182	B
108	D	133	C	158	C	183	B
109	D	134	D	159	A	184	B
110	C	135	A	160	D	185	B
111	C	136	B	161	D	186	A
112	B	137	C	162	A	187	C
113	C	138	B	163	A	188	D
114	B	139	D	164	D	189	A
115	B	140	D	165	D	190	B
116	D	141	D	166	B	191	B
117	B	142	B	167	C	192	D
118	B	143	D	168	B	193	A
119	D	144	C	169	D	194	A
120	C	145	D	170	D	195	B
121	C	146	D	171	B	196	C
122	B	147	C	172	D	197	A
123	B	148	C	173	D	198	C
124	A	149	C	174	C	199	B
125	D	150	A	175	D	200	C



# ANNEX 3



➤ Annex 3 – 18<sup>th</sup> edition, AMDT 76

**1- When fog is reported the visibility is below:**

- A) 0.8 km
- B) 1 km
- C) 1.5 km
- D) 2 km

**2- (Refer to figure I-03) Which type of front is indicated?**

- A) Warm occlusion front
- B) Cold occlusion front
- C) Stationary front
- D) Warm front

**3- Compare meteorological visibility:**

- A) Visibility is greater in RA than in DZ.
- B) Visibility is lower in RA than in DZ.
- C) Visibility is equal in RA and in DZ.
- D) Visibility is greater in FG than in DZ.

**4- The wind indicator for a weather observation receives the measured value from an anemometer, where is this instrument placed?**

- A) On the roof of the weather station.
- B) 1 m above the runway.
- C) Close to station about 2 m above the ground.
- D) On a mast 6-10 m above flat terrain.

**5- What is the relationship between meteorological visibility and RVR in homogeneous fog?**

- A) The visibility is generally the same as the RVR.
- B) The visibility is generally greater than the RVR.
- C) The visibility is generally less than RVR.
- D) There is no specific relationship between the two.

**6- What is the approximate speed of a 40 kts wind, expressed in m/sec?**

- A) 25 m/sec.
- B) 15 m/sec.
- C) 20 m/sec.
- D) 30 m/sec.

**7- (Refer to figure I-05) Which type of front is indicated in illustration "3"?**

- A) Warm front
- B) Cold front
- C) Stationary front
- D) Warm occlusion front

**8- What values are used for the forecasted wind at higher levels?**

- A) Direction relative to Grid North and speed in km/h.
- B) Direction relative to Magnetic North and speed in knots.
- C) Direction relative to Magnetic North and speed in km/h.
- D) Direction relative to True North and speed in knots.

**9- What is the approximate speed of a 25 kts wind, expressed in kilometers per hour?**

- A) 60 km/h
- B) 35 km/h
- C) 55 km/h
- D) 45 km/h

**10- (Refer to figure I-07) What is the height and speed of the jet stream over northeast of Caspian Sea blowing from southwest to northeast?**

- A) FL380 at 80 knots
- B) FL420 at 70 knots
- C) FL320 at 90 knots
- D) FL420 at 120 knots

**11- (Refer to figure I-07) What is the height of tropopause over southeast of Iran?**

- A) FL550
- B) FL400
- C) FL200
- D) FL350

**12- (Refer to figure I-07) The area enclosed in the scalloped line over northwest of Turkey, indicates:**

- A) Well-separated embedded cumulonimbus features from earth surface with tops at 30000 ft.
- B) Isolated embedded cumulonimbus with tops at 30000 ft and bases from surface.
- C) Isolated embedded cumulonimbus with tops at 30000 ft and bases below 25000 ft.
- D) Well-separated embedded cumulonimbus features tops at 30000 ft and bases below 25000 ft.

**13- (Refer to figure I-07) What is the intensity and height limits of turbulence in CAT area No.1?**

- A) Light turbulence below 25000 ft up to 46000 ft.
- B) Moderate turbulence below 25000 ft up to 46000 ft.
- C) Light turbulence between 25000 ft up to 47000 ft.
- D) Moderate turbulence between 25000 ft up to 47000 ft.



**14- What is the approximate speed of a 90 km/h wind, expressed in knots?**

- A) 55 kts
- B) 50 kts
- C) 60 kts
- D) 70 kts

**15- A wind of 20 knots corresponds to an approximate speed of:**

- A) 10 m/sec
- B) 40 m/sec
- C) 10 km/h
- D) 50 km/h

**16- (Refer to figure I-04) Which type of cloud is indicated in illustration "B"?**

- A) Cumulus
- B) Altocumulus Standing Lenticular
- C) Altocumulus Castellanos
- D) Cumulonimbus

**17- The wind at the surface is 240°/15 kts. What is it most likely to be at 2000 ft?**

- A) 210°/30 kts
- B) 270°/30 kts
- C) 280°/15 kts
- D) 210°/15 kts

**18- Which of the following causes echoes on meteorological radar screens?**

- A) Hail
- B) Water vapor
- C) Fog
- D) Any cloud

**19- (Refer to figure I-08) According to wind and temperature aloft forecast at FL340, what is the average wind and temperature over northeast of Iran?**

- A) Wind is from 250° true at 67 knots and temperature is -57°C.
- B) Wind is from 270° true at 80 knots and temperature is -50°C.
- C) Wind is from 090° true at 75 knots and temperature is -57°C.
- D) Wind is from 070° true at 85 knots and temperature is -55°C.

**20- (Refer to figure I-09) What weather conditions are forecast to exist from 06:00 Z until 08:00 Z on 11<sup>th</sup> of the month at LTAC?**

- A) Temporary conditions are: visibility 500 ft, partial fog and vertical visibility 100 meter.
- B) Temporary conditions are: visibility 500 meter, patches fog and vertical visibility 500 ft.
- C) Temporary conditions are: visibility 500 meter, freezing fog and vertical visibility 100 ft.
- D) Temporary conditions are: visibility 500 ft, shallow fog and vertical visibility 500 ft.

**21- (Refer to figure I-09) Between 09:00 Z and 11:00 Z on 11<sup>th</sup> of the month the wind at OMRK is forecast to be?**

- A) Wind variable in direction at 2 knots
- B) Wind variable in direction at 20 knots.
- C) Wind from 005° true at 5 knots with gusts to 15 knots.
- D) Wind from 340° true at 14 knots.

**22- (Refer to figure I-09) The base of lowest ceiling at OSDI between 09:00 Z on 11<sup>th</sup> to 06:00 Z on 12<sup>th</sup> of the month is forecast to be:**

- A) 1000 ft
- B) 3000 ft
- C) 10000 ft
- D) 300 ft

**23- (Refer to figure I-09) What is the reported intensity of the precipitation at OBBI from 06:00 Z on 11<sup>th</sup> to 12:00 Z on 12<sup>th</sup> of the month?**

- A) Moderate rain associated with thunderstorm.
- B) Light rain at vicinity.
- C) Moderate rain showers.
- D) Light rain associated with thunderstorm.

**24- What is the definition of Air-report?**

- A) A report from an aircraft in flight prepared in conformity with requirement for position and operational and/or meteorological reporting.
- B) A report from an aircraft in flight prepared in conformity with requirement for operational and meteorological reporting.
- C) A report from a pilot in flight prepared in conformity with requirement for position and operational and/or meteorological reporting.
- D) A report from a pilot in flight prepared in conformity with requirement for meteorological reporting only.

**25- When the RVR is reported at most airports?**

- A) When the RVR decrease below 2000 m.
- B) When the meteorological visibility falls below 800 m.
- C) When the RVR decreases below 800 m.
- D) When the meteorological visibility falls below 1500 m.

**26- An area on a synoptic chart appearing as a "V-shaped" extension of a low pressure area is called a:**

- A) Ridge
- B) Col
- C) Trough
- D) Occlusion

**27- How the cloud base reported in METAR?**

- A) In steps of 100 ft up to 10000 ft and in steps of 1000 ft above 10000 ft.
- B) Insteps of 100 m up to 10000 ft and in steps of 1000 ft above 10000 ft.
- C) Insteps of 10 ft up to 10000 ft and in steps of 1000 ft above 1000 ft.
- D) In steps of 10 m up to 10000 ft and in steps or 1000ft above 10000 ft.

**28- What is the meaning of the expression "FEW"?**

- A) 3 - 4 oktas of cloud cover.
- B) 1 - 2 oktas of cloud cover.
- C) 5 - 7 oktas of cloud cover.
- D) 0 - 1 oktas of cloud cover.

**29- A cup and remote transmitting vane form the transmitting head of electrical ..... and ..... which enables a continuous record of wind direction and speed to be made on a moving chart:**

- A) Anemograph, anemometer.
- B) Anemometer, barograph.
- C) Anemometer, anemograph.
- D) Barograph, anemograph.

**30- How is a ceiling defined?**

- A) Height above ground or water of the highest layer of cloud or obscuring phenomena aloft that covers 4 oktas or more of the sky.
- B) Height above ground or water of the lowest layer of cloud independent on the amount of clouds.
- C) Height above ground or water of the lowest layer of cloud that contributes to the overall overcast.
- D) Height above ground or water of the lowest layer of cloud below 20000 ft covering more than half of the sky.

**31- (Refer to figure I-05) Which type of front is indicated in illustration "2"?**

- A) Warm front
- B) Cold front
- C) Stationary front
- D) Cold occlusion front

**32- What is the definition of "cloud of operational significance"?**

- A) A cloud with the height of cloud base below 5000 ft.
- B) A cloud with the height of cloud base above 5000 ft.
- C) A CB or towering cumulus in any height.
- D) A or C are correct.

**33- Discussion with a meteorologist or another qualified person about existing or expecting meteorological condition is known as a:**

- A) Weather reporting
- B) Meteorological negotiation
- C) Consultation
- D) Meteorological interviewer

**34- What is the definition of observation?**

- A) The evaluation of visibility.
- B) The evaluation of cloud base.
- C) The evaluation of wind direction and speed.
- D) The evaluation of one or more meteorological elements.

**35- What are the colors of stationary front is shown on a surface chart?**

- A) Violet and red
- B) Blue and violet
- C) Red and blue
- D) Red and green

**36- (Refer to figure I-04) Which type of cloud is indicated in illustration "C"?**

- A) Cumulus
- B) Altocumulus Standing Lenticular
- C) Altocumulus Castellanus
- D) Cumulonimbus

**37- What is the color of warm front is shown on a surface chart?**

- A) Red
- B) Green
- C) Blue
- D) Violet

**38- Runway visual range assessments shall be representative of:**

- A) Touchdown zone RVR for non-precision or CAT I ILS.
- B) Touchdown and mid-point RVR are intended for CAT II ILS.
- C) Touchdown, mid-point and stop end RVR are intended for CAT III ILS.
- D) All answers are correct.

**39- What is the reference of light to see and identify object with on unlit background?**

- A) Bright light
- B) 1000 spot light
- C) 1000 candles
- D) Dark light

**40- (Refer to figure I-05) Which type of front is indicated in illustration "1"?**

- A) Warm front
- B) Cold front
- C) Stationary front
- D) Occlusion front

**41- "D-VOLMET" provide useful information such as METAR, TAF and SPECI via:**

- A) DME frequency
- B) Data link
- C) Data base in FMS
- D) ADS data base

**42- Runway visual range can be reported in:**

- A) A TAF.
- B) A METAR.
- C) A SIGMET.
- D) Both a TAF and a METAR.

**43- When will the surface wind in a METAR record as gust factor?**

- A) When gusts are at least 10 knots above the mean wind speed.
- B) When gusts are at least 15 knots above the mean wind speed.
- C) With gusts of at least 25 knots.
- D) With gusts of at least 35 knots.

**44- The radiosonde can directly measure:**

- A) Atmospheric pressure, air temperature, humidity.
- B) Air temperature, humidity, wind.
- C) Humidity, wind, atmospheric pressure.
- D) Humidity, wind, air temperature.

**45- What does a "Transmissometer" measure?**

- A) Meteorological visibility.
- B) Cloud base.
- C) Runway visibility range.
- D) Breaking action.

**46- Which type of aircraft shall report special aircraft observation when they are facing with severe mountain wave or thunderstorm with hail?**

- A) Small aircraft
- B) Large aircraft
- C) Heavy aircraft
- D) All aircraft

**47- Wind shear alerts system should be update ..... and should be canceled as soon as head wind/tail wind change fall below.....**

- A) At least every minute – 15 kts
- B) Every minute – 20 kts
- C) At least every ten minute – 20 kts
- D) Every ten minutes – 15 kts

**48- The continues VOLMET broadcast is normally on ..... frequency and schedule VOLMET broadcast is normally on ..... frequency shall contain current METAR information.**

- A) VHF – VHF
- B) VHF – HF
- C) HF – HF
- D) HF – UHF

**49- Which of the following phenomena should be described as precipitation at the time they are observed?**

- A) TS
- B) SA
- C) DZ
- D) SQ

**50- What does the abbreviation "NOSIG" mean?**

- A) No significant changes.
- B) No report received.
- C) No weather related problems.
- D) Not signed by the meteorologist.

**51- A SPECI is:**

- A) An aviation routine weather report.
- B) An aviation selected special weather report.
- C) A warning for special weather phenomena.
- D) A forecast for special weather phenomena.

**52- What does the code "VV002" in METAR mean?**

- A) Vertical visibility is 200 ft.
- B) Vertical visibility is 200 m.
- C) Vertical visibility is 20 ft.
- D) Vertical visibility is 20 m.

**53- What does the code "VV///" in METAR mean?**

- A) Sky is clear but visibility cannot determine.
- B) Sky is clear and visibility is unlimited.
- C) Sky is obscured and vertical visibility is not available.
- D) Sky is obscured and vertical visibility limits to 100 meter.

**54- (Refer to figure I-04) Which type of cloud is indicated in illustration "D"?**

- A) Cumulus
- B) Altocumulus Lenticular
- C) Altocumulus Castellanus
- D) Cumulonimbus

**55- What does the term METAR signify?**

- A) A METAR is a flight forecast, issued by the meteorological station several times daily.
- B) A METAR is a warning of dangerous meteorological conditions within a FIR.
- C) A METAR signifies the actual weather report at an aerodrome and is generally issued in half-hourly or hourly intervals.
- D) A METAR is a landing forecast added to the actual weather report as a brief prognostic report.

**56- ATIS information contains:**

- A) Operational information and if necessary meteorological information.
- B) Only meteorological information.
- C) Meteorological and operational information.
- D) Only operational information.

**57- If during the last 10 minutes preceding the issuance of a METAR the wind velocity deviates more than 10kts from mean value obtained during the same period of time this will be in indicated as:**

- A) A gust.
- B) A squall.
- C) TEMPO 10 KTS.
- D) Geostrophic wind.

**58- Which of the following phenomena should be described as precipitation at the time they are observed?**

- A) +SHSN
- B) VA
- C) BR
- D) MIFG

**59- What does the code "PO" in METAR mean?**

- A) Drizzle
- B) Duststorm
- C) Sandstorm
- D) Dust devil

**60- What does the code "FC" in METAR mean?**

- A) Rain
- B) Water spout
- C) Tornado
- D) Funnel cloud

**61- What does the code "IC" in METAR mean?**

- A) Diamond dust
- B) Funnel cloud
- C) Snow grains
- D) Mist

**62- Which of the following weather reports is a warning of conditions that could be potentially hazardous to aircraft in flight?**

- A) SPECI
- B) ATIS
- C) SIGMET
- D) TAF



**63- (Refer to figure I-01) What does the symbol 16 indicate on a significant weather chart?**

- A) Widespread fog
- B) Widespread haze
- C) Widespread mist
- D) Moderate turbulence

**64- The wind direction in a METAR is measured relative to:**

- A) Compass North.
- B) Magnetic North.
- C) True North.
- D) Grid North.

**65- In what hPa range is an upper weather chart for FL340 situated?**

- A) 500-400 hPa
- B) 600-500 hPa
- C) 300-200 hPa
- D) 400-300 hPa

**66- In the METAR code the abbreviation "VC" indicates:**

- A) Volcanic ash.
- B) Present weather within the approach area.
- C) Present weather within a range of 8 km, but not at the airport.
- D) Present weather at the airport.

**67- In the METAR code the abbreviation "VCBLDU" means:**

- A) An active dust storm.
- B) Blowing dust in the vicinity.
- C) An active sandstorm.
- D) An active dust- and sandstorm.

**68- RVR is measured when meteorological visibility falls below:**

- A) 500 m
- B) 1500 m
- C) 2000 m
- D) 2500 m

**69- (Refer to figure I-01) What does the symbol 17 indicate on a significant weather chart?**

- A) Widespread fog
- B) Widespread haze
- C) Widespread mist
- D) Moderate turbulence

**70- On an aerodrome, when a warm front is approaching:**

- A) QFE increases and QNH decreases.
- B) QFE and QNH increase.
- C) QFE and QNH decrease.
- D) QFE decreases and QNH increases.

**71- In which of these temperature bands is ice most likely to form on the aircraft's surface?**

- A) -20°C to -35°C.
- B) +10°C to 0°C.
- C) 0°C to -10°C.
- D) -35°C to -50°C.

**72- Which of the following condition is most likely to cause airframe icing?**

- A) PE
- B) GR
- C) SHSN
- D) +FZRA

**73- The unit of pressure most commonly used in meteorology is:**

- A) kg/cm<sup>2</sup>
- B) lbs/in<sup>2</sup>
- C) hPa
- D) tons/m<sup>2</sup>

**74- (Refer to figure I-01) What does the symbol 08 indicate on a significant weather chart?**

- A) Thunderstorm
- B) Tropical cyclone
- C) Mountain waves
- D) Moderate turbulence

**75- The horizontal visibility given for VFR flight planning by a MET Office is:**

- A) The average flight visibility for the planned flight.
- B) Meteorological visibility at an average altitude of 500 meters.
- C) Meteorological visibility on ground.
- D) Vertical visibility.

**76- (Refer to figure I-06) what does zone "A" depict:**

- A) A trough.
- B) A ridge.
- C) The warm sector.
- D) The cold front.

**77- When planning a flight at FL110 which upper wind and temperature chart would be nearest your flight level?**

- A) 300 hPa
- B) 850 hPa
- C) 700 hPa
- D) 500 hPa

**78- (Refer to figure I-01) What does the symbol 07 indicate on a significant weather chart?**

- A) Thunderstorm
- B) Severe turbulence
- C) Squall line
- D) Moderate turbulence

**79- If Tehran reports a wind of 320°/20 kts on the METAR, what wind velocity would you expect to encounter at a height of 2000 feet above the ground?**

- A) 300°/25 kts
- B) 230°/30 kts
- C) 350°/40 kts
- D) 270°/20 kts

**80- While flying at FL120, you notice an OAT of -2°C. At which altitude do you expect the freezing level to be?**

- A) FL110
- B) FL130
- C) FL150
- D) FL090

**81- When SPECI must be issued?**

- A) Temperature increase 2°C or more
- B) Wind direction change 20° or more
- C) Wind speed change 5 knots or more
- D) Change in cloud base

**82- (Refer to figure I-01) What does the symbol 06 indicate on a significant weather chart?**

- A) Thunderstorm
- B) Tropical cyclone
- C) Squall line
- D) Moderate turbulence

**83- When SPECI must be issued?**

- A) Temperature increase  $1^{\circ}\text{C}$
- B) Wind direction change  $60^{\circ}$  or more
- C) Wind speed change 5 knots or more
- D) Change in cloud base

**84- If you are planning a flight at FL290 which of these upper wind and temperature charts would be nearest your flight levels?**

- A) 850 hPa
- B) 500 hPa
- C) 700 hPa
- D) 300 hPa

**85- When SPECI must be issued?**

- A) Temperature increase  $1^{\circ}\text{C}$
- B) Wind direction change  $20^{\circ}$  or more
- C) Wind speed change 10 knots or more
- D) Change in cloud base

**86- (Refer to figure I-01) What does the symbol 05 indicate on a significant weather chart?**

- A) Thunderstorm
- B) Tropical cyclone
- C) Squall line
- D) Moderate turbulence

**87- When SPECI must be issued?**

- A) Temperature increase  $1^{\circ}\text{C}$
- B) Wind direction change  $20^{\circ}$  or more
- C) Wind speed change 5 knots or more
- D) Significant change in cloud base

**88- When SPECI must be issued?**

- A) Temperature increase  $1^{\circ}\text{C}$
- B) Wind direction change  $20^{\circ}$  or more
- C) Wind speed change 5 knots or more
- D) Significant phenomena such as freezing PPTN or TS

**89- What position are connected with contour lines on the weather chart?**

- A) Positions with the same air density
- B) Position with the same thickness between two constant pressure levels
- C) Positions with the same height in a chart of constant pressure
- D) Positions with the same wind velocity

**90- Wind direction for METAR is the average wind direction that receives within last:**

- A) 10 minutes.
- B) 15 minutes.
- C) 30 minutes.
- D) 60 minutes.

**91- (Refer to figure I-01) What does the symbol 04 indicate on a significant weather chart?**

- A) Thunderstorm
- B) Tropical cyclone
- C) Squall line
- D) Moderate turbulence

**92- The VARIABLE wind for wind direction is express when wind direction change ..... within last 10 minutes before observing weather.**

- A) 30° or more
- B) 45° or more
- C) 60° or more
- D) 50° or more

**93- Which one of the following statement is correct about variable wind direction?**

- A) 240V260
- B) 240V270
- C) 240V290
- D) 240V310

**94- (Refer to figure I-01) which of the following ICAO charts symbols represents severe icing?**

- A) 9
- B) 7
- C) 7
- D) 13

**95- When the wind speed is variable?**

- A) Wind speed is less than 5 knots
- B) Wind speed is less than 7 knots
- C) Wind speed is less than 3 knots
- D) Wind speed is less than 10 knots

**96- "9999" in METAR is used when.....**

- A) Visibility is 10 Km or more
- B) Visibility is 5 Km or more
- C) Visibility is 8 Km or more
- D) Visibility is 15 Km or more

**97- What is the specification of CAVOK?**

- A) Visibility is 10 Km or more.
- B) No cloud below 5000 ft.
- C) No PPTN.
- D) All answers are correct.

**98- (Refer to figure I-01) What does the symbol 03 indicate on a significant weather chart?**

- A) Thunderstorm
- B) Tropical cyclone
- C) Squall line
- D) Moderate turbulence

**99- What is the specification of CAVOK?**

- A) Visibility is 10 Km or more.
- B) No significant cloud to restrict visibility less than 10 Km.
- C) No CB.
- D) All answers are correct.

**100- What is the specification of CAVOK?**

- A) No CB
- B) No cloud below 5000 ft
- C) No PPTN
- D) All answers are correct

**101- "R26L/P1200U" in METAR is shown the value of:**

- A) Visibility
- B) RVR
- C) Ceiling
- D) Temperature

**102- Which constant pressure altitude chart is standard at FL300?**

- A) 500 hPa
- B) 250 hPa
- C) 700 hPa
- D) 300 hPa

**103- (Refer to figure I-01) What does the symbol 02 indicate on a significant weather chart?**

- A) Sand
- B) Dust
- C) Widespread haze
- D) Fog

**104- What is the "P" in RVR information that use for "R26L/P1200U"?**

- A) RVR is more than 1200 meters
- B) RVR is less than 1200 meters
- C) RVR is no change but will be positive during next 10 minutes
- D) RVR is no change but will be positive during next 20 minutes

**105- What is the "U" in RVR information that use for "R26L/P1200U"?**

- A) Under
- B) Up
- C) No change
- D) Unlimited

**106- What is the "N" in RVR information that use for "R26L/P1200N"?**

- A) No change
- B) Down
- C) Up
- D) Negative

**107- What is the limitation of visibility in Mist?**

- A) Visibility more than 1000 m but less than 5000 m
- B) Visibility more than 1000 m but less than 6000 m
- C) Visibility more than 2000 m but less than 5000 m
- D) Visibility more than 2000 m but less than 6000 m

**108- (Refer to figure I-01) What does the symbol 12 indicate on a significant weather chart?**

- A) Rain
- B) Snow
- C) Shower
- D) Drizzle

**109- If you are planning a flight at FL170 which of these upper wind and temperature charts would be nearest your flight level?**

- A) 300 hPa
- B) 500 hPa
- C) 850 hPa
- D) 700 hPa

**110- On which of the following aviation weather charts can a pilot most easily find a jet stream?**

- A) Upper air chart
- B) wind/temperature chart
- C) Surface chart
- D) Significant weather chart.

**111- (Refer to figure I-01) What does the symbols 15 indicate on a significant weather chart?**

- A) The center of the tropopause high where the tropopause is at FL400.
- B) The center of a high pressure area at 400 hPa.
- C) The upper limit of significant weather at FL400.
- D) The lower limit of the tropopause.

**112- What is the limitation of visibility in DUST or SAND?**

- A) Visibility is less than 5000 m
- B) Visibility more than 1000 m but less than 6000 m
- C) Visibility more than 2000 m but less than 5000 m
- D) Visibility is equal or less than 1000 m

**113- When does wind shear express in METAR?**

- A) It occurs below 1500 ft above aerodrome level
- B) It occurs below 1600 ft above aerodrome level
- C) It occurs below 1700 ft above aerodrome level
- D) It occurs below 1800 ft above aerodrome level

**114- (Refer to figure I-01) What does the symbol 13 indicate on a significant weather chart?**

- A) Moderate rain
- B) Rain
- C) Heavy rain
- D) Hail

**115- Which of the following items are used in TREND?**

- A) BECMG
- B) TEMPO
- C) FM
- D) All answers are correct



**116- How can you identify temporary nature change in TREND information?**

- A) It follows by word "FROM"
- B) It follows by word "TEMPO"
- C) It follows by word "BECMG"
- D) It follows by word "AT"

**117- Terminal aerodrome forecast is an aerodrome weather forecast that cover an area about:**

- A) 3 NM
- B) 5 NM
- C) 10 NM
- D) 15 NM

**118- (Refer to figure I-01) What does the symbol 14 indicate on a significant weather chart?**

- A) Rain
- B) Snow
- C) Shower
- D) Hail

**119- What is the validity of TAF when it issues every 3 hours?**

- A) Less than 9 hours
- B) Less than 12 hours
- C) Less than 24 hours
- D) Less than 30 hour

**120- In a SIGMET what does "EMBD TSGR" stand for?**

- A) Severe icing
- B) Severe turbulence
- C) Sand storm
- D) Embedded thunderstorm with hail

**121- In METAR what does the code "VCTS –SHRA" stand for?**

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Sand storm
- D) Embedded thunderstorm with hail

**122- (Refer to figure I-01) What does the symbol 11 indicate on a significant weather chart?**

- A) Rain
- B) Snow
- C) Shower
- D) Hail

**123- In METAR what does the code "BR" stand for?**

- A) Severe icing
- B) Mist
- C) Sandstorm
- D) Embedded thunderstorm with hail

**124- In a forecast what does the code "GR" stand for?**

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Hail
- D) Embedded thunderstorm with hail

**125- In a forecast what does the code "+TSSNGR" stand for?**

- A) Severe icing
- B) Thunderstorm with heavy snow and hail
- C) Hail
- D) Embedded thunderstorm with hail

**126- In a forecast what does the code "DZ" stand for?**

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Drizzle
- D) Embedded thunderstorm with hail

**127- (Refer to figure I-01) What does the symbol 10 indicate on a significant weather chart?**

- A) Rain
- B) Snow
- C) Shower
- D) Hail

**128- In a forecast what does the code "FU" stand for?**

- A) Icing
- B) Thunderstorm in vicinity and light rain showers
- C) Hail
- D) Smoke

**129- In a forecast what does the code "PL" stand for?**

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Hail
- D) Ice pellets

**130- In a forecast what does the code "SG" stand for?**

- A) Severe icing
- B) Snow grains
- C) Hail
- D) Embedded thunderstorm with hail

**131- In a forecast what does the code "SQ" stand for?**

- A) Severe icing
- B) Thunderstorm in vicinity and light rain showers
- C) Squall
- D) Embedded thunderstorm with hail

**132- In a forecast what does the code "DS" stand for?**

- A) Severe icing
- B) Duststorm
- C) Hail
- D) Embedded thunderstorm with hail

**133- (Refer to figure I-01) What does the symbols 01 indicate on a significant weather chart?**

- A) Rain
- B) Snow
- C) Shower
- D) Hail

**134- (Refer to figure I-02) Which type of front is indicated?**

- A) Warm occlusion front
- B) Cold front
- C) Stationary front
- D) Occlusion front

**135- (Refer to figure I-05) Which type of front is indicated in illustration "4"?**

- A) Warm front
- B) Cold front
- C) Stationary front
- D) Occlusion front

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	B	26	C	51	B	76	A
2	B	27	A	52	A	77	C
3	A	28	B	53	C	78	B
4	D	29	C	54	D	79	C
5	C	30	D	55	C	80	A
6	C	31	D	56	C	81	A
7	D	32	D	57	A	82	D
8	D	33	C	58	A	83	B
9	D	34	D	59	D	84	D
10	C	35	C	60	D	85	C
11	A	36	C	61	A	86	C
12	C	37	A	62	C	87	D
13	B	38	D	63	C	88	D
14	B	39	C	64	C	89	C
15	A	40	B	65	C	90	A
16	B	41	B	66	C	91	B
17	B	42	B	67	B	92	C
18	A	43	A	68	B	93	D
19	A	44	A	69	A	94	A
20	C	45	C	70	C	95	C
21	D	46	D	71	C	96	A
22	C	47	A	72	D	97	D
23	C	48	B	73	C	98	A
24	A	49	C	74	C	99	D
25	D	50	A	75	C	100	D

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	B	110	D	119	B	128	D
102	D	111	A	120	D	129	D
103	C	112	A	121	B	130	B
104	A	113	B	122	D	131	C
105	B	114	A	123	B	132	B
106	A	115	D	124	C	133	B
107	A	116	B	125	B	134	A
108	D	117	B	126	C	135	A
109	B	118	A	127	C		





**1- The aerodrome operating minima usually expressed in term of:**

- A) Visibility and RVR and cloud condition.
- B) Visibility or RVR and cloud condition.
- C) Visibility or RVR and cloud condition and temperature.
- D) Visibility and/or RVR and MDA/H or DA/H and if necessary, cloud conditions.

**2- An airplane can be:**

- A) Power driven
- B) Lighter than air
- C) Heavier than air
- D) Power driven heavier than air

**3- Where the MDH is referenced to the threshold elevation?**

- A) If that is more than 7 ft below the AD elevation
- B) If that is less than 7 ft below the AD elevation
- C) If that is more than 7 ft above the AD elevation
- D) If that is less than 7 ft above the AD elevation

**4- Crew member is:**

- A) A person assigned by state to duty on an aircraft
- B) A licensed member assigned by operator to act as a pilot-in-command
- C) A person assigned by Pilot-in-command
- D) A person assigned by an operator to duty on an aircraft during flight duty period

**5- Flight crew member is:**

- A) A licensed crew member on an aeroplane
- B) A licensed crew member on an aeroplane during flight time
- C) A licensed crew member on an aircraft during flight duty period
- D) A licensed crew member on an aircraft

**6- Cruising level is level maintained during:**

- A) Flight time
- B) Flight duty period
- C) Significant portion of flight
- D) Take-off or landing

**7- Decision altitude is a specified altitude in:**

- A) Precision approach or Approach with vertical guidance (3D)
- B) Precision approach (3D)
- C) Non-precision approach (2D)
- D) Circling approach (2D)



**8- Flight time is:**

- A) Block to block time
- B) Chock to chock time
- C) A and B are correct
- D) A or B is correct

**9- The procedures for carrying of dangerous goods are contained in:**

- A) Annex 1
- B) Annex 6
- C) Annex 18
- D) Annex 17

**10- Civil twilight means:**

- A) Centre of sun's disc is 6° above horizon
- B) Centre of sun's disc is 15° below horizon
- C) Centre of sun's disc is 6° below horizon
- D) Centre of sun's disc is 15° above horizon

**11- MEL shall be approved by:**

- A) State of manufacture
- B) State of operator
- C) Operator
- D) State of design

**12- An instrument approach and landing which utilize lateral guidance is known as:**

- A) Precision APCH (3D)
- B) Non-precision APCH (2D)
- C) Circling APCH (2D)
- D) B and C are correct

**13- Duties of cabin crew member assigned by:**

- A) Pilot-in-command
- B) Operator
- C) State of operator
- D) A or B is correct

**14- MMEL shall be approved by:**

- A) State of design
- B) Operator
- C) State of operator
- D) State of manufacture

**15- How many destination alternate aerodromes shall be selected when meteorological Information is not available at destination aerodrome?**

- A) One
- B) Two
- C) At least one
- D) At least two

**16- An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure is known as:**

- A) En-route alternate aerodrome
- B) Destination alternate aerodrome
- C) Take-off alternate aerodrome
- D) ETOPS alternate aerodrome

**17- The aerodrome from which a flight departs may also be used as:**

- A) En-route alternate aerodrome
- B) Destination alternate aerodrome
- C) Takeoff alternate aerodrome
- D) A or B is correct

**18- A list which identifies any external parts of an aircraft type which may be missing at the commencement of a flight is known as:**

- A) MEL
- B) CDL
- C) MMEL
- D) Checklist

**19- The acronym of an automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft is called:**

- A) ELT (AP)
- B) ELT (AF)
- C) ELT (AD)
- D) ELT (S)

**20- Which of ICAO Annexes shall be applicable to the operation of airplanes by operators authorized to conduct international commercial air transport operations?**

- A) Annex 6 Part III
- B) Annex 6 Part II
- C) Annex 6 Part I
- D) Annex 8

**21- A manual associated with the certification of airworthiness is:**

- A) Operation manual
- B) Flight manual
- C) Air traffic manual
- D) A and B are correct

**22- MDA/H is specified altitude or height in:**

- A) Circling approach procedure (2D)
- B) Precision approach procedure (3D)
- C) Non-precision approach procedures (2D)
- D) A or C is correct

**23- A person who engage in the control and supervision of flight operations, who supports, briefs and/or assists the pilot-in-command in the safe conduct of the flight is called:**

- A) Pilot-in-command
- B) ATC
- C) Flight operations officer/flight dispatcher
- D) Co-pilot

**24- The operational control is responsibility of:**

- A) Pilot-in-command
- B) Operator
- C) State
- D) All answers are correct

**25- If the incident occurs and necessitates to submit a report by pilot-in-command, it shall be made normally within:**

- A) 10 days
- B) 90 days
- C) 1 month
- D) 3 months

**26- Flight safety analysis program shall be established as part of safety management system by:**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**27- The method of control and operational supervision shall be approved:**

- A) State of operator
- B) Operator
- C) State of registry
- D) State

**28- If an emergency situation which endangers the safety of the airplane necessitates the taking of action which involves a violation of local regulations or procedures, when the pilot shall notify the appropriate local authority?**

- A) Within 10 days
- B) Within 5 days
- C) At termination of flight
- D) Without delay

**29- A list which provides for the operation of aircraft, subject to specified conditions, with particular equipment inoperative, established for the aircraft type is known as:**

- A) MMEL
- B) CDL
- C) MEL
- D) Checklist

**30- CDL shall be approved by:**

- A) State of manufacture
- B) Operator
- C) State of operator
- D) State of design

**31- DH is a specified height is referenced to:**

- A) Aerodrome elevation
- B) Threshold elevation in the precision
- C) Runway elevation
- D) Threshold elevation in the non-precision

**32- What is the lowest height in precision approach at which missed approach must be initiated?**

- A) MDH
- B) DH
- C) OCA
- D) DA

**33- What is the lowest height as aerodrome operating minima for VOR/DME approach?**

- A) MDH
- B) OCH
- C) DH
- D) TCH

**34- Flight time is commenced from the moment an aircraft:**

- A) First moves with own power
- B) First moves with push back system
- C) Moves with own power for the purpose of taking off
- D) First moves for the purpose of taking off

**35- An aircraft means any machine:**

- A) Power driven
- B) Heavier than air
- C) Lighter than air
- D) A, B and C are correct

**36- The Maximum certificated take-off mass of large airplane is:**

- A) Over 27000 kg
- B) Over 5700 kg
- C) Over 7000 kg
- D) Over 13600 kg

**37- What is the name of manual which contain limitation within which the aircraft is to be considered airworthy?**

- A) Technical manual
- B) Operations manual
- C) Flight manual
- D) Airworthiness manual

**38- How many times in a year, pilot proficiency check shall take place?**

- A) One
- B) Two (twice)
- C) Three
- D) Four

**39- Which of the following DH and RVR are determined as minima for the precision approach CAT I operations?**

- A) 200 ft / 550 m
- B) 100 ft / 300 m
- C) No DH / 175 m
- D) No DH / 50 m

**40- An instrument approach and landing using precision lateral and vertical guidance is known as:**

- A) Precision APCH (3D)
- B) Non-precision APCH (2D)
- C) Circling APCH (2D)
- D) APCH with vertical guidance (APV) (3D)

**41- A containment value expressed as a distance in nautical miles from the intended position within which flights would be for at least 95 per cent of the total flying time is known as:**

- A) RNAV
- B) RNP
- C) RVSM
- D) RNP type

**42- Flight crew members shall demonstrate the ability to speak and understand the language used for radiotelephony communications as specified in:**

- A) Annex 6
- B) Annex 1
- C) Annex 18
- D) Annex 17

**43- The Maximum certificated take-off mass of small airplane is:**

- A) 27000 kg or less
- B) 7000 kg or less
- C) 5700 kg or less
- D) 13600 kg or less

**44- Who is responsible to implement a safety management system?**

- A) State of the operator
- B) Operator
- C) State
- D) ICAO

**45- An operators establish and maintain a flight data analysis program as part of its safety management system for an airplane of a maximum certificated take-off mass:**

- A) 27000 kg or less
- B) In excess of 27000 kg
- C) 5700 kg or more
- D) 13600 kg or less

**46- Which of ICAO Annex shall be applicable to international general aviation operations with airplanes?**

- A) Annex 6 Part II
- B) Annex 6 Part III
- C) Annex 6 Part I
- D) Annex 8

**47- Which of the following terms shall be used to indicate aerodrome operating minima for Circling approach?**

- A) MDA/H + Visibility/RVR
- B) DA/H + Visibility/RVR
- C) A + cloud condition
- D) B + cloud condition

**48- Who is responsible to establish flight safety analysis program?**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**49- Which of ICAO Annex shall be applicable to international commercial air transport operations or international general aviation operations with helicopters?**

- A) Annex 6 Part III
- B) Annex 6 Part II
- C) Annex 6 Part I
- D) Annex 8

**50- A manual which contain procedures, instructions and guidance for use by operational personnel in the execution of their duties is called:**

- A) Maintenance manual
- B) Operations manual
- C) Flight manual
- D) MEL

**51- Pilot in command is responsible for the:**

- A) Operation and safety of aircraft during flight time
- B) Operation and control of aircraft during flight time
- C) Operation and control and safety of aircraft
- D) All answers are correct

**52- Who is responsible to approve and sign the operational flight plan?**

- A) ATS
- B) Operator
- C) Pilot-in-command
- D) State

**53- Operational manual shall be provided by:**

- A) Pilot-in-command
- B) State
- C) State of operator
- D) All answers are incorrect

**54- An airplane shall not be operated under the IFR or at night by a single pilot unless approved by the:**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**55- When an en-route aeroplane encounter with one power unit inoperative, shall be able:**

- A) To fly IFR
- B) To fly not below cruising level
- C) To fly not below minimum flight altitude
- D) To fly to alternate

**56- Each flight crew member required to be at their station during:**

- A) En-route
- B) Takeoff and Landing
- C) Cruise climb
- D) Only landing

**57- Who is responsible for the safety of all passengers when the doors are closed?**

- A) Cabin crew
- B) Pilot-in-command
- C) Operator
- D) Passenger himself



**58- Fuel and oil record shall be retained by the operator for a period of:**

- A) 25 days
- B) 30 days
- C) 90 days
- D) 3 months

**59- The operator shall record the total cosmic radiation dose received by each crew member above 15000 m (49000 ft) over a period of:**

- A) 12 month
- B) 12 month flight time
- C) 12 consecutive months
- D) 12 consecutive days

**60- The amount of destination alternate fuel for turbine engine airplane where the aerodrome of intended landing is an isolated aerodrome is:**

- A) Departure to Destination + 2 hrs fuel
- B) Departure to Destination + 2 hrs normal consumption
- C) Departure to Destination + 2 hrs Increased cruise consumption
- D) Departure to Destination + 2 hrs normal cruise consumption

**61- How many destination alternate aerodromes shall be specified in flight plan for IFR flights?**

- A) One
- B) Two
- C) At least one
- D) None

**62- What is the meaning of trip fuel?**

- A) Fuel required to fly from take-off, until landing at the alternate aerodrome
- B) Fuel required to fly from taxi, until landing at the destination aerodrome
- C) Fuel required to fly from take-off, until landing at the destination aerodrome
- D) Fuel required to fly from taxi, until holding at 1500 ft above destination aerodrome

**63- The method of specifying of minimum flight altitude shall be included in:**

- A) Operations manual
- B) Aircraft operating manual
- C) Training manual
- D) Flight manual

**64- En-route alternate aerodromes shall be selected and specified in:**

- A) ATS flight plan
- B) Operational flight plan
- C) A or B is correct
- D) A and B are correct

**65- Threshold crossing height (TCH) shall be established for:**

- A) Precision approach (3D)
- B) Approach with vertical guidance (APV)(3D)
- C) Non precision approach (2D)
- D) A and B are correct

**66- Flight preparation form shall be completed and certified by:**

- A) Operator
- B) Pilot-in-command
- C) Maintenance
- D) State of operator

**67- The amount of fuel required for reciprocating engine (piston) airplanes when no destination alternate aerodrome is:**

- A) Departure to Destination + 30 min
- B) Departure to Destination + 45 pounds
- C) Departure to Destination + 45 min
- D) Departure to Destination + 60 min

**68- The level above destination or alternate aerodrome which shall be considered in fuel computing for turbine engine airplanes is:**

- A) 4500 ft
- B) 1500 ft
- C) 3000 ft
- D) 2000 ft

**69- When an En-route airplane (3 or more engines) encounter with any two engines becoming inoperative, shall be able to fly to:**

- A) Nearest aerodrome
- B) En-route alternate
- C) Destination
- D) Destination alternante

**70- A take-off alternate aerodrome shall be selected and specified in:**

- A) Operational flight plan
- B) ATS flight plan
- C) Filed flight plan
- D) Repetitive flight plan

**71- Category II and Category III instrument approach and landing operations shall not be authorized unless ..... Information is provided.**

- A) DH
- B) RVR
- C) Visibility
- D) Radar

**72- For which of the following pressure, the non-pressurized airplane, shall have sufficient breathing oxygen for all crew and 10 percent of passengers:**

- A) 376 hPa
- B) 609 hPa
- C) 623 hPa
- D) Less than 620 hPa

**73- When an airplane shall have quick donning type of oxygen mask?**

- A) Operating at an altitude with pressure of less than 700 hPa
- B) Operating at an altitude with pressure of less than 673 hPa
- C) Operating at an altitude with pressure of less than 620 hPa
- D) Operating at an altitude with pressure of less than 376 hPa

**74- When shall be an airplane equipped with an indicator to measure total cosmic radiations?**

- A) Operating above 15000 ft
- B) Operating above 25000 ft
- C) Operating above 49000 ft
- D) Operating above 29000 ft

**75- Who is responsible to establish regulations for the purpose of managing fatigue?**

- A) State
- B) Operator
- C) Flight standard
- D) State of operator

**76- Who is responsible to provide operations manual?**

- A) State of operator
- B) Operator
- C) State
- D) ICAO

**77- Who is responsible to approve and publish an instrument approach procedure?**

- A) Operator
- B) State of operator
- C) ATC
- D) State

**78- When the pilot-in-command shall report any suspected defects to the operator?**

- A) Without delay
- B) At the termination of flight
- C) Normally within 10 days
- D) Any time

**79- Who is requiring that the aerodrome operating minima be established?**

- A) State of operator
- B) State
- C) ICAO
- D) Operator

**80- Within which flight plan destination alternate must be informed?**

- A) Operational flight plan
- B) ATS flight plan
- C) A and B are correct
- D) A or B is correct

**81- The aerodrome operating minima shall be established by:**

- A) State
- B) ICAO
- C) State of operator
- D) Operator

**82- RNP 4 means:**

- A) 4 NM total performance with on-board performance monitoring and alerting.
- B) 4 NM lateral performance with on-board performance monitoring and alerting.
- C) 4 NM lateral and horizontal performance with on-board performance monitoring.
- D) 4 NM horizontal performances with on-board performance monitoring and alerting.

**83- Air operator certificate shall be issued by:**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**84- Completed flight preparation form shall be kept by operator for:**

- A) 3 months
- B) 6 month
- C) 90 days
- D) 12 month

**85- When the descend shall not be continued beyond aerodrome operating minima (MDA/H or DA/H)?**

- A) At night
- B) In the case of radio failure
- C) In emergency
- D) In any case

**86- Who is responsible for operation and safety of airplane and all persons on board during flight time?**

- A) Co-pilot
- B) Operator
- C) Pilot-in-command
- D) State

**87- Which flight shall carry the amount of breathing oxygen sufficient for all crew members and 10 percent of passengers?**

- A) When pressure compartment is 700
- B) When pressure compartment is 620
- C) When pressure compartment is 376
- D) Between A and B

**88- Which manual contain the operating limitation?**

- A) Flight manual
- B) Operational manual
- C) Annex 6
- D) Annex 1

**89- The 727 aeroplane shall be able in the event of 2 engine failure to continue to fly to?**

- A) Destination
- B) En-route alternate
- C) Any airport
- D) Suitable airport

**90- Within which manual, the method of determination of minimum flight altitude shall be included?**

- A) Annex 2
- B) Annex 6
- C) Operations manual
- D) DOC 4444

**91- Who is responsible for notifying the nearest appropriate authority by the quickest available means of any accident involving the aeroplane, resulting in serious injury or death of any person or substantial damage to the aeroplane or property.**

- A) State
- B) Pilot-in-command
- C) Air traffic control
- D) Operator

**92- Who is responsible to approve the flight time limitation?**

- A) Operator
- B) State of operator
- C) ATC
- D) ICAO

**93- Which manual shall include the checklist?**

- A) Annex 6
- B) Flight manual
- C) Aircraft operating manual
- D) B and C are correct

**94- For which type of airplane, the 15% of fuel shall be considered?**

- A) Reciprocating engine (Piston)
- B) Turbine engine
- C) A and B are correct
- D) Jet engine

**95- If, after entering the final approach segment or after descending below 300 m (1000 ft) above the aerodrome, the reported visibility or controlling RVR falls below the specified minimum, the approach may be continued to:**

- A) DH
- B) MDH
- C) OCH
- D) A or B is correct

**96- Safety harness includes:**

- A) Shoulder straps
- B) Seat belt
- C) A and B are correct
- D) A or B is correct

**97- Which of the following manual contain procedures that shall be initiated by flight operations officer / flight dispatcher in the event of an emergency?**

- A) Technical manual
- B) Operations manual
- C) Flight manual
- D) Aircraft operating manual

**98- An operator shall ensure that any inadequacy of facilities observed in the course of operations is reported to:**

- A) State of operator, without delay
- B) State, at the termination of flight
- C) Authority responsible for them, without delay
- D) State of operator, within 10 days

**99- The method for establishing the minimum flight altitudes should be approved by:**

- A) State of operator
- B) Operator
- C) Air traffic control
- D) State of registry

**100- What is the amount of contingency fuel?**

- A) 5% of planned trip fuel
- B) 10% trip fuel
- C) 5% of total fuel
- D) 5 minutes of holding fuel

**101- Where RVR is used, the controlling RVR is the:**

- A) Stop-end RVR
- B) Mid-point RVR
- C) Touchdown RVR
- D) All answers are correct

**102- For instrument approach and landing operations, aerodrome operating minima below ..... visibility should not be authorized unless RVR information is provided.**

- A) 1200 meter
- B) 300 meter
- C) 550 meter
- D) 800 meter

**103- An instrument approach shall not be continued below ..... above the aerodrome elevation or into the final approach segment unless the reported visibility or controlling RVR is above the specified minimum.**

- A) 300 m (1000 ft)
- B) Glide slope
- C) 600 m (2000 ft)
- D) 450 m (1500 ft)

**104- An operator shall not engage in commercial air transport operations unless in possession of a valid air operator certificate issued by:**

- A) State of operator
- B) State of manufacture
- C) State
- D) State of registry

**105- The take-off alternate aerodrome shall be located for aeroplanes having two power-units within a distance from the aerodrome of departure:**

- A) Not more than a distance equivalent to a flight time of one hour
- B) Not less than a distance equivalent to a flight time of one hour at the single-engine cruise speed
- C) Not more than a distance equivalent to a flight time of one hour at the single-engine cruise speed
- D) Not less than a distance equivalent to a flight time of one hour

**106- The flight manual shall be updated by implementing changes made mandatory by:**

- A) State of operator
- B) Operator
- C) State
- D) State of registry



**107- Who is responsible to establish regulation for limiting flight time and flight duty period for flight crew member?**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**108- All flight crew members shall communicate through boom or throat microphones:**

- A) Above the transition level/altitude
- B) Below the transition level/altitude
- C) Below the transition altitude
- D) Above the transition level

**109- Flight data recorder shall be capable to retain information recorded during its last:**

- A) 25 hrs of flight time
- B) 25 hrs of its operation
- C) 25 hrs of last inspection
- D) 25 hrs of engine run

**110- Cockpit voice recorder shall be capable of retaining the information recorded during at least the last:**

- A) 30 days
- B) 30 hours
- C) 30 min
- D) any time

**111- After 1 January 2016, cockpit voice recorder shall be capable of retaining the information recorded during at least the last:**

- A) 30 days
- B) 25 hours
- C) 30 min
- D) 2 hours

**112- A land plane shall carry life jacket when flying:**

- A) More than 50 NM away from shore
- B) More than 50 SM away from shore
- C) More than 50 min away from shore
- D) More than 50 KM away from shore

**113- An aeroplane shall be fitted with emergency power supply when it has:**

- A) Max mass of 15000 kg
- B) Max mass of over 15000 kg
- C) Max mass of over 5700 kg
- D) Max mass of 5700 kg

**114- The operator shall not assign a pilot to act as pilot-in-command or co-pilot except within preceding 90 days, the pilot has made:**

- A) At least 3 landing
- B) At least 3 Take-off
- C) A and B are correct
- D) A or B is correct

**115- Flight recorder type II A shall be capable to retain information during at least the last:**

- A) 30 minutes
- B) 25 hours
- C) 25 minutes
- D) 30 hours

**116- How many fire extinguishers shall be located on pilot's compartment?**

- A) One
- B) Two
- C) At least one
- D) At least two

**117- For flights in RVSM airspace, the threshold for the alert to the flight crew when a deviation occurs from the selected flight level:**

- A) shall exceed  $\pm 300$  ft
- B) shall not exceed  $\pm 300$  ft
- C) Shall not exceed  $\pm 200$  ft
- D) shall not exceed  $\pm 100$  ft

**118- All aeroplanes when operated as VFR flights shall be equipped with:**

- A) 2 sensitive pressure altimeter
- B) At least 2 sensitive pressure altimeter
- C) 1 sensitive pressure altimeter
- D) At least 1 sensitive pressure altimeter

**119- The instruments and equipment, including their installation in aeroplanes shall be approved or accepted by:**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**120- Completed journey log book should be retained for:**

- A) 90 days
- B) Three months
- C) At least one year
- D) The last six months of operations

**121- The FDR container is to be painted in:**

- A) Orange or yellow
- B) Red
- C) Black
- D) Yellow

**122- All aeroplane on all flights shall carry:**

- A) Operational manual
- B) Flight manual
- C) Current suitable chart
- D) All answers are correct

**123- The records of appropriate details of modifications and repairs of the aeroplane shall be kept for a minimum period of:**

- A) 90 days
- B) 12 months
- C) 2 months
- D) 4 months

**124- Pilot proficiency check shall be made:**

- A) Twice within any month
- B) Twice within any period of one year
- C) Twice within any season
- D) One time per year

**125- Which documents shall include information enable the pilot-in-command to determine the flight may be continued or not?**

- A) Aeroplane flight manual
- B) ATC manual
- C) Maintenance manual
- D) Operations manual

**126- What action shall be taken by a pilot-in-command following an act on unlawful interference?**

- A) Submit a report to state of the operator
- B) Submit a report to appropriate authority
- C) Submit a report to designated local authority
- D) Submit a report to security authority

**127- Which maintenance can release an aeroplane for flight?**

- A) Qualified by operator
- B) Qualified by annex 6
- C) Qualified by annex 1
- D) Qualified by state of operator

**128- Long range over water means to fly over water for more than 120 min, at cruising speed or .....**

- A) 400 NM, whichever is lesser
- B) 400 KM, whichever is higher
- C) 400 NM, whichever is higher
- D) 400 KM, whichever is lesser

**129- What is the minimum capability of emergency power supply to illuminate the artificial horizon?**

- A) 45 min
- B) 30 min
- C) 60 min
- D) 120 min

**130- Who is responsible to establish a training program to minimize unlawful interferences?**

- A) State of operator
- B) State
- C) ICAO
- D) Operator

**131- What shall be the certificated take-off mass of an aeroplane, equipped with type II FDR?**

- A) Over 5700 kg up to and including 27000 kg
- B) Over 27000 kg
- C) Over 5700 kg up to 27000 kg
- D) A and B are correct

**132- The flight manual contains the information specified in:**

- A) Annex 18
- B) Annex 16
- C) Annex 8
- D) Annex 6

**133- Which one will warn the flight crew, the unsafe terrain clearance while not in landing configuration?**

- A) RADAR
- B) ACAS
- C) GPS
- D) GPWS

**134- According to which ICAO annexes the flight crew shall be licensed?**

- A) Annex 6
- B) Annex 11
- C) Annex 2
- D) Annex 1

**135- According to which ICAO annexes the flight operations officer/flight dispatcher shall be licensed or qualified?**

- A) Annex 6
- B) Annex 1
- C) Annex 2
- D) Annex 11

**136- Which type of operation should be equipped with weather radar?**

- A) Pressurized aeroplane
- B) Carrying passengers
- C) A and B are correct
- D) A or B is correct

**137- How long a pilot-in-command is qualified to be utilized again on a route from its last flight?**

- A) 90 days
- B) 12 months
- C) 3 months
- D) 6 months

**138- An operator shall not assign a pilot to act as a cruise relief pilot unless:**

- A) Within the preceding 90 days that pilot has made three take-off and landing
- B) Within the preceding 12 months, that pilot has made at least a one-way qualification flight
- C) Within the preceding 90 days that pilot has operated as a pilot-in-command, co-pilot or cruise relief pilot
- D) Within the preceding 12 months, that pilot has operated as a pilot-in-command, co-pilot or cruise relief pilot

**139- When a flight recorder shall be switched off?**

- A) En-route
- B) Take off
- C) Landing
- D) Never

**140- The flight compartment door shall be closed and locked from the time of:**

- A) The external doors are closed
- B) Aeroplane commenced his taxi
- C) Embarkation
- D) Departure

**141- When a pressurized aeroplane shall be equipped with a device to provide positive warning to the pilot-in-command in the case of loss of pressurization?**

- A) Intends to fly at level with less than 620 hPa
- B) Intends to fly at level with less than 376 hPa
- C) Intends to fly at level with less than 600 hPa
- D) Intends to fly at level with less than 720 hPa

**142- The pilot-in-command shall declare MINIMUM FUEL when:**

- A) Any change to the existing clearance to that aerodrome may result in landing with less than the planned final reserve fuel.
- B) This is an emergency situation exist having committed to land at a specific aerodrome.
- C) Calculated usable fuel available is less than the planned final reserve fuel.
- D) All answers are correct

**143- How many ELT shall have an aeroplanes authorized to carry more than 19 passengers after 1 July 2008?**

- A) At least two ELTs, one of which shall be automatic
- B) Two ELTs of any type
- C) At least one automatic ELT
- D) At least two

**144- How long is EDTO/ETOPS threshold time?**

- A) 90 min
- B) 60 min
- C) 45 min
- D) 30 min

**145- How many ELT shall have an aeroplanes authorized to carry more than 19 passengers?**

- A) At least two ELTs, one of which shall be automatic
- B) Two ELTs of any type
- C) At least one automatic ELT
- D) At least two

**146- The pilot-in-command shall declare MAYDAY FUEL when:**

- A) Any change to the existing clearance to that aerodrome may result in landing with less than the planned final reserve fuel.
- B) This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.
- C) Calculated usable fuel available is less than the planned final reserve fuel.
- D) All answers are correct

**147- The standard of noise certification is contained in:**

- A) Annex 18
- B) Annex 16 Vol I
- C) Annex 16 Vol II
- D) Annex 8

**148- How many altimeter setting shall be equipped an aeroplane intended to operate as a controlled VFR flight?**

- A) One
- B) Two
- C) At least One
- D) A or B is correct

**149- Who is responsible for the submission of journey log book?**

- A) Operator
- B) Pilot-in-command
- C) State
- D) State of operator

**150- Which document shall contain the MEL?**

- A) Aircraft operating manual
- B) Route manual
- C) Operations manual
- D) Flight manual

**151- Which document specified the number and composition of flight crew member?**

- A) Aeroplane flight manual
- B) Annex 6
- C) Operations manual
- D) Aircraft operating manual

**152- How many ELT shall have an aeroplanes authorized to carry 19 passengers or less?**

- A) One ELT
- B) Two ELTs of any type
- C) At least one automatic ELT
- D) At least one ELT of any type

**153- After 1 January 2005 all aeroplanes of a maximum certificated take-off mass of over 5700 kg shall be equipped with:**

- A) Type I FDR
- B) Type II FDR
- C) Type IA FDR
- D) Type IIA FDR

**154- Flight data recorder type IA, I and II shall be capable to retain information during at least the last:**

- A) 30 hours
- B) 25 hours
- C) 30 minutes
- D) 25 minutes



**155- What shall be the type of FDR with maximum mass of 27000 kg?**

- A) Type II
- B) Type I
- C) Type IIA
- D) All answers are correct

**156- For flights in defined portions of airspace where minimum navigation performance specifications (MNPS) are prescribed, an aeroplane has been authorized by the .....for MNPS operations.**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**157- The color of the markings of break-in points shall be:**

- A) Red
- B) Yellow
- C) Black
- D) A or B is correct

**158- Single engine aeroplanes shall only be operated in conditions of ....., and over such routes and diversions there from, that permit a safe forced landing to be executed in the event of engine failure:**

- A) VMC
- B) IMC
- C) Weather and light
- D) Daylight

**159- Information for pilots and flight operations personnel on flight procedure parameters and operational procedures are contained in:**

- A) Annex 6
- B) Annex 8
- C) PANS-ATM
- D) PANS-OPS Volume I

**160- A seat or berth for each person over an age to be determined by:**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**161- Ground and flight training program shall be approved by:**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**162- The operator shall include in the operations manual:**

- A) MMEL
- B) CDL
- C) MEL
- D) B and C are correct

**163- All turbine engine aircraft with maximum certificated take-off mass in excess of .....or authorized to carry more than ....., for which the individual certificate of airworthiness is first issued on or after 1 Jan 2004, shall be equipped with GPWS which has a forward looking terrain avoidance function.**

- A) 5700 kg – 9 passengers
- B) 27000 kg – 30 passengers
- C) 15000 kg – 15 passengers
- D) 15000 kg – 9 passengers

**164- An operator shall not employ electronic navigation data products for application in the air and on the ground unless approved by:**

- A) Operator
- B) State of operator
- C) State
- D) State of registry

**165- For flights in defined portions of airspace where a RVSM is applied, an aeroplane shall be authorized by the .....for operation in the airspace concerned.**

- A) State of operator
- B) Operator
- C) State
- D) State of registry

**166- VFR flights which are operated as controlled flights shall be equipped with:**

- A) VFR instruments
- B) IFR instruments
- C) GPWS
- D) ELT

**167- For flights in defined portions of airspace or on routes where an RCP type has been prescribed, an aeroplane shall be authorized by the ..... for operations in such airspace.**

- A) State of Operator
- B) Operator
- C) State
- D) State of Registry

**168- The total number of oxygen dispensing units on an aeroplane shall:**

- A) Exceed the number of passenger and cabin crew seats by at least 5 percent
- B) Equal to the number of passenger and cabin crew seats
- C) Exceed the number of passenger and cabin crew seats by at least 10 percent
- D) Exceed the number of passenger seats

**169- Navigation for flights under the visual flight rules is accomplished by:**

- A) Instrument
- B) Visual reference to landmarks
- C) VMC
- D) IMC

**170- Flight recorder comprises:**

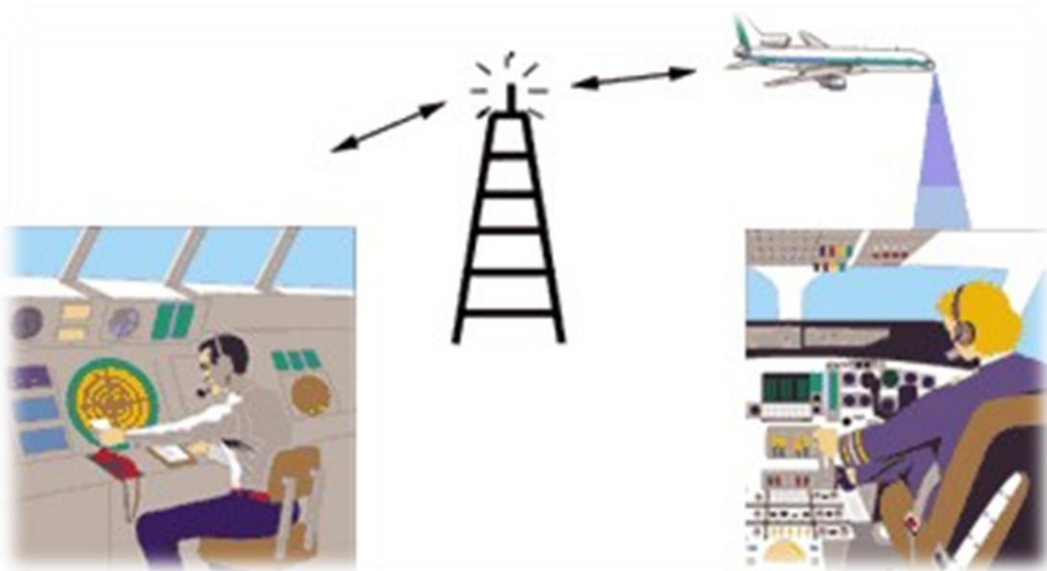
- A) Cockpit voice recorder
- B) Flight data recorder
- C) A or B is correct
- D) A and B are correct

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	D	26	B	51	A	76	B
2	D	27	A	52	C	77	D
3	A	28	D	53	D	78	B
4	D	29	C	54	A	79	A
5	C	30	D	55	C	80	C
6	C	31	B	56	B	81	D
7	A	32	B	57	B	82	B
8	D	33	A	58	D	83	A
9	C	34	D	59	C	84	A
10	C	35	D	60	D	85	D
11	B	36	B	61	C	86	C
12	D	37	C	62	C	87	D
13	D	38	B	63	A	88	A
14	A	39	A	64	D	89	B
15	B	40	A	65	D	90	C
16	C	41	D	66	B	91	B
17	D	42	B	67	C	92	B
18	B	43	C	68	B	93	D
19	A	44	B	69	B	94	A
20	C	45	B	70	A	95	D
21	B	46	A	71	B	96	C
22	D	47	C	72	C	97	B
23	C	48	B	73	D	98	C
24	B	49	A	74	C	99	A
25	A	50	B	75	D	100	A

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	C	121	A	141	B	161	A
102	D	122	D	142	A	162	D
103	A	123	A	143	A	163	C
104	A	124	B	144	B	164	B
105	C	125	D	145	C	165	A
106	D	126	C	146	C	166	B
107	A	127	C	147	B	167	A
108	B	128	A	148	B	168	C
109	B	129	B	149	B	169	B
110	C	130	D	150	C	170	D
111	D	131	A	151	C		
112	A	132	C	152	D		
113	C	133	D	153	C		
114	C	134	D	154	B		
115	A	135	B	155	A		
116	C	136	C	156	A		
117	B	137	B	157	D		
118	C	138	C	158	C		
119	D	139	D	159	D		
120	D	140	A	160	A		



# ANNEX 10



➤ Annex 10 (Vol.2) – 7<sup>th</sup> edition, AMDT 90

**1- Which word or phrase shall be used if you want to say "REDUCE YOUR RATE OF SPEECH"?**

- A) SPEAK SLOWER.
- B) WORDS TWICE.
- C) REPEAT.
- D) SAY AGAIN.

**2- Which phrase should a pilot use to inform ATC that he is initiating a missed approach procedure?**

- A) GOING AROUND.
- B) MISSED APPROACH.
- C) PULLING UP.
- D) OVERSHOOTING.

**3- Which phrase shall be used if you want to say "COMMUNICATION IS DIFFICULT, PLEASE SEND EVERY WORD OR GROUP OF WORD TWICE"?**

- A) WORDS TWICE.
- B) SAY AGAIN, SAY AGAIN.
- C) REPEAT TWICE.
- D) MESSAGE SECOND TIME.

**4- Which word shall be used to ask a station whether you have correctly received a message, clearance, instruction?**

- A) CONFIRM.
- B) CORRECT.
- C) ACKNOWLEDGE.
- D) VERIFY.

**5- How shall a pilot inform the control tower that he has to abandon takeoff maneuver?**

- A) STOPPING.
- B) ABANDONING TAKEOFF.
- C) ABORTING TAKEOFF.
- D) CANCELLING TAKEOFF.

**6- What does the instruction "MAHAN 345 STANDBY 118.9 FOR TOWER" mean?**

- A) MAHAN 345 should standby on the current frequency.
- B) MAHAN 345 should change frequency to 118.9 on which aerodrome data are being broadcast.
- C) MAHAN 345 should contact TOWER on 118.9.
- D) MAHAN 345 should listen on frequency 118.9 on which TOWER will initiate further communications.



**7- How long the test signal shall be made?**

- A) 10 seconds
- B) Minimum 10 seconds
- C) Maximum 10 seconds
- D) All answers are incorrect

**8- Which of the following message shall be handled by interpilot air-to-air communication when necessary?**

- A) Regulatory messages
- B) Safety messages
- C) Meteorological messages
- D) A and B are correct

**9- How long elapse time is required between the first and second call?**

- A) 10 seconds
- B) At least 10 seconds
- C) Maximum 10 seconds
- D) None

**10- What language shall be used by air-ground radiotelephony communication?**

- A) Language used by ground station
- B) English language
- C) A or B are correct
- D) A or one of the ICAO languages

**11- Which publication shall indicate the languages used by ground station?**

- A) AIP
- B) Annex 10
- C) Doc. 4444
- D) Annex 2

**12- Which phraseology shall a pilot use if he receives an instruction from ATC which he cannot carry out?**

- A) Unable.
- B) Negative instruction.
- C) Impossible to make it.
- D) Disregard.

**13- Which word or phrase shall be used to indicate that a change has been made to your last clearance and this new clearance supersedes your previous clearance or part thereof?**

- A) RECLEARED.
- B) CLEARED.
- C) APPROVED.
- D) BREAK BREAK.

**14- Which word or phrase shall be used to indicate a separation between portions of a message?**

- A) BREAK.
- B) STOP.
- C) I SAY AGAIN.
- D) OVER.

**15- Which word shall be used to indicate that an error has been made in a transmission or message?**

- A) CORRECTION.
- B) CORRECT.
- C) NEGATIVE.
- D) DISREGARD.

**16- What does the word "MONITOR" mean?**

- A) Examine a system or procedure.
- B) Wait and I will call you.
- C) Establish radio contact with ...
- D) Listen out on (frequency).

**17- Which word or phrase shall be used when giving authorization to proceed under specified conditions?**

- A) APPROVED.
- B) GO AHEAD.
- C) CLEARED.
- D) I SAY AGAIN: PROCEED.

**18- Which ICAO annex specifies the required level of language proficiency?**

- A) Annex 1
- B) Annex 2
- C) Annex 6
- D) Annex 10

**19- How the number of altimeter setting shall be transmitted?**

- A) Whole thousand
- B) A + whole hundred
- C) Each digit separately
- D) All answers are correct

**20- How the altitude of 15,500 (ft) shall be transmitted?**

- A) Fifteen thousand, five hundred.
- B) One five thousand, five hundred.
- C) One five five zero zero.
- D) One five five hundred.

**21- The rate of speech should not be?**

- A) Less than 100 words per minutes
- B) Less than 60 words per minutes
- C) More than 100 words per minutes
- D) More than 60 words per minutes

**22- For which of the following phrases "ROGER" is used?**

- A) READ BACK
- B) AFFIRM
- C) NEGATIVE
- D) NONE

**23- If you are requested to "REPORT FLIGHT CONDITIONS", what does that mean?**

- A) Indicate weather conditions as wind, visibility, temperature.
- B) Indicate whether you are flying in IMC or in VMC.
- C) Indicate if visibility is sufficient for landing
- D) Indicate whether you are flying I FR or VFR.

**24- When an aeronautical station broadcasts information to more than one station, the call starts with:**

- A) "Message to all aircraft on this frequency".
- B) "Please listen".
- C) "All stations".
- D) "General broadcast".

**25- The instruction "REPORT" means:**

- A) Pass me the following information.
- B) File an ATSU report on landing.
- C) Return to home base.
- D) Read back this clearance.

**26- What would you say if you are having trouble with communications and wish to have everything repeated twice?**

- A) I SAY AGAIN.
- B) WORDS TWICE.
- C) PLEASE REPEAT.
- D) SPEAK TWICE.

**27- Certain RT procedures require messages to be broadcast as a general call using a particular frequency. Such messages would be preceded with the phrase:**

- A) All aircraft on frequency.
- B) All aircraft.
- C) Now hear this.
- D) All stations.

**28- The correct way to say "YES" on the RT is:**

- A) AFFIRMATIVE
- B) AFFIRM
- C) YES
- D) ROGER

**29- The suffix of the call sign of direction finding station is...**

- A) Information
- B) Radio
- C) Homer
- D) Delivery

**30- The suffix of the call sign of an approach control unit providing radar service for departure traffic is:**

- A) Approach
- B) Departure
- C) Radar
- D) Control

**31- The full call sign may consist of radiotelephony designator of the operator and:**

- A) The full characters of registration mark
- B) The last three characters of registration mark
- C) The last four characters of registration mark
- D) The first and last two characters of registration mark

**32- Which of the following term may be used for abbreviated call sign?**

- A) Aircraft operating agency designator
- B) Aircraft model
- C) Aircraft manufacture
- D) All answers are correct

**33- How many times during air-ground communication the message shall be transmitted by an aircraft after the phrase "TRANSMITTING BLIND"?**

- A) One
- B) Twice
- C) At least one
- D) At least two

**34- During which case of radio failure, the aircraft station shall advise the time of its next intended transmission?**

- A) Air-ground
- B) Ground-to-air
- C) Receiver failure
- D) All answers are incorrect

**35- How many preselected audio tones may be used to determine "SELCAL"?**

- A) 4
- B) 3
- C) 2
- D) 1

**36- Where the "SELCAL" should be submitted?**

- A) Operational flight plan
- B) Operating manual
- C) Departure message
- D) ATS flight plan

**37- If "SELCAL" remain unanswered, when an aeronautical station may revert to voice communication?**

- A) After 2 calls on the primary frequencies
- B) After 2 calls on the secondary frequencies
- C) A and B
- D) A or B

**38- When the aircraft radiotelephony call sign may be changed?**

- A) During IFR
- B) Interest of safety
- C) Bad weather
- D) Emergency

**39- Who is authorized to change the aircraft radiotelephony call sign temporarily?**

- A) Pilot-in-Command
- B) Operator
- C) ATC unit
- D) Dispatcher

**40- What is the inter-pilot air-to-air channel?**

- A) 121.5MHz
- B) 123.45 MHz
- C) 123.45 kHz
- D) 243 kHz

**41- Which of the following frequencies, are separated by 25 kHz?**

- A) 123.45MHz
- B) 118.0MHz
- C) 119.0MHz
- D) All answers are correct

**42- Which of the following channel are separated by 8.33 kHz?**

- A) 121.5 MHz
- B) 123.45 MHz
- C) 118.025 MHz
- D) 133.02 MHz

**43- A "FINAL" call is made when the aircraft turns on to final approach within ---- from the landing threshold.**

- A) 8 NM
- B) 8km
- C) between 4 NM and 8 NM
- D) 4 NM

**44- What does the word "NEGATIVE" mean?**

- A) I say again.
- B) Consider that transmission as not sent.
- C) Annul the previously transmitted clearance.
- D) That is not correct.

**45- What is the radiotelephony call sign suffix for the aeronautical station providing radar service (in general)?**

- A) RADAR
- B) CONTROL
- C) RADAR CONTROL
- D) RADAR SERVICE

**46- What is the radiotelephony call sign suffix for the aeronautical station indicating clearance delivery?**

- A) CLEARANCE DELIVERY
- B) CLEARANCE
- C) DELIVERY
- D) RADIO

**47- What is the radiotelephony call sign for the aeronautical station indicating approach control radar arrival?**

- A) RADAR
- B) CONTROL
- C) ARRIVAL
- D) APPROACH

**48- What is the radiotelephony call sign for the aeronautical station indicating precision approach radar?**

- A) ARRIVAL
- B) APPROACH
- C) RADAR
- D) Precision

**49- What is the radiotelephony call sign for the aeronautical station providing approach control (no radar service)?**

- A) RADAR
- B) ARRIVAL
- C) APPROACH
- D) CONTROL

**50- What is the radiotelephony call sign for the aeronautical station indicating area control center (no radar)?**

- A) APPROACH
- B) CENTER
- C) CONTROL
- D) RADAR

**51- A pilot may file a flight plan with an ATSU during flight. Which air traffic service unit should normally be used for this purpose?**

- A) FIS
- B) RADAR
- C) APPROACH
- D) TOWER

**52- What is the correct call sign of IRAN AIR 345 in the initial call to the aerodrome control tower and the approach control unit, if the aircraft has a maximum takeoff weight of more than 136 tons?**

- A) IRAN AIR 345.
- B) Heavy IRAN AIR 345.
- C) IRAN AIR 345 heavy.
- D) IRAN AIR 345 wide body.

**53- For which bands of frequencies, the SELCAL should be utilized?**

- A) VHF + HF
- B) VHF + UHF + MF
- C) VHF
- D) HF only

**54- What phrase shall request for verification of numbers?**

- A) ACKNOWLEDGE the number
- B) READ BACK the number
- C) SAY AGAIN the number
- D) CHECK the number

**55- If an ATC clearance is not suitable to the pilot in command, he may:**

- A) Proceed according to the operational flight plan.
- B) Request and obtain an amended clearance.
- C) Follow the given clearance.
- D) Both A and C are correct.

**56- What is the meaning of "Over" in radiotelephony?**

- A) My transmission is ended and I expect a response from you.
- B) My transmission ended and no response is expected.
- C) Repeat all of your last transmission.
- D) Pass me the following information



**57- What is the abbreviated call sign of ZAGROS 2345?**

- A) No abbreviated form.
- B) ZAGROS 345.
- C) ZAGROS 45.
- D) 2345.

**58- The correct abbreviation for G-ZULU is:**

- A) GOLF ZULU
- B) GOLF LIMA UNIFORM
- C) GOLF ZULU LIMA UNIFORM
- D) LIMA UNIFORM

**59- ATA 1020, an aircraft in the HEAVY weight category, should make first contact with an ATSU as follows:**

- A) HEAVY ATA 1020
- B) ATA 1020 HEAVY
- C) VIRGIN ATA 1020
- D) ATA 1020

**60- Blind transmission shall be made:**

- A) On the designated frequency (frequency in use).
- B) To all available aeronautical stations.
- C) On regional guard frequencies only.
- D) During IFR flights only.

**61- Test transmissions should include the word(s):**

- A) TEST
- B) RADIO CHECK
- C) TEST TRANSMISSION
- D) TESTING, TESTING

**62- What is the meaning of “Out” in radiotelephony?**

- A) My transmission ended and any response is expected.
- B) This exchange of transmission is ended and no response is expected.
- C) Repeat all of your last transmission.
- D) Pass me the following information.

**63- What is the meaning of “Say again” in radiotelephony?**

- A) My transmission ended and no response is expected.
- B) Repeat all or the following part of your last transmission.
- C) Repeat all of your last transmission.
- D) Pass me the following information.

**64- When transmitting a message preceded by the phrase "TRANSMITTING BLIND DUE TO RECEIVER FAILURE" during an enroute flight, the aircraft station shall also:**

- A) Land at the nearest airfield/airport.
- B) Join base leg when approaching the airfield for landing.
- C) Advise the time of its next intended transmission.
- D) Return to the airport of departure.

**65- A message preceded by the phrase "TRANSMITTING BLIND DUE TO RECEIVER FAILURE" shall be transmitted:**

- A) On the regional guard frequency.
- B) On the frequency presently in use.
- C) On the international emergency frequency.
- D) On all available aeronautical stations.

**66- What is the correct way for the pilot to acknowledge that ATIS Information Golf has been received?**

- A) Information Golf.
- B) Weather Golf received.
- C) We have the Information.
- D) We have the ATIS Golf.

**67- A time of "13:20" hour is transmitted as:**

- A) One three two zero or two zero.
- B) Thirteen twenty hours.
- C) Twenty.
- D) Twenty past eleven.

**68- Before transmitting the pilot should:**

- A) Make sure that the aircraft is leveled off.
- B) Listen out on the frequency to ensure no interference with another station already transmitting will occur.
- C) Always write the message and read it during the transmission.
- D) Make sure that the emergency frequency is tuned in at the same Time.

**69- My message will be more effective and understandable if I:**

- A) Maintain the speaking volume clear with constant level.
- B) Use the words twice method.
- C) Stress the end of message in distress message.
- D) Stress every beginning of message.

**70- What is meant by good microphone technique?**

- A) Keep the microphone close away since it improves the readability.
- B) Speak very loudly into the microphone.
- C) Use a normal conversation tone, speak short and distinctly with plain language.
- D) Make less use of hesitation sounds as ER.

**71- In the event that a pilot is required to make a blind transmission, this should be made:**

- A) Only once on the designated frequency.
- B) Twice on the designated frequency.
- C) On the emergency frequency only.
- D) During VFR flights only.

**72- What shall the pilot read back for ATC instruction "CLIMB TO 2500 FEET"?**

- A) Climbing to two point five.
- B) Up to two thousand five hundred.
- C) Climbing to two thousand five hundred feet.
- D) Climbing to two thousand five hundred.

**73- What is the correct reply to the instruction "CLIMB TO FL280"?**

- A) Recleared Level Two Eight Zero.
- B) Climb Two Eight Zero.
- C) Climb to Two Hundred and Eighty.
- D) Climb to Flight Level Two Eight Zero.

**74- What is the correct reply to an ATC instruction which you cannot comply with?**

- A) Negative comply.
- B) Negative instruction.
- C) Negative compliance.
- D) Unable.

**75- Clearances relating to the runway in use shall be read back only if the aircraft is to:**

- A) Enter, land on, take off from, cross and backtrack.
- B) Enter, cross and backtrack.
- C) Land on and take off from.
- D) Enter, land on, take off from and backtrack.

**76- What does "SQUAWK IDENT" mean?**

- A) Select the SSR transponder code to 7000.
- B) Select the SSR transponder mode to "ALT".
- C) Operate the SSR transponder "special position identification" feature.
- D) State the aircraft call sign three times.

**77- What does the phrase "SQUAWK 1234" mean?**

- A) Give a short count for DF (direction finder).
- B) Select code 1234 on the SSR transponder.
- C) Make a test transmission on 123, 4 MHz.
- D) Standby on frequency 123, 4 MHz.

**78- RADAR instruct aircraft X-BC: "X-BC SQUAWK IDNET" what does this mean?**

- A) X-BC shall reselect his assigned mode and code.
- B) Radar identification has been achieved by correlating an observed radar blip with aircraft XV-ABC.
- C) X-BC should perform an identification turn of at least 020 degrees.
- D) X-BC shall push the IDENT button.

**79- The message addressed to an Area Control Centre "REQUEST RADAR VECTORS TO CIRCUMNAVIGATE ADVERSE WEATHER" is:**

- A) A meteorological message.
- B) A flight safety message.
- C) An urgency message.
- D) A message relating to direction finding.

**80- A message concerning aircraft parts and material urgently required is:**

- A) A flight security message.
- B) An urgency message.
- C) A flight safety message.
- D) A flight regularity message.

**81- Aeronautical messages are given an order of priority, which of the following statements reflects the correct order of priority?**

- A) Meteorological messages take precedence over direction finding messages.
- B) Flight safety messages will be handled before urgency messages.
- C) Messages relating to direction finding take precedence over flight regularity messages.
- D) Flight safety messages take precedence over direction finding messages.

**82- What is the radiotelephony call sign suffix for the aeronautical station indicating aerodrome control service?**

- A) Apron
- B) Control
- C) Aerodrome
- D) Tower

**83- For aircraft call sign "Easy G-ABCD" the correct abbreviation is:**

- A) Easy Charlie Delta
- B) Golf Charlie Delta
- C) Easy Golf Charlie Delta
- D) Easy Delta

**84- RADAR instructs aircraft X-BC: "X-BC SQUAWK STANDBY". What does this mean?**

- A) X-BC is requested to standby on the frequency.
- B) X-BC is requested to switch the transponder to standby position.
- C) X-BC is requested to standby for radar vectors.
- D) X-BC is requested to standby as the radar controller is busy.

**85- RADAR informs aircraft X-BC: "X-BC IDENTIFIED". What does this mean?**

- A) Radar identification has been achieved.
- B) X-BC is not visible on the radar screen.
- C) X-BC should perform an identification turn.
- D) X-BC should operate the IDENT button.

**86- Which one of the following category of message has priority?**

- A) Urgency.
- B) Distress.
- C) Safety.
- D) Regularity.

**87- A Radar Information Service (RIS) provides:**

- A) Radar separation from all other traffic.
- B) Information for IFR traffic only.
- C) The bearing, distance and if known, the altitude of conflicting traffic.
- D) Traffic information and avoiding action.

**88- Which of the following frequencies is an international emergency frequency?**

- A) 122.500 MHz
- B) 121.500 MHz
- C) 121.050 MHz
- D) 121.005 MHz

**89- Which of the messages listed below shall not be handled by the aeronautical mobile service?**

- A) Meteorological messages.
- B) Radio teletype messages.
- C) Flight safety messages.
- D) Urgency messages.

**90- What does the word "CHECK" mean?**

- A) I understand your message.
- B) Confirm your last transmission.
- C) Read back my last instruction.
- D) Examine a system or procedure.

**91- Which phrase shall be used if you want to say "I WOULD LIKE TO KNOW "or "I WISH TO OBTAIN"?**

- A) Confirm
- B) Report
- C) Acknowledge
- D) Request

**92- How shall a pilot inform a radar control unit that the aircraft is not equipped with transponder?**

- A) No SSR.
- B) Negative transponder.
- C) Transponder not available.
- D) Negative squawk.

**93- Which phrase shall be used if the repetition of an entire message is required?**

- A) What was your message?
- B) Repeat your message.
- C) Say again.
- D) Repeat your last transmission.

**94- What does the word "APPROVED" mean?**

- A) Permission for proposed action granted.
- B) That is correct.
- C) Authorized to proceed under the conditions specified.
- D) I repeat for clarity or emphasis.

**95- The phrase "UNDER RADAR CONTROL" means:**

- A) ATC instructions may be obeyed at the pilot's discretion.
- B) ATC instructions must be obeyed unless avoiding immediate danger.
- C) ATC information is advisory.
- D) ATC will provide information on other traffic but no avoiding action will be given.

**96- What phrase shall be used when asking for the readability of a transmission?**

- A) Read you loud and clear.
- B) Read back.
- C) Report readability.
- D) How do you read?

**97- What is meant by the phrase "READABILITY 4"?**

- A) Readable now and then.
- B) Readable.
- C) Perfectly readable.
- D) Readable but with difficulty.

**98- What is meant by the phrase "READABILITY 2"?**

- A) Readable but with difficulty.
- B) Readable.
- C) Unreadable.
- D) Readable now and then.

**99- How shall a pilot inform the control tower that he is prepared for takeoff?**

- A) Ready to go.
- B) Ready for takeoff.
- C) Ready to line-up.
- D) Ready for departure.

**100- The expression "TRANSMITTING BLIND DUE TO RECEIVER FAILURE" implies that no answer is expected. It shall be used by:**

- A) An aircraft station being aware of receiver failure.
- B) An aircraft station doing blind transmissions at a "non-towered" airfield.
- C) A radar controller performing a PAR or SRE final approach.
- D) A ground station broadcasting information to all listening stations.

**101- After suffering a radio receiver failure, the pilots should make blind transmissions preceded by the phrase "TRANSMITTING BLIND DUE TO RECEIVER FAILURE" and subsequently:**

- A) Hold for 5 minutes.
- B) Proceed to the pre-planned alternate.
- C) Enter the next enroute holding pattern encountered.
- D) Advise the time of the next intended transmission.

**102- Must a general call be acknowledged?**

- A) Yes, but only from the station first called.
- B) No.
- C) Yes, if individual stations are subsequently called to acknowledge receipt.
- D) Yes, from all stations in a random sequence.

**103- Which elements of instructions or information shall always be read back?**

- A) QNH, SSR code, approach aid serviceability.
- B) QNH, weather information, runway-in-use.
- C) ATC clearance, speed instructions, runway state information.
- D) SSR code, QNH, takeoff clearance, speed instructions.

**104- ATC clears TABAN 345 to descend from FL100 to FL80. What is the correct read back by the pilot?**

- A) Descending to 80, TABAN 345.
- B) Leaving flight level 100 descending to flight level 80, TABAN 345.
- C) Down to flight level 80, TABAN 345.
- D) Leaving 100 to 80, TABAN 345.

**105- The correct phraseology to instruct an aircraft to cease the MODE C SSR reply because of incorrect indications is:**

- A) SQUAWK STANDBY
- B) STOP SQUAWK CHARLIE
- C) STRANGLE THE PARROT
- D) SELECT MODE ALPHA

**106- RADAR instructs aircraft X-BC: "X-BC SQUAWK STANDBY". What does this mean?**

- A) X-BC is requested to standby on the frequency.
- B) X-BC is requested to switch to standby position.
- C) X-BC is requested to standby for radar vectors.
- D) X-BC is requested to standby as the radar controller is busy.

**107- All messages relating to an aircraft's climb or descent to a HEIGHT or ALTITUDE should:**

- A) Employ the word "TO" follow immediately by the word HEIGHT or ALTITUDE.
- B) Avoid using the word "TO" altogether.
- C) Employ the word "TO" follow immediately by the QFE or QNH.
- D) Be preceded by the required altimeter subscale setting.

**108- In case of a SSR transponder failure occurring after departure of an IFR flight, the pilot shall:**

- A) Land at the nearest suitable aerodrome for repair.
- B) Inform the competent ATC unit immediately.
- C) Squawk 7600.
- D) Continue the flight in VMC.

**109- The distress communication and silence conditions shall be terminated by transmitting a message. Which words shall this message include?**

- A) Disregard distress communication, OUT.
- B) Emergency communication finished.
- C) MAYDAY traffic ended.
- D) Distress traffic ended.



**110- Radio silence can be imposed by an aeronautical station in case of:**

- A) Technical difficulties.
- B) Urgency communication.
- C) Overload of the frequency.
- D) Distress traffic.

**111- Which of the following messages shall a station in control of distress use to impose silence?**

- A) STOP TRANSMITTING, EMERGENCY.
- B) STOP TRANSMITTING, DISTRESS.
- C) STOP TRANSMITTING, MAYDAY.
- D) ALL STATIONS IN THIS FREQUENCY, MAYDAY TRAFFIC.

**112- What does the instruction "ORBIT RIGHT" mean?**

- A) Make 360° turns to the right.
- B) Turn right to avoid other traffic.
- C) Right-hand circuits are in use.
- D) Leave the runway to the right.

**113- Which phrase shall be used if you want to say "AN ERROR HAS BEEN MADE IN THIS TRANSMISSION". The correct version is?**

- A) QNH 1017, negative QNH 1016.
- B) QNH 1017, correction QNH 1016.
- C) QNH 1017, negative 1016.
- D) QNH 1017, negative I say again 1016.

**114- What phrase(s) shall be used to confirm that a message has been repeated correctly?**

- A) That is right.
- B) Correct.
- C) Affirm.
- D) That is affirmative.

**115- When an aircraft station receives the call "ALL STATIONS MEHRABAD RADAR, DISTRESS TRAFFIC ENDED" it is requested:**

- A) To discontinue communication with MEHRABAD RADAR.
- B) To impose silence to other stations in its vicinity.
- C) To acknowledge receipt of this message.
- D) To resume normal communication with MEHRABAD RADAR.

**116- The distress signal and the distress message to be sent by an aircraft in distress should be on:**

- A) The FIS frequency designated for the airspace concerned.
- B) The emergency frequency in any case.
- C) The regional guard frequency.
- D) The air-ground frequency in use at the time.

**117- When an aircraft station receives the call "ALL STATIONS MEHRABAD RADAR, STOP TRANSMITTING MAYDAY" it is requested:**

- A) To continue normal communication on the frequency in use.
- B) Not to interfere with the distress communication.
- C) To assist Mehrabad RADAR in handling the distress traffic.
- D) To leave the frequency in use.

**118- In a distress situation it may be necessary to impose silence either on all stations or on a particular station. This action of imposing silence may be performed:**

- A) Only by the ground station controlling the frequency.
- B) By either the aircraft in distress or the station in control of the distress incident.
- C) By any station who considers it necessary to impose silence.
- D) Only by the distress and diversion cell at the Rescue Control Centre (RCC).

**119- On hearing an urgency message a pilot shall:**

- A) Impose radio silence on the frequency in use.
- B) Acknowledge the message immediately.
- C) Monitor the frequency to ensure assistance if required.
- D) Change the frequency, because radio silence will be imposed on the frequency in use.

**120- Which of the following calls is a "GENERAL CALL"?**

- A) EP-DEF Tehran CONTROL
- B) EP-EFG, EP-FGH over.
- C) ALL STATIONS Tehran CONTROL.
- D) EP-ABC, EP-BCD, EP-CDE Tehran CONTROL.

**121- How should aircraft EP-ABC call Shiraz TOWER on initial call?**

- A) TOWER EP-ABC
- B) Shiraz TOWER E-BC
- C) Shiraz EP-ABC
- D) Shiraz TOWER EP-ABC

**122- A signal sent by radiotelephony consisting of the spoken words "PANPAN, PANPAN, PANPAN" means:**

- A) An aircraft on final approach is starting the missed approach procedure.
- B) Imminent danger threatens the aircraft and immediate assistance is required.
- C) The aircraft is diverting from the route cleared because of a thunderstorm and asks for immediate preclearance.
- D) The aircraft has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, but immediate assistance is not required.

**123- An aerodrome located at Payam notified as having an Aerodrome Flight Information Service (AFIS) will identify itself to aircraft using the call sign:**

- A) Payam information
- B) Payam radio
- C) Payam tower
- D) Payam ground

**124- Which of the following abbreviated call signs of Cherokee EP-ABC is correct?**

- A) Cherokee E-BC
- B) Cherokee EP-BC
- C) Cherokee BC
- D) Cherokee E-ABC

**125- Aircraft E-BC has been instructed to contact Shiraz TOWER on frequency 119.0, what is the correct response to indicate that it will follow this instruction?**

- A) Shiraz TOWER E-BC.
- B) Will change to TOWER E-BC.
- C) Changing over E-BC.
- D) 119.0 E-BC.

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	A	26	B	51	A	76	C
2	A	27	D	52	C	77	B
3	A	28	B	53	A	78	D
4	A	29	C	54	B	79	A
5	A	30	B	55	B	80	D
6	D	31	C	56	A	81	C
7	C	32	D	57	A	82	D
8	D	33	B	58	B	83	A
9	B	34	C	59	B	84	B
10	C	35	A	60	A	85	A
11	A	36	D	61	B	86	B
12	A	37	C	62	B	87	C
13	A	38	B	63	B	88	B
14	A	39	C	64	C	89	B
15	A	40	B	65	B	90	D
16	D	41	D	66	A	91	D
17	C	42	C	67	A	92	B
18	A	43	D	68	B	93	C
19	C	44	D	69	A	94	A
20	B	45	A	70	C	95	B
21	C	46	C	71	B	96	D
22	D	47	C	72	D	97	B
23	B	48	D	73	D	98	D
24	C	49	C	74	D	99	D
25	A	50	C	75	A	100	A

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	D	108	B	115	D	122	D
102	C	109	D	116	D	123	A
103	D	110	D	117	B	124	A
104	B	111	C	118	B	125	D
105	B	112	A	119	C		
106	B	113	B	120	C		
107	A	114	B	121	D		



# ANNEX 11



➤ Annex 11 – 14<sup>th</sup> edition, AMDT 50-A

**1- What is the correct definition of emergency phase?**

- A) A generic term meaning as the case maybe, uncertainly phase, alert phase or distress phase.
- B) A generic term meaning as the case maybe, uncertainly phase, alert phase.
- C) A generic term meaning as the case maybe, uncertainly phase or distress phase.
- D) A generic term meaning as the case maybe distress phase.

**2- “DETRESFA” is code word used to designate:**

- A) Alert phase
- B) Distress phase
- C) Uncertainly phase
- D) Urgent phase

**3- “ALERFA” is code word used to designate:**

- A) Alert phase
- B) Distress phase
- C) Uncertainly phase
- D) Urgent phase

**4- “INCERFA” is code word used to designate:**

- A) Alert phase
- B) Distress phase
- C) Uncertainly phase
- D) Urgent phase

**5- “A situation where in apprehension exists as to the safety of an aircraft and its occupants” is used for:**

- A) Alert phase
- B) Distress phase
- C) Uncertainly phase
- D) Urgent phase

**6- “Direct speech conversation may be conducted between three or more locations simultaneously” is known as:**

- A) Direct communication
- B) Conference communication
- C) General communication
- D) Data-link communication



**7- What is the abbreviation code “ATIS”?**

- A) Aerodrome terminal information system
- B) Automatic terminal information system
- C) Automatic terminal information service
- D) Aerodrome terminal information service

**8- Which ways are used to transmit information by ATIS?**

- A) Data-link ATIS (D-ATIS)
- B) Voice ATIS
- C) Direct ATIS
- D) A and B are correct

**9- “D-ATIS” is used to transmit information for arriving or departing aircraft by:**

- A) Data-link
- B) Voice
- C) Data-communication
- D) DME

**10- “A situation where in there is reasonable certainly that an aircraft and its occupants are threatened by gave and imminent danger or required immediate assistant” is known as:**

- A) Alert phase
- B) Distress phase
- C) Uncertainly phase
- D) Urgent phase

**11- What is the downstream clearance?**

- A) The clearance that issued by tower to aircraft on the ground
- B) A clearance issued to an aircraft by an uncontrolled unit
- C) A clearance issued to an aircraft by an air traffic control unit that is not the current controlling authority of the aircraft
- D) A clearance issued by control unit

**12- What is the responsibility of rescue coordination center?**

- A) Promoting efficient organization of SAR services
- B) Coordinating the control of SAR operation
- C) Issuing clearance for initiating SAR procedure
- D) A and B are correct

**13- What is the transfer of control point?**

- A) A define point along the flight path that air traffic control service to the aircraft is transferred from one control unit or control position to next.
- B) A point same as changeover point but is used between two NDBs.
- C) A point that used for changing frequency.
- D) All answers are correct.

**14- What is the name of reporting point on area navigation routs?**

- A) Position report point
- B) Way point
- C) Change over point
- D) Transfer of control point

**15- What is the objective of the air traffic control service?**

- 1) Prevent collision between aircraft
  - 2) Prevent collision between aircraft on movement area
  - 3) Expedite flow of air traffic
  - 4) Maintain orderly flow of air traffic
- A) 1,2,3
  - B) 1,2,4
  - C) 1,3,4
  - D) 1,2,3,4

**16- What is the division of air traffic service?**

- 1) Air traffic control service
  - 2) Flight information services
  - 3) Alerting services
  - 4) Air traffic uncontrolled service
- A) 1,2,3
  - B) 1,2,4
  - C) 2,3,4
  - D) 1,3,4

**17- How many units are divided in air traffic control service?**

- A) 4
- B) 3
- C) 2
- D) 1

**18- Which types of service must be provided in flight information region?**

- A) Flight information service
- B) Alerting service
- C) Advisory service
- D) A and B are correct

**19- What is the speed limitation for IFR flight in class "B" airspace?**

- A) 250 kts (IAS)
- B) 250 kts (TAS)
- C) 250 kts (G/S)
- D) Not applicable

**20- Which classification of airspace the IFR flight does not subject to ATC clearance?**

- A) C
- B) D
- C) E
- D) F

**21- How the separation shall be provided between IFR and VFR in class "C" airspace?**

- A) IFR from IFR
- B) IFR from VFR
- C) IFR from IFR but IFR from VFR only receive traffic information
- D) A and B are correct

**22- What is the maximum indicated airspeed for VFR flight in class "D" airspace below 10000 ft?**

- A) 200 kts
- B) 250 kts
- C) 300 kts
- D) 350 kts

**23- Continuous two-way communication must be applied for all type of traffic except:**

- A) VFR flights in class "E"
- B) VFR flights in class "D"
- C) IFR flights in class "F"
- D) IFR flights in class "G"

**24- What type of services are provided for VFR flight within class "F" airspace:**

- A) Flight information service
- B) Alerting service
- C) Air traffic control service
- D) Air traffic advisory service

**25- What type of separation is expected for VFR flight within class “F”?**

- A) VFR from IFR
- B) VFR from VFR
- C) VFR from VFR (traffic information if request)
- D) No service is provided

**26- Where an upper flight information region (UIR) is established, the procedures applicable there:**

- A) Have to be as indicated by ICAO council.
- B) Have to be as agreed at the regional air navigation meetings.
- C) Need not to be identical with those applicable in the underlying flight information region.
- D) Have to be the same as in the underlying flight information region.

**27- When is the suffix Y applied to the designator of an ATS route to indicate turns between 30° and 90°?**

- A) Above FL200 with a tangential arc of 15 NM.
- B) FL200 and above with a tangential arc of 22.5 NM.
- C) Above FL190 with a tangential arc of 25 NM.
- D) FL190 and below with a tangential arc of 15 NM.

**28- In the airway designator UA1Y, what does the prefix U mean?**

- A) Uniform.
- B) Upper.
- C) Undesignated.
- D) Unidirectional.

**29- The speed limitation for both IFR flights and VFR flights inside ATS airspace classified as B, when flying below 3050 m (10000 ft) AMLS, is:**

- A) 250 kts IAS.
- B) Not applicable.
- C) 250 kts TAS.
- D) 260 kts IAS.

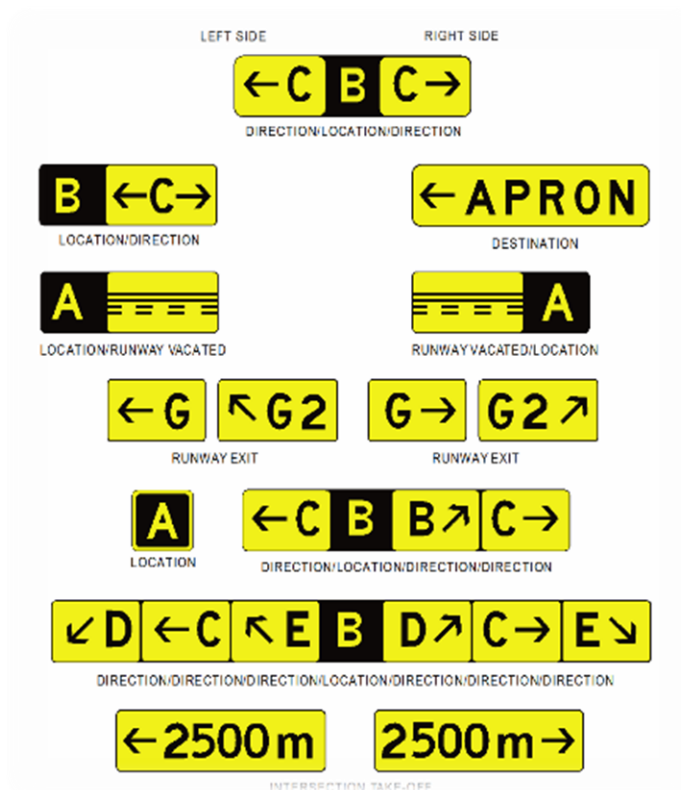
**30- When on a RNP 1 route is indicated A342Z, means that all turns shall be made within the allowable RNP tolerance of a tangential arc between the straight leg segments with a radius of:**

- A) 15 NM on the route between 30° and 90° at and above FL200.
- B) 15 NM on the route between 30° and 90° at and below FL190.
- C) 22.5 NM on the route between 30° and 90° at and above FL250.
- D) 25 NM on the route between 30° and 90° at and below FL190.

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	A	9	A	17	B	25	D
2	B	10	B	18	D	26	C
3	A	11	C	19	D	27	B
4	C	12	D	20	D	28	B
5	A	13	A	21	D	29	B
6	B	14	B	22	B	30	B
7	C	15	C	23	A		
8	D	16	A	24	A		



# ANNEX 14



**1- Based on what criteria(s), the aerodrome reference code shall be determined?**

- A) Wingspan.
- B) Outer main gear wheel span.
- C) Aeroplane reference field length.
- D) All answers are correct.

**2- What shall be the capability of signalling lamp to transmit the message per minute?**

- A) 4 words.
- B) At least 4 words.
- C) words.
- D) At least 3 words.

**3- What shall be the minimum and maximum length of runway center line strip marking plus a gap in (m)?**

- A) 50-60.
- B) 50-75.
- C) 60-80.
- D) 40-60.

**4- When the aiming point marking shall be provided at 400M from threshold, provided the RWY length is:**

- A) 900 m.
- B) 2000 m.
- C) 3000 m.
- D) All answers are correct.

**5- What shall be the length of touchdown zone if RWY length is 2355 m?**

- A) 400 m.
- B) 500 m.
- C) 600 m.
- D) 700 m.

**6- What shall be the color of aerodrome beacon signal alternating with white flashes at land aerodrome?**

- A) Yellow.
- B) Green.
- C) Red.
- D) None.

**7- What is the minimum length of simple approach lighting system?**

- A) 400 m.
- B) 420 m.
- C) 300 m.
- D) 150 m.



**8- How many cross bar shall be provided for precision approach CAT I (single source)?**

- A) 2
- B) 3
- C) 4
- D) 5

**9- Which of the following RWY shall have center line lights?**

- A) CAT I
- B) CAT II
- C) CAT III
- D) B and C are correct

**10- What shall be the color of the background of mandatory sign?**

- A) Red
- B) White
- C) Yellow
- D) Black

**11- From what height, the wind direction indicator shall be visible?**

- A) 200 m
- B) 300 m
- C) At least 300 m
- D) All answers are correct

**12- The runway designated number shall be provided from:**

- A) Magnetic (N)
- B) True (N)
- C) Grid (N)
- D) Compass (N)

**13- What factor shall be considered to provide threshold marking?**

- A) RWY length
- B) RWY width
- C) Both A and B are correct
- D) None

**14- When the aiming point marking shall be provided at 300 M from threshold, RWY Length is:**

- A) 4000 m
- B) 3000 m
- C) 1000 m
- D) 2000 m

**15- What shall be the length of touchdown zone if RWY length is 3050 m?**

- A) 900 m
- B) 800 m
- C) 700 m
- D) 600 m

**16- What shall be the frequency of total flashes per minute of aerodrome beacon?**

- A) 10-20
- B) 10-30
- C) 20-30
- D) 20-40

**17- What is the length of precision approach lighting CAT II?**

- A) 300 m
- B) 600 m
- C) 750 m
- D) 900 m

**18- At what distance from threshold the crossbar of precision approach CAT I (barrette) shall be provided?**

- A) 150 m
- B) 270 m
- C) 300 m
- D) 420 m

**19- What shall be the color of last 300 m of RWY center line lights?**

- A) White
- B) Red
- C) A and B are correct
- D) None

**20- What shall be the color of the background of information sign?**

- A) Red
- B) White
- C) Yellow
- D) Black

**21- What is PAPI?**

- A) Precision Approach Power Indicator.
- B) Precision Approach Path Indicator.
- C) Precision Approach Power Index.
- D) Precision Approach Path Index.

**22- The “Stopway” is a defined rectangular area on the ground at the end of takeoff run available prepared as a suitable area where:**

- A) A landing aircraft can be stopped only in emergency.
- B) A landing aircraft can be stopped if overcoming the end of runway.
- C) An aircraft can be stopped in the case of an abandoned takeoff.
- D) An aircraft taking-off or landing can be stopped.

**23- Information signs have a ..... background with a ..... inscription.**

- A) Red - White
- B) Yellow - Black
- C) Black - White
- D) Black – Yellow

**24- Runway threshold wing bar lights shall be fixed unidirectional lights showing ..... in the direction of approach to the runway.**

- A) Green.
- B) Red.
- C) White.
- D) Blue.

**25- Which of the following group shows the correct designators for three parallel runways seen from the direction of the approach?**

- A) 29, 29C, 29.
- B) 29R, 29C, 29L.
- C) 29L, 29, 29R.
- D) 29L, 29C, 29R.

**26- The runway edge lights shall be:**

- A) Green.
- B) Blue.
- C) White.
- D) Red.

**27- When taxiing on a surface with white markings, you are rolling on a:**

- A) Movement area.
- B) Taxiway.
- C) Clearway.
- D) Runway.

**28- Taxiway markings and aircraft stand markings are:**

- A) White.
- B) Grey.
- C) Yellow.
- D) Red.

**29- Taxiway edge lights shall be:**

- A) Fixed showing green.
- B) Fixed showing blue.
- C) Fixed showing yellow.
- D) Flashing showing blue.

**30- Runway end lights shall be:**

- A) Fixed; uni-directional; red.
- B) Fixed; Omni-directional; red.
- C) Fixed; uni-directional; green.
- D) Fixed; Omni-directional; green.

**31- Which of the following describes threshold lights in the direction of the approach to the runway?**

- A) Red unidirectional.
- B) Green Omni-directional.
- C) Red Omni-directional.
- D) Green unidirectional.

**32- What shape is a landing direction indicator?**

- A) T
- B) I
- C) V
- D) Y

**33- Runway direction is indicated by two digits:**

- A) The units are expressed in  $10^\circ$  to the nearest  $10^\circ$  of True North.
- B) The units are expressed in  $10^\circ$  to the nearest  $5^\circ$  of True North.
- C) The units are expressed in  $10^\circ$  to the nearest  $10^\circ$  of the Magnetic North.
- D) The units are expressed in  $10^\circ$  to the nearest  $5^\circ$  of the Magnetic North.

**34- The color of the fixed, unidirectional runway threshold and wing bar lights shall be:**

- A) Yellow
- B) White
- C) Green
- D) Blue

**35- What is the name for a taxiway connected to a runway at an acute angle designed to allow airplanes to turn off at higher speeds than are achieved on other exits thereby minimizing runway occupancy time?**

- A) Rapid turn off lane.
- B) High speed exit lane.
- C) Rapid exit taxiway.
- D) Acute angle exit.

**36- What color are emergency vehicles painted that are used on the maneuvering area of an aerodrome?**

- A) Green.
- B) Orange.
- C) A single conspicuous color, preferably red or yellowish green.
- D) White and red chevrons.

**37- A slightly high glide slope indication from a precision approach path indicator is:**

- A) Four white lights.
- B) Three white lights and one red lights.
- C) Two white lights and two red lights.
- D) Three red lights and one white lights.

**38- The numbers 08 and 26 on the approach ends of the runway indicate that the runway is oriented approximately:**

- A) 008° and 026° magnetic.
- B) 080° and 260° true.
- C) 080° and 260° magnetic.
- D) 008° and 026° true.

**39- When approaching taxiway holding lines from the side with the continuous line, the pilot:**

- A) May continue taxiing.
- B) Should not cross the lines without ATC clearance.
- C) Should continue taxiing until all parts of the aircraft have crossed the lines.
- D) May continue taxiing if stop bars are switched on.

**40- What is the purpose of the runway/runway hold position sign?**

- A) Denotes entrance to runway from a taxiway.
- B) Denotes area protected for an aircraft approaching or departing a runway.
- C) Denotes intersecting runways.
- D) A and B are correct.

**41- The large "X" s depicted on runway surface denotes that:**

- A) Taxiway/Runway holding position marking.
- B) Displaced threshold area.
- C) Overrun area.
- D) Closed runway.

**42- The area up to displaced threshold is used for:**

- A) Taxiing, takeoff roll.
- B) Takeoff and landing only.
- C) Landing and taxiing only.
- D) Taxiing, takeoff and landing.

**43- To set the high intensity runway lights on medium intensity (Pilot Controlled Lighting System), the pilot should click the microphone seven times, and then click it:**

- A) One time within four seconds.
- B) Three times within three seconds.
- C) Five times within five seconds.
- D) Seven times within five seconds.

**44- A lighted heliport may be identified by a:**

- A) Green, yellow, and white rotating beacon.
- B) Flashing yellow light.
- C) Blue lighted square landing area.
- D) Two quick white flashes between green flashes.

**45- When approaching taxiway holding lines from the side with the dashed lines, the pilot:**

- A) May continue taxiing.
- B) Should not cross the lines without ATC clearance.
- C) Should continue taxiing until all parts of the aircraft have crossed the lines.
- D) Should not cross the lines until the stop bars are switched off.

**46- What is the purpose of the taxiway/runway hold position sign?**

- A) Denotes entrance to runway from a taxiway.
- B) Denotes area protected for an aircraft approaching or departing a runway.
- C) Denotes intersecting runways.
- D) Denotes intersecting taxiways.

**47- The true bearing of two parallel runways is 288° and magnetic variation at aerodrome is +4°. The runway designators as seen by pilot in direction of approaching to runway, are:**

- A) 29R – 29L.
- B) 29L – 29R.
- C) 28L – 28R.
- D) 28R – 28L.

**48- The Stop bars installed at a runway-holding position shall be ..... and shall show ..... in the direction of approach to the runway.**

- A) Unidirectional; green.
- B) Omnidirectional; red.
- C) Omnidirectional; green.
- D) Unidirectional; red

**49- Location signs consist of an inscription in ..... on a ..... background.**

- A) Red; black
- B) Black; red
- C) Yellow; black
- D) Black; yellow

**50- Taxiway center line lights shall be:**

- A) Fixed lights showing red.
- B) Fixed lights showing white.
- C) Fixed lights showing yellow.
- D) Fixed lights showing green.

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	D	14	D	27	D	40	C
2	B	15	A	28	C	41	D
3	B	16	C	29	B	42	A
4	C	17	D	30	A	43	C
5	C	18	C	31	D	44	A
6	B	19	B	32	A	45	C
7	B	20	C	33	C	46	A
8	D	21	B	34	C	47	C
9	D	22	C	35	C	48	D
10	A	23	B	36	C	49	C
11	C	24	A	37	B	50	D
12	A	25	D	38	C		
13	B	26	C	39	B		





# DOCUMENT 4444



➤ Document 4444- 15<sup>th</sup> edition, AMDT 6

**1- What expression shall be used by a pilot, to cancel its IFR flight?**

- A) Now in VMC
- B) Cancelling my IFR flight
- C) Request cancelling
- D) Changing to VFR

**2- How many category of airplane specified for the purpose of wake turbulence?**

- A) One
- B) Two
- C) Three
- D) Four

**3- When the heavy wake turbulence aircraft shall say the word heavy to ATS unit?**

- A) Before take-off
- B) Leaving holding
- C) Before landing
- D) At initial contact

**4- If designated reporting point is not specified for position report, the first position report shall be made?**

- A) 30 minutes after departure
- B) 60 minutes after departure
- C) 45 minutes after departure
- D) None

**5- How long after the first position report, the next position report shall be made on a route not defined by specified reporting points?**

- A) 30 minutes
- B) 45 minutes
- C) 60 minutes
- D) A or B is correct

**6- When the speed shall be included in the position report?**

- A) All the time
- B) Assigned speed by ATC
- C) During approach
- D) Initial contact

**7- Which of the following aircraft may include in its special air report the moderate turbulence?**

- A) Transonic
- B) Supersonic
- C) Subsonic
- D) A and B are correct

**8- What is the minimum vertical separation below FL410 in RVSM area?**

- A) 2000 ft
- B) 1000 m
- C) 1000 ft
- D) 2000 m

**9- Which letter is used in a flight plan to indicate that the flight commences in accordance with VFR and subsequently changes to IFR?**

- A) I
- B) Z
- C) V
- D) Y

**10- Repetitive flight plans (RPLs) shall be used for flights operated regularly on the same day(s) of consecutive weeks and:**

- A) On at least 20 days consecutively.
- B) On at least ten occasions or every day over a period of at least 20 consecutive days.
- C) On at least ten occasions or every day over a period of at least ten consecutive days.
- D) On at least 20 occasions.

**11- Which letter is used in a flight plan to indicate that the flight commences in accordance with IFR and subsequently changes to VFR?**

- A) Y
- B) I
- C) V
- D) Z

**12- The planned cruising speed for the first leg or all of the cruising portion of the flight must be entered in the speed box of a flight plan form, this speed is the:**

- A) Indicated air speed (IAS).
- B) Estimated ground speed (G/S).
- C) True air speed (TAS).
- D) True air speed at 65% power.

**13- A flight plan should be amended or a new flight plan submitted and the old flight plan cancelled in the event of a delay. For controlled flights, this should be done in the event of a delay in excess of:**

- A) 30 minutes.
- B) 60 minutes.
- C) 20 minutes.
- D) 45 minutes.

**14- When VMC climb may be authorized?**

- A) Night
- B) Within class C, D, E
- C) Day light
- D) Moon light

**15- Within which class of airspace the VMC descend may be authorized?**

- A) C
- B) D
- C) E
- D) B and C are correct

**16- What significant change of tailwind component shall be reported to aircraft during approach?**

- A) 2 kts
- B) 5 kts
- C) 8 kts
- D) 10 kts

**17- How far from runway edge, an airplane shall be held, if holding marking is not provided and runway length is 2185 meters?**

- A) 90 m
- B) 70 m
- C) 50 m
- D) 30 m

**18- What SSR code shall be selected by an emergency airplane?**

- A) 7500
- B) 7700
- C) 7600
- D) 7400

**19- Within which class of airspace the advisory service shall be provided?**

- A) C
- B) E
- C) G
- D) F

**20- Advisory service is not based on:**

- A) Advice
- B) Suggest
- C) Clearance
- D) Information

**21- Operation normal may be made between:**

- A) 20-30 minutes
- B) 20-40 minutes
- C) 30-40 minutes
- D) 20-50 minutes

**22- When a pilot is unable to comply with ATC instruction shall say:**

- A) Unable to comply
- B) Unable to follow
- C) Unable
- D) Unable to do

**23- The acknowledge of traffic information by pilot may be:**

- A) Looking out
- B) Traffic in sight
- C) Negative contact
- D) All answers are correct

**24- What phrases may be used by an airplane if requires visual inspection:**

- A) Request low approach
- B) Request low pass
- C) Request low go
- D) Request go around

**25- If the intention is to change from IFR to VFR at some point during the flight, the letter \_\_\_\_\_ is to be inserted in item \_\_\_\_\_ of the flight plan.**

- A) V; 8
- B) Y; 8
- C) X; 9
- D) Y; 9

**26- What type of operation may be cleared for visual approach?**

- A) VFR
- B) IFR
- C) Controlled IFR
- D) Uncontrolled IFR

**27- The acknowledgment of missed approaching is:**

- A) Missed approach
- B) Going around
- C) Missing approach
- D) Overshooting

**28- Who decides whether to fly under IFR or VFR in VMC?**

- A) The PIC.
- B) The ATS authority.
- C) The Operator.
- D) Either A or B.

**29- When, in airspace where VFR are permitted, the pilot-in-command of an IFR flight wishes to continue his flight in accordance with visual flight rules, until the destination is reached:**

**1-Pilot must request "cancelling my IFR flight".**

**2-VMC must be for reasonable period.**

**3-He/she may request his IFR flight plan to be changed to a VFR flight plan.**

**4-VMC must be uninterrupted.**

**The correct combination of statements is:**

- A) 1,2,4
- B) 1,2,3
- C) 2,3,4
- D) 1,3,4

**30- At or below what level, the VMC climb or descent may be authorized?**

- A) 5000 ft.
- B) 3000 ft.
- C) 10000 ft.
- D) All answers are correct.

**31- What type of operation may be cleared for VMC ascend?**

- A) IFR
- B) VFR
- C) Controlled flight
- D) Controlled IFR

**32- The cloud information other than "CB" shall be reported to arriving aircraft where the cloud is?**

- A) Below 5000 Ft.
- B) Below the minimum sector altitude
- C) Below the highest minimum sector altitude
- D) "A" or "C" whichever is higher

**33- How far from runway edge shall an aircraft hold its position when runway holding position is not marked and the runway length is 1100 ft?**

- A) 30 meter
- B) 50 meter
- C) 90 meter
- D) 45 meter

**34- Which of the following information is included in flight information service?**

- A) SIGMET
- B) Volcanic activity
- C) Radioactive materials
- D) All answers are correct

**35- What is the maximum characters of aircraft identification to be inserted in flight plan?**

- A) 5
- B) 6
- C) 7
- D) 8

**36- When an aircraft files the flight plan for the various stages and the purpose of intermediate stop, the initial clearance limit will be?**

- A) FIR boundary
- B) First destination
- C) Last destination
- D) None

**37- Under which condition, an aircraft may be exempted to report its position over compulsory reporting point?**

- A) Specified by the operator
- B) Specified by the pilot
- C) Specified by the appropriate ATS authority
- D) Specified by ATC



**38- Change from IFR to VFR will always take place:**

- A) When the aircraft is leaving controlled airspace during VMC.
- B) At the clearance limit, irrespective of the weather conditions.
- C) As instructed by an air traffic control unit
- D) During uninterrupted VMC when pilot request "cancelling my IFR flight"

**39- If a pilot wishes to cancel an IFR flight plan and proceed under VFR in VMC, he must inform ATC and include the phrase:**

- A) Cancelling IFR flight plan.
- B) Cancelling my IFR flight.
- C) Cancelling my flight.
- D) Cancelling IFR.

**40- Within which class of airspace, the VMC climb or descent may be authorized?**

- A) B
- B) C
- C) G
- D) E

**41- The area control service shall be provided by.....**

- A) Aerodrome control tower
- B) ACC
- C) Approach control unit
- D) Information

**42- Who is responsible to be ensure that before departure, the aircraft has appropriate RNP and RVSM approval for the areas concerned?**

- A) ATC
- B) Operator
- C) State
- D) Pilot

**43- For the purpose of wake turbulence, the heavy category aircraft in initial contact shall say the word "HEAVY" to?**

- A) Approach
- B) Center
- C) Tower
- D) ATS units

**44- When an aircraft cruising level is called height?**

- A) Above transition level
- B) Altitude
- C) Above transition altitude
- D) None

**45- Which of the following element of position report shall be reported in initial call after changing to a new radio frequency?**

- A) Next position
- B) Flight level
- C) Altitude
- D) "B" and "C" are correct

**46- Which letter is used in a flight plan to indicate that the flight is in under IFR?**

- A) Z
- B) Y
- C) V
- D) I

**47- Which of the following ATC unit may provide approach control service?**

- A) ACC
- B) Aerodrome control tower
- C) Approach
- D) All answers are correct

**48- When an aircraft maintaining a level within transition layer, it is?**

- A) Flight level
- B) Height
- C) Altitude
- D) All answers are incorrect

**49- How long after the first position report, on a route not defined by significant reporting point, the position report shall take place?**

- A) Half an hour
- B) One hour
- C) 30 minutes
- D) At least one hour

**50- What is the contents of basic ADS report?**

- A) Latitude and longitude
- B) Level and time
- C) "A" and "B" + figure of merit
- D) None

**51- What is the minimum vertical separation, between same track flights above FL410?**

- A) 1000 ft
- B) 2000 ft
- C) 1500 ft
- D) 4000 ft

**52- What is the significant change of crosswind component to be reported to an aircraft on the final approach?**

- A) 10 kts
- B) 5 kts
- C) 2 kts
- D) None

**53- To which type of operation, the advisory service shall be provided?**

- A) IFR
- B) VFR
- C) Controlled flight
- D) All answers are correct

**54- Changing of flight rules from IFR to VFR is possible:**

- A) If the commander so requests.
- B) If instructed by ATC as long as VMC is forecast during the next 30 minutes.
- C) If instructed by ATC as long as VMC is forecast during the next 60 minutes.
- D) Only when leaving controlled airspace.

**55- Who is responsible to submit RPL?**

- A) Pilot-in-command
- B) Dispatcher
- C) Ground designator
- D) Operator

**56- When the aircraft has ADS equipment, what letter shall be inserted in flight plan?**

- A) N
- B) D
- C) C
- D) S

**57- If an uncontrolled VFR operating between point "A" and "B" at 5500 ft, what characters shall be inserted in flight plan?**

- A) A055
- B) F055
- C) VFR
- D) 5500

**58- If during the filling flight plan, the total number of person to be carried is unknown, what shall be inserted in flight plan?**

- A) Crew list
- B) TBN
- C) "A" or "B" is correct
- D) None

**59- Which of the following letter shall be inserted in item 10 of flight plan where the transponder is mode "A" (4 digits- 4096 codes) and mode "C"?**

- A) A
- B) X
- C) C
- D) P

**60- If the cruising speed of an airplane is 430 nautical miles per hour, which of the following characters shall be filled in flight plan?**

- A) 430 kts
- B) N430
- C) 0430 kts
- D) N0430

**61- What characters shall be inserted in flight plan to indicate flight level 95?**

- A) F095
- B) FL95
- C) F95
- D) FL095

**62- How many sections are provided in routine air report?**

- A) 1
- B) 2
- C) 3
- D) 4

**63- What is the first part of routine air report?**

- A) Weather information
- B) Operational information
- C) Passengers information
- D) Position report

**64- What significant change of headwind component shall be reported to aircraft during approach?**

- A) 10 Kts
- B) 5 Kts
- C) 7 Kts
- D) 2 Kts

**65- Along which of the following designated ATS routes, RNAV distance- based separation may be applied between RNAV- equipped aircraft?**

- A) RNAV route
- B) NDB routes
- C) VOR routes
- D) "A" or "C" is correct

**66- When a pilot is unable to comply with ATC instruction, shall transmit?**

- A) Unable
- B) Unable to comply
- C) Cannot comply
- D) All answers are correct

**67- What is the minimum distance of taxi holding position of a runway with a length above 2500 m, when there is not taxi holding position marking?**

- A) 50 m, from runway edge.
- B) 50 m, from runway centerline.
- C) 90 m, from runway edge.
- D) 30 m, from runway center line.

**68- At least how many alternate aerodrome shall be specified for an IFR flight in flight plan?**

- A) One.
- B) Two.
- C) 1 or 2.
- D) None.

**69- When an airplane is at initial approach altitude, what shall be ceiling till the pilot request visual approach?**

- A) Equal to initial approach altitude.
- B) Lower than initial approach altitude.
- C) Higher than initial approach altitude.
- D) All answers are incorrect.

**70- Which of the following aircraft may request visual approach?**

- A) VFR.
- B) SVFR.
- C) IFR.
- D) CVFR.

**71- When VMC descend may authorize?**

- A) Day light
- B) Night.
- C) Heavy traffic.
- D) Emergency.

**72- According which of the following basis the advisory service shall be provide?**

- A) Advise.
- B) Traffic information.
- C) Suggest.
- D) All answers are correct.

**73- How long a flight plan for an uncontrolled flight is valid?**

- A) 30 min.
- B) 10 min.
- C) 60 min.
- D) 40 min.

**74- Advisory service based on:**

- A) Suggestion.
- B) Advice.
- C) Clearance.
- D) A & B are correct.

**75- The flight plan should be amended if ETD is for controlled flight exceed:**

- A) One hour.
- B) Two hours.
- C) 30 min.
- D) None.

**76- VMC ascend may be authorized during:**

- A) Night.
- B) Day light hour.
- C) Sunset and sunrise.
- D) All answers are correct.

**77- Heavy wake turbulence aircraft shall say the word heavy after the call sign in initial contact to:**

- A) Approach control unit.
- B) Area control center.
- C) Aerodrome control tower.
- D) Any ATSU

**78- Clearance limit is the point to which ----- is granted an air traffic control clearance:**

- A) An aircraft.
- B) Approach.
- C) Passenger.
- D) Clearance.

**79- When should you contact departure control after takeoff on an IFR flight?**

- A) When instructed by tower.
- B) Prior to penetrating clouds.
- C) When established on the assigned heading.
- D) Upon leaving 9000 ft.

**80- RPLs shall be submitted only for:**

- A) IFR flight for one mount.
- B) IFR and VFR flights.
- C) IFR flights operated regularly at least ten consecutive days.
- D) VFR flights operated regularly at least ten consecutive days.

**81- The wake turbulence category "HEAVY" is applied to aircraft of (MTOM):**

- A) 126000 lbs or more.
- B) 40000 lbs or more.
- C) More than 136000 lbs.
- D) 136000 kg or more.

**82- The Takeoff Mass of MEDIUM aircraft is as follows:**

- A) Less than 136000 kg but more than 7000 kg
- B) Less than 132000 kg but more than 7000 kg.
- C) Less than 136000 kg but more than 9000 kg.
- D) Less than 132000 kg but more than 9000 kg.

**83- Aircraft in which wake turbulence category shall include their category immediately after the call sign in the initial radiotelephony contact with the aerodrome control tower or the approach control office prior to departure or arrival?**

- A) HEAVY aircraft
- B) MEDIUM aircraft.
- C) MEDIUM and HEAVY aircraft.
- D) MEDIUM, HEAVY and LIGHT aircraft.

**84- Cruising level IFR during cruise within controlled airspace shall be given as flight level (FL):**

- A) Only in airspace class A.
- B) When QNH is higher than the standard pressure 1013 hPa.
- C) Above the transition altitude when applicable.
- D) If the obstacle clearance is more than 2000 feet.

**85- When should ATC pass the QNH to an aircraft?**

- A) With clearance to enter the traffic pattern.
- B) At the start of radar vectoring.
- C) In taxi clearance prior takeoff.
- D) Only A and C above are correct.

**86- Unless instructed otherwise by an air traffic controller, when passing through the transition layer, a pilot shall report the vertical position of the aircraft as:**

- A) Either altitude or flight level during a climb.
- B) Flight level in a descent.
- C) Altitude in a climb.
- D) Altitude in a descent.

**87- When should position reports be made?**

- A) When passing designated significant points referred to as "on request reporting points".
- B) At the discretion of the commander.
- C) When passing each designated compulsory reporting point.
- D) At one hourly intervals.

**88- The positions reports shall contain the following elements of information in the order listed:**

- A) Aircraft identification, position, time, flight level or altitude, next position and time over and ensuing significant point.
- B) Aircraft identification, position, flight level or altitude, time, next position and time over and ensuing significant point.
- C) Aircraft identification, position, time, true airspeed, flight level or altitude, next position and time over.
- D) Aircraft identification, position, time, flight level or altitude, next position and time over.



**89- What does ACC mean?**

- A) Advisory route.
- B) Area control center.
- C) Acknowledge.
- D) Approach control center.

**90- What does ADR mean?**

- A) Advisory route.
- B) Aerodrome.
- C) Advisory distress route.
- D) Altitude dead reckoning.

**91- A control area or portion thereof established in the form of a corridor equipped with radio navigation aids is also known as:**

- A) A Terminal Maneuvering Area.
- B) An upper air route.
- C) An airway.
- D) A SVFR entry/exit corridor.

**92- What is the objective of the alerting service?**

- A) To prevent collisions between aircraft.
- B) To provide the advisory service.
- C) To notify appropriate organizations regarding aircraft in need of assistance.
- D) Provide advice and information useful to the safe and efficient conduct of flights.

**93- At least which services have to be provided by ATS within a flight information region?**

- A) Flight information service and alerting service.
- B) Flight information service.
- C) Flight information service and air traffic advisory service
- D) Flight information service and air traffic control service.

**94- The abbreviation RNP means:**

- A) Required navigation precision.
- B) Requested navigation position.
- C) Required navigation performance.
- D) Required navigation point.

**95- Air Traffic Service unit means:**

- A) Flight Information Centers and Air Services reporting offices.
- B) Air Traffic Control units and Flight Information Centers.
- C) Air Traffic Control units and Air Services reporting offices.
- D) Air Traffic Control units, Flight Information Centers or Air Traffic Services Reporting offices.

**96- Which does ATC term "Radar Contact" signify?**

- A) You will be given traffic advisories until advised that the service has been terminated or that radar contact has been lost.
- B) Your aircraft has been identified and you will receive separation from all aircraft while in contact with this radar facility.
- C) Your aircraft has been identified on the radar display and radar flight instructions will be provided until radar identification is terminated.
- D) ATC is receiving your transponder and will furnish vectors and traffic advisories until you are advised that contact has been lost

**97- What is meant by RNP4?**

- A) The fix tolerance factor of the navigational equipment is 4%.
- B) Navigation accuracy of 4 NM during 95% of the flight.
- C) Minimum requirements to fly RNAV routes.
- D) All answers are correct.

**98- The Air Traffic Control unit has reported "radar contact", what does that mean to the pilot?**

- A) Position reports may be omitted.
- B) The pilot does not have to follow up the position of the aircraft.
- C) The aircraft is subject to positive control.
- D) The radar identity of the aircraft has been established.

**99- What does ACC mean?**

- A) Advisory route.
- B) Area control center.
- C) Acknowledge.
- D) Approach control center.

**100- What is the objective of the alerting service?**

- A) To prevent collisions between aircraft.
- B) To provide the advisory service.
- C) To notify appropriate organizations regarding aircraft in need of assistance.
- D) Provide advice and information useful to the safe and efficient conduct of flights.

**101- Which of the following statements regarding alerting service is correct?**

- A) The alert phase is established when no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received.
- B) Aircraft in the vicinity of an aircraft known or to be believed to be the subject of unlawful interference, shall be informed about this.
- C) Alerting service and Flight Information Service are often provided by the same ATS unit.
- D) The distress phase is established when an aircraft known or believed to be the subject of unlawful interference.

**102- Clearance limit is a point:**

- A) To which a specific clearance is valid.
- B) From which a specific clearance is valid.
- C) Where an airway clearance is amended.
- D) To which a specific clearance is valid and this point is determined by PIC.

**103- The Approach Control Service is an Air Traffic Control Service:**

- A) For IFR flights arriving and departing.
- B) Provided for IFR and VFR flights within a Control Zone.
- C) Provided for IFR traffic within a Control Zone.
- D) Provided for the arriving and departing controlled flights.

**104- What does the abbreviation AFIS stand for?**

- A) Aerodrome Flashing Identification Signal.
- B) Automatic Flight Information Service.
- C) Aeronautical Flight Information System.
- D) Aerodrome Flight Information Service.

**105- In the event of a delay for an uncontrolled flight which a flight plan has been submitted, the flight plan should be amended or a new flight plan submitted and the old one cancelled, when:**

- A) The delay is more than 30 minutes of the estimated time off-blocks.
- B) The delay is more than 60 minutes of the estimated time off-blocks.
- C) The delay is more than 60 minutes of the estimated time of departure.
- D) The delay is more than 30 minutes of the estimated time of departure.

**106- The controlling authority for a CTA is an:**

- A) TWR
- B) ACC
- C) APP
- D) GND

**107- You receive an IFR en-route clearance stating: Clearance expires at 0920, What does it mean?**

- A) If not airborne until 0920 a new clearance has to be issued.
- B) Do not take off before 0920.
- C) The takeoff clearance is expected at 0920.
- D) After 0920 return to the ramp and file a new flight plan.

**108- IFR clearance is always valid:**

- A) To the clearance limit.
- B) For a maximum period of 30 minutes.
- C) Until landing at the aerodrome of destination.
- D) For a maximum period of 5 minutes.

**109- Who decides whether to fly under IFR or VFR in VMC?**

- A) The PIC.
- B) The ATS authority.
- C) The Operator.
- D) Either A or B

**110- What does the term "omit position reports" mean?**

- A) Miss out the next position report.
- B) The flight is exempt from making position reports.
- C) Only report at compulsory reporting points.
- D) Only report when passing VOR stations.

**111- An aircraft captain should transmit special aircraft observations when he encounters:**

- A) Other conditions that the captain considers may affect the safety of other aircraft.
- B) Moderate turbulence, hail or CB clouds during supersonic or transonic flight.
- C) Severe turbulence or icing.
- D) All answers are correct.

**112- "ESSENTIAL TRAFFIC" is that controlled flight to which the provision of separation by ATC is applicable, but which, in relation to a particular controlled flight is not separated therefore by the appropriate separation minima. Whenever separation minima are not applied. The following flights are considered essential traffic one to each other:**

- A) Controlled VFR flights and VFR flights.
- B) All IFR flight in controlled airspace and VFR.
- C) All IFR flights.
- D) Only controlled IFR flights.

**113- When can separation in the vicinity of an aerodrome be reduced?**

- A) At any time when the pilot requests.
- B) When the pilot has the aircraft ahead in visual contact.
- C) Only at the controller's discretion.
- D) Never.

**114- Essential traffic information shall be given to:**

- A) All controlled flights at any time.
- B) All flights that are "known" to ATC.
- C) Controlled flights, whenever they constitute essential traffic to each other.
- D) All aircraft at the discretion of the air traffic controller.

**115- During the final approach which of the following information will be transmitted to the pilot without delay?**

- 1) The sudden occurrence of hazards.**
- 2) Significant variations in the current surface wind expressed in terms of minimum and maximum values.**
- 3) Significant changes in runway and taxiway surface conditions.**
- 4) Changes in the operational status of the required visual or non-visual aids.**

- A) 1, 2, 3, 4
- B) 1, 2, 3
- C) 2, 3, 4
- D) 1, 2, 4

**116- Which of the following has the highest order of priority?**

- A) Aircraft taking-off.
- B) Aircraft landing.
- C) Aircraft taxiing.
- D) Aircraft being towed by a vehicle.

**117- What does a clearance for "immediate takeoff" mean?**

- A) Line up immediately after the landing aircraft.
- B) Have all the appropriate checks complete before entering the runway.
- C) The subsequent taxi and takeoff shall be completed in one continuous movement.
- D) Enter the runway, apply the brakes, set full power, release the brakes and take off without further clearance.

**118- What is the primary reason for Radar in ATC?**

- A) Separation.
- B) Helping when communications have failed.
- C) To assist pilots with technical problems.
- D) To assist pilots of aircraft that are lost.

**119- Regarding Aerodrome Flight Information Service (AFIS):**

- A) It can only supply limited services to the users and under no circumstances may it supply ATC services.
- B) Its purpose is to supply ATC services but it is not a state organization.
- C) It has the same privileges and prerogatives as an ATC organization but its activity is neither continuous nor regular.
- D) Its only purpose is to relay ATC information to the aircraft in flight or on the ground.

**120- An Air Traffic Control Unit:**

- A) May not ask an aircraft to change its call sign after accepting the flight plan.
- B) May ask an aircraft to temporarily change its call sign for safety reasons when there is a risk of confusion between two or more similar call signs.
- C) May require to change the call sign for safety reasons when there is a risk of confusion between two or more similar call signs providing the aircraft is on a repetitive flight plan.
- D) Must not ask an aircraft to change its call sign.

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	B	26	C	51	D	76	B
2	C	27	B	52	B	77	D
3	D	28	A	53	A	78	A
4	A	29	A	54	A	79	A
5	C	30	D	55	D	80	C
6	B	31	C	56	B	81	D
7	D	32	D	57	C	82	A
8	C	33	A	58	B	83	A
9	B	34	D	59	C	84	C
10	C	35	C	60	D	85	D
11	A	36	B	61	A	86	D
12	C	37	D	62	C	87	C
13	A	38	D	63	D	88	A
14	C	39	B	64	A	89	B
15	D	40	D	65	D	90	A
16	A	41	B	66	A	91	C
17	C	42	B	67	A	92	C
18	B	43	D	68	B	93	A
19	D	44	D	69	D	94	C
20	C	45	D	70	C	95	D
21	B	46	D	71	A	96	C
22	C	47	D	72	D	97	B
23	D	48	D	73	C	98	D
24	B	49	B	74	D	99	B
25	B	50	C	75	C	100	C

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	C	108	A	115	D		
102	A	109	A	116	B		
103	D	110	B	117	C		
104	D	111	D	118	A		
105	B	112	B	119	A		
106	B	113	B	120	B		
107	A	114	C				





# FLIGHT PLANNING



**1- Runway 30 is being used for landing. Which surface wind would exceed the airplane's crosswind capability of  $0.2 V_{SO}$ , if  $V_{SO}$  is 60 knots?**

- A)  $260^\circ$  at 10 knots
- B)  $275^\circ$  at 25 knots
- C)  $315^\circ$  at 35 knots
- D)  $320^\circ$  at 40 knots

**2- If the reported surface wind is  $010^\circ$  at 18 knots, what is the crosswind component for RWY08 during landing?**

- A) 7 knots
- B) 15 knots
- C) 17 knots
- D) 21 knots

**3- The surface wind is  $180^\circ$  at 25 knots. What is the crosswind component for RWY13 during landing?**

- A) 25 knots
- B) 22 knots
- C) 21 knots
- D) 19 knots

**4- Given:**

**Fuel flow:** 6.5 t/hr

**Specific gravity:** 0.80

**Mach number:** 0.68

**OAT:**  $-30^\circ\text{C}$

**Headwind component:** 25 kts

**What is the specific fuel consumption?**

- A) 16.7 kg/NM air distance.
- B) 13.4 kg/NM ground distance.
- C) 13.4 kg/NM air distance.
- D) 16.7 kg/NM ground distance.

**5- Given:**

**TAS:** 485 kts

**OAT:**  $\text{ISA}+10^\circ\text{C}$

**P.A:** FL360

**Calculate the Mach number.**

- A) 0.79
- B) 0.90
- C) 0.83
- D) 0.87

**6- Given:**

**TAS:** 487 kts  
**P.A:** FL330  
**Temperature:** ISA + 15° C

**Calculate the Mach number.**

- A) 0.81
- B) 0.87
- C) 0.76
- D) 0.78

**7- If the headwind component is 50 kts, the FL330, temperature ISA -7 °C and the ground speed is 495 kts, what is the Mach number?**

- A) 1.00
- B) 0.79
- C) 0.95
- D) 0.75

**8- Given:**

**Fuel flow:** 42 US Gal/hr  
**Specific gravity:** 0.72  
**TAS:** 210 kts

**What is the specific fuel consumption?**

- A) 1.052 kg/NM air distance.
- B) 0.757 kg/NM air distance.
- C) 0.144 kg/NM air distance.
- D) 0.545 kg/NM air distance.

**9- Given:**

**Fuel flow:** 28 Imp Gal/hr  
**Specific gravity:** 0.72  
**TAS:** 154 mph

**What is the specific fuel consumption?**

- A) 0.60 kg/NM air distance.
- B) 0.68 kg/NM air distance.
- C) 1.46 kg/NM air distance.
- D) 0.50 kg/NM air distance.

**10- You want to fly 12000 ft above a frozen lake (elevation 930 ft AMSL). You have obtained QNH from an airfield in the area. Climbing, you observe that the air temperature at FL080 is -20°C. What should your indicated altitude be when you are 12,000 ft above the frozen lake?**

- A) 14350 ft
- B) 12000 ft
- C) 12560 ft
- D) 13950 ft

**11- An aircraft at FL370 is required to commence descent at 120 NM from a VOR and to cross the facility at FL130. If the mean ground speed for the descent is 288 kts, the minimum rate of descent required is:**

- A) 960 ft/min.
- B) 860 ft/min.
- C) 890 ft/min.
- D) 920 ft/min.

**12- Given:**

**Distance A to B: 325 NM**

**Planned G/S: 315 kts**

**ATD: 1130 UTC**

**1205 UTC - fix obtained 165 NM along track. What G/S must be maintained from the fix in order to achieve planned ETA at B?**

- A) 335 kts
- B) 375 kts
- C) 395 kts
- D) 355 kts

**13- A fuel amount of 160 US Gal allows endurance of 3 hrs 10 min with a light twin engine piston aircraft. What is the corresponding fuel flow per engine?**

- A) 25.3 US Gal/hr
- B) 50.5 US Gal/hr
- C) 51.6 US Gal/hr
- D) 25.8 US Gal/hr

**14- Find the speed of sound if the ambient air temperature is -45 °C at FL360.**

- A) 555 Kts
- B) 586 Mph
- C) 586 Kts
- D) 555 Mph

**15- Determine the rate of climb (ft/min) by the following information:**

**Ground Speed: 110 Kts**  
**Climb Gradient: 330 ft/NM**

- A) 506
- B) 605
- C) 565
- D) 665

**16- An aircraft, following a 215° true track at variation 3°W, must fly over a 10600 ft obstacle with a minimum obstacle clearance of 1500 ft. Knowing the QNH received from an airport close by, which is almost at sea-level, is 1035 and the temperature is ISA -15°C, the minimum flight level will be:**

- A) 140
- B) 120
- C) 130
- D) 150

**17- Given TAS 500 kts and OAT -40 °C, Mach number is:**

- A) 0.80
- B) 0.82
- C) 0.84
- D) 0.88

**18- Given the following data determine the maximum possible takeoff fuel:**

**Fuel density: 0.78 kg/lit**  
**Dry Operating Mass: 33500 kg**  
**Traffic Load: 10600 kg**  
**Maximum Allowable Takeoff Mass: 66200 kg**  
**Taxi Fuel: 200 kg**  
**Tank capacity: 22500 liters**

- A) 17350 kg
- B) 22100 kg
- C) 17550 kg
- D) 22300 kg

**19- A turbine-engine aircraft burns fuel at 200 gallons per hour (GPH) with a fuel density of 0.80 what is the fuel flow if fuel density is 0.75?**

- A) 213 GPH
- B) 208 GPH
- C) 200 GPH
- D) 188 GPH

**20- The final reserve fuel for aeroplanes with turbine engines is:**

- A) Fuel to fly for 45 minutes at holding speed at 1000 ft (300 m) above aerodrome elevation in standard conditions.
- B) Fuel to fly for 45 minutes at holding speed at 1500 ft (450 m) above aerodrome elevation in standard conditions.
- C) Fuel to fly for 30 minutes at holding speed at 1500 ft (450 m) above aerodrome elevation in standard conditions.
- D) Fuel to fly for 60 minutes at holding speed at 1500 ft (450 m) above aerodrome elevation in standard conditions.

**21- Given:**

<b>Maximum Allowable Takeoff Mass:</b>	<b>64400 kg</b>
<b>Maximum Landing Mass:</b>	<b>56200 kg</b>
<b>Maximum Zero Fuel Mass:</b>	<b>53000 kg</b>
<b>Dry Operating Mass:</b>	<b>35500 kg</b>
<b>Estimated load:</b>	<b>14500 kg</b>
<b>Estimated Trip Fuel:</b>	<b>4900 kg</b>
<b>Minimum takeoff fuel:</b>	<b>7400 kg</b>
<b>Find maximum additional load.</b>	

- A) 7000 kg
- B) 4000 kg
- C) 3000 kg
- D) 5600 kg

**22- For a planned flight the calculated fuel is as follows:**

<b>Flight time:</b>	<b>3 hrs : 6 min</b>
<b>Taxi fuel:</b>	<b>8 kg</b>
<b>Block Fuel:</b>	<b>118 kg</b>

**The reserve fuel, at any time, should not be less than 30% of the remaining trip fuel. How much fuel should remain after 2 hours flight time?**

- A) 27 kg Trip Fuel and 8 kg reserve fuel.
- B) 39 kg Trip Fuel and 11.7 kg reserve fuel.
- C) 30 kg Trip Fuel and 9 kg reserve fuel.
- D) 39 kg Trip Fuel and no reserve fuel.

**23- An operator (turbojet engine) shall ensure that calculation of usable fuel for a flight for which destination alternate is required includes, taxi fuel, Trip Fuel, contingency fuel and fuel to fly for:**

- A) 45 minutes plus 15% of the flight time planned to be spent at cruising level or two hours whichever is less.
- B) 3 hours at normal cruise consumption.
- C) 30 minutes at holding speed at 450 m above alternate aerodrome elevation in standard conditions.
- D) 30 minutes at holding speed at 450 m above MSL in standard conditions.

**24- An operator shall ensure that calculation of usable fuel for an IFR flight with a turbojet aeroplane for which no destination alternate is required includes, taxi fuel, trip fuel, contingency fuel and fuel to fly for:**

- A) 45 minutes plus 10% of the flight time planned to be spent at cruising level or two hours whichever is less.
- B) 2 hours at normal cruise consumption.
- C) 45 minutes at holding speed at 450 m above aerodrome elevation in standard conditions.
- D) 45 minutes at holding speed at 450 m above MSL in standard conditions.

**25- The quantity of fuel which is calculated to be necessary for a jet aeroplane to fly IFR from departure aerodrome to the destination aerodrome is 5352 kg. Fuel consumption in holding mode is 6000 kg/hr. Alternate fuel is 4380 kg. Contingency should be 5% of Trip Fuel. What is the minimum required quantity of fuel which should be on board at takeoff?**

- A) 13370 kg
- B) 14500 kg
- C) 13000 kg
- D) 13220 kg

**26- The trip fuel for a jet aeroplane to fly from the departure aerodrome to the destination aerodrome is 5350 kg. Fuel consumption in holding mode is 6000 kg/hr. The quantity of fuel which is needed to carry out one go-around and land on the alternate airfield is 4380 kg. The destination aerodrome has a single runway. What is the minimum quantity of fuel which should be on board at takeoff?**

- A) 13000 kg
- B) 13230 kg
- C) 14730 kg
- D) 11730 kg



**27- You must fly IFR on an airway oriented  $135^\circ$  magnetic with a MSA at 7800 ft, knowing the QNH is 1025 hPa and the temperature is ISA + 10, the minimum flight level you must fly at is:**

- A) 075
- B) 080
- C) 090
- D) 070

**28- For a flight to an offshore platform, an alternate aerodrome is compulsory, except if:**

- 1) Flight duration does not exceed two hours.
- 2) During the period from two hours before to two hours after the estimated landing time, the forecast conditions of ceiling and visibility are not less than one and a half times the applicable minima.
- 3) The platform is available and no other flight either from or to the platform is expected between the estimated time of departure and one half hour after the estimated landing time.

- A) 1,2,3
- B) 1,2
- C) 1,3
- D) 2,3

**29- An aircraft flying at 7500 ft is cleared to descend to be level at 1000 ft, 6 NM before reaching a beacon. If ground speed is 156 kts and Rate of Descent is 800 ft/min, how many nautical miles before the beacon should descent begin?**

- A) 15.0
- B) 30.2
- C) 27.1
- D) 11.1

**30- An aircraft is flying at MACH 0.84 at FL330. The static air temperature is  $-48^\circ\text{C}$  and the headwind component 52 kts. At 1338 UTC the controller requests the pilot to cross the meridian of  $030^\circ\text{W}$  at 1500 UTC. Given the distance to go is 570 NM, the reduced Mach number should be:**

- A) 0.72
- B) 0.74
- C) 0.76
- D) 0.80

**31- You are flying on compass heading of  $252^\circ$  variation is  $22^\circ\text{E}$ , deviation is  $3^\circ\text{W}$  and your INS is showing a drift of  $9^\circ$  to the right. The true track is?**

- A)  $242^\circ$
- B)  $262^\circ$
- C)  $280^\circ$
- D)  $224^\circ$

**32- After flying for 16 min at 100 kts TAS with a 20 kts tailwind component, you have to return to the airfield of departure. You will arrive after:**

- A) 20 min.
- B) 24 min.
- C) 10 min 40 sec.
- D) 16 min.

**33- An airplane flies at an airspeed of 380 kts, it flies from A to B and back to A. Distance AB is 480 NM. When going from A to B, it experiences a headwind component at 60 kts. The wind remains constant. The duration of the flight will be:**

- A) 3 hrs. 00 min
- B) 2 hrs. 35 min
- C) 2 hrs. 10 min
- D) 2 hrs. 32 min

**34- Flight planning chart for an airplane states that the time to reach the cruising level at a given gross mass is 36 minutes and the distance travelled is 157 NM (zero wind). What will be the distance travelled with an average tailwind component of 60 kts?**

- A) 193 NM
- B) 128 NM
- C) 157 NM
- D) 228 NM

**35- In the cruise at FL155 at 260 kts TAS, the pilot plans for a 500 (ft/min) descent in order to fly overhead Rasht VOR at 2000 feet (QNH 1030). TAS will remain constant during descent, wind is negligible, and temperature is standard. The pilot must start the descent at a distance from Rasht VOR:**

- A) 140 NM
- B) 120 NM
- C) 110 NM
- D) 130 NM

**36- An aircraft flight planning chart states that the time to reach FL190 at a given gross mass is 22 minutes with a still air distance of 66 NM. The ground distance travelled when the average headwind component is 35 kts will be:**

- A) 53 NM
- B) 61 NM
- C) 79 NM
- D) 85 NM

**37- How many feet you have to climb to reach FL075?**

**Given:**

**Departure aerodrome elevation: 1500 ft**

**QNH: 1023 hPa**

**Temperature: ISA**

**(Assume 1 hPa is 30 ft)**

- A) 6300 ft.
- B) 6000 ft.
- C) 6600 ft.
- D) 7800 ft.

**38- An aircraft takes 14 minutes to climb to FL290 covering 71 NAM, what is the ground distance covered in a 30 kts headwind?**

- A) 71 NGM
- B) 57 NGM
- C) 78 NGM
- D) 64 NGM

**39- A sector distance is 450 NM long. The TAS is 460 kts. The wind component is 40 kts tailwind. What is the still air distance?**

- A) 414 Nautical Air Miles (NAM).
- B) 499 Nautical Air Miles (NAM).
- C) 406 Nautical Air Miles (NAM).
- D) 511 Nautical Air Miles (NAM).

**40- An aircraft is in cruising flight at FL095 and TAS 155 kts. The pilot intends to descend at 500 (ft/min) to arrive overhead the Bandar Abbas VOR/DME at 2000 ft (QNH 1030 hPa). The TAS remains constant in the descent, wind is negligible, temperature standard. At which distance from Bandar Abbas VOR/DME should the pilot commence the descent? (1hPa=27 ft)**

- A) 41 NM
- B) 48 NM
- C) 38 NM
- D) 45 NM

**41- A descent is planned from FL340 so as to arrive at FL100 at a distance 6 NM from a VORTAC, at a G/S of 280 kts and a rate of descent of 1200 ft/min. The distance from the VORTAC when descent is started is:**

- A) 65 NM
- B) 99 NM
- C) 27 NM
- D) 93 NM

**42- ATC require a descent from FL270 to FL160 to be level 6 NM before a VOR. If rate of descent is 800 feet per minute, mean groundspeed is 256 kts, how far out from the VOR must descent be started?**

- A) 59 NM
- B) 65 NM
- C) 144 NM
- D) 150 NM

**43- In a flight plan when the destination aerodrome is A and the alternate aerodrome is B, the final reserve fuel for a turbojet engine airplane corresponds to:**

- A) 15 minutes holding 2000 feet above aerodrome A.
- B) 30 minutes holding 2000 feet above aerodrome B.
- C) 30 minutes holding 1500 feet above aerodrome B.
- D) 30 minutes holding 1500 feet above aerodrome A.

**44- A jet airplane is to fly from A to B. The minimum final reserve fuel must allow for:**

- A) 20 minutes hold over alternate airfield.
- B) 30 minutes hold at 1500 ft above destination aerodrome elevation, when no alternate is required.
- C) 30 minutes hold at 1500 ft above mean sea level.
- D) 15 minutes hold at 1500 ft above destination aerodrome elevation.

**45- Given:**

<b>Dry Operating Mass (DOM):</b>	<b>33510 kg</b>
<b>Load:</b>	<b>7600 kg</b>
<b>Trip Fuel:</b>	<b>2040 kg</b>
<b>Final reserve fuel:</b>	<b>983 kg</b>
<b>Alternate fuel:</b>	<b>1100 kg</b>
<b>Contingency fuel:</b>	<b>5% of Trip Fuel</b>

**If the flight is performed as planned, which of the listed estimated masses is correct?**

- A) Estimated Takeoff Mass is 45233 kg.
- B) Estimated Landing Mass at destination is 43295 kg.
- C) Estimated Landing Mass at destination is 43193 kg.
- D) Estimated Landing Mass at alternate is 42093 kg.

**46- When calculating the fuel required to carry out a given flight, one must take into account:**

- 1) The wind**
- 2) Foreseeable airborne delays**
- 3) Other weather forecasts**
- 4) Any foreseeable conditions which may delay landing**

**The combination which provides the correct statement is:**

- A) 1, 2, 3**
- B) 1, 3**
- C) 2, 4**
- D) 1, 2, 3, 4**

**47- The measured course 042°T. The variation in the area is 6°W and the wind is calm. The deviation is 4°W. In order to follow this course, the pilot must fly a compass heading of:**

- A) 040°**
- B) 044°**
- C) 052°**
- D) 058°**

**48- At 1000 UTC Shanwick Oceanic clear you to enter the Oceanic Control Area at 47°00' N 008°W, 220 track miles from your current position, at time 1033 UTC. At FL200, ISA conditions and with TAS 430 kts, headwind 30 kts, FMS being unavailable, what is the required Mach number to comply with this instruction?**

- A) M 0.75**
- B) M 0.70**
- C) M 0.60**
- D) M 0.80**

**49- What is the new CG location if 800 lbs of cargo are moved from the forward cargo hold to the aft cargo hold?**

<b>Airplane gross weight:</b>	<b>150000 lbs</b>
<b>CG prior to shift:</b>	<b>998.0" aft of datum</b>
<b>Arm of FWD component:</b>	<b>667.0" aft of datum</b>
<b>Arm of aft component:</b>	<b>1160" aft of datum</b>

- A) 1003.5 inches**
- B) 1000.6 inches**
- C) 996.0 inches**
- D) 994.8 inches**

**50- What is the new CG location if 1000 lbs of cargo are moved from the aft compartment to the forward compartment?**

**Airplane gross weight:** 155000 lbs  
**CG prior to shift:** 1000" aft of datum  
**Arm of FWD component:** 670" aft of datum  
**Arm of aft component:** 1166" aft of datum

- A) 998.5 inches
- B) 998.0 inches
- C) 997.5 inches
- D) 996.8 inches

**51- If 225 pounds of weight be shifted from station 64.0" to station 172.0", the CG would be at:**

**Total weight:** 10340 lbs  
**CG prior to shift:** station 110.0"

- A) 107.65
- B) 112.35
- C) 108.65
- D) 110.35

**52- What is the new CG after gear and flap retraction, if total moment displacement is 8840 in-lbs (aft)?**

**Total weight:** 6800 lbs  
**CG prior to shift** station 91.7"

- A) 92.0"
- B) 93.0"
- C) 90.4"
- D) 95.0"

**53- After gear and flaps retraction, there was a reduction in total moment by 10800 in- lbs, where would the CG be located? (AFT)**

**Total weight:** 13520 lbs  
**CG location:** station 117"

- A) 117.8
- B) 116.2
- C) 118.0
- D) 116.8

**54- Given:**

**Total weight:** 4137 lbs  
**CG location station:** 67.8"  
**Fuel consumption:** 13.7 GPH  
**Fuel CG station:** 68.0"

**After 1 hour 30 minutes of flight time, the CG would be located at station: (assume 1 USG is 6 lbs)**

- A) 67.79
- B) 68.79
- C) 70.78
- D) 72.78

**55- Could 100 pounds of weight be removed from station 30.0 without exceeding aft CG limit?**

**Total weight:** 2800 lbs  
**CG location:** station 85.0"  
**Aft CG limit:** station 87.0"

- A) Yes, the new CG will be located at station 85.92.
- B) No, the new CG will be located at station 87.15.
- C) No, the new CG will be located at station 87.04.
- D) Yes, the new CG will be located at station 85.02.

**56- What is the maximum allowable weight that may be carried on a pallet which has the dimension of 76×76 inches?**

**Floor load limit:** 186 lbs/sq ft  
**Pallet weight:** 93 lbs  
**Tie down devices:** 39 lbs

- A) 7421.3
- B) 7250.3
- C) 7328.7
- D) 71200.1

**57- What is the maximum allowable weight that may be carried on a pallet which has the dimensions of 36×48 inches?**

**Floor load limit:** 169 lbs/sq ft  
**Pallet weight:** 47 lbs  
**Tie down devices:** 33 lbs

- A) 1948 pounds
- B) 1995 pounds
- C) 1981 pounds
- D) 1990 pounds

**58- Baggage weighing 90 pounds is placed in a normal category airplane's baggage compartment which is placarded at 100 pounds. If this airplane is subjected to a positive load factor of 3.5 G's, the total load of the baggage would be:**

- A) 315 pounds and would be excessive.
- B) 315 pounds and would not be excessive.
- C) 350 pounds and would not be excessive.
- D) 350 pounds and would be excessive.

**59- What is the maximum load that could be added to station 140 without exceeding the aft CG limit?**

<b>Aircraft weight</b>	<b>6500 lbs</b>
<b>CG location:</b>	<b>station 89"</b>
<b>Aft CG limit:</b>	<b>station 89.5"</b>

- A) 63.7 pounds
- B) 64.3 pounds
- C) 53.3 pounds
- D) 55.0 pounds

**60- What is the new CG if 240 pounds of weight shift from station 182.0 to station 73.0?**

<b>Total weight:</b>	<b>8500 lbs</b>
<b>CG location:</b>	<b>station 121"</b>

- A) 117.9
- B) 124.1
- C) 118.5
- D) 116.1

**61- According to the chart the minimum obstruction clearance altitude (MOCA) is 8500 ft, the meteorological data gives an outside air temperature of -20 °C at FL085. The QNH, given by a meteorological station at an elevation of 4000 ft is 1003 hPa. What is the minimum pressure altitude which should be flown according to the given MOCA?**

- A) 8500 ft
- B) 8800 ft
- C) 12800 ft
- D) 8200 ft



**62- (Refer to figure I-10) What is the time to alternate?**

**Given:**

**Distance to Alternate:** 400 NM  
**Landing Mass at Alternate:** 50000 kg  
**Tailwind component:** 50 kts

- A) 96 minutes
- B) 25 minutes
- C) 50 minutes
- D) 58 minutes

**63- (Refer to figure I-11) An aircraft cruising at FL350 in light and variable winds turn at waypoint "ALPHA" weighing 53500 kg and later turns waypoint "BRAVO" now weighing 50200 kg. Assuming standard conditions what is the TAS, distance and specific fuel consumption between "ALPHA" and "BRAVO"?**

- A) 429 kts, 627 NM, 5.26 kg/NM.
- B) 426 kts, 631 NM, 5.22 kg/NM.
- C) 429 kts, 627 NM, 6.25 kg/NM.
- D) 429 kts, 573 NM, 5.24 kg/NM.

**64- (Refer to figure I-12) For a long distance flight at FL390, "Long Range" regime, divided into four flight legs with the following characteristics:**

**Leg 1**

**Ground distance:** 2000 NM  
**Headwind component:** 50 kts

**Leg 2**

**Ground distance:** 1000 NM  
**Headwind component:** 30 kts

**Leg 3**

**Ground distance:** 500 NM  
**Tailwind component:** 100 kts

**Leg 4**

**Ground distance:** 1000 NM  
**Headwind component:** 70 kts

**The air distance of the entire flight is approximately:**

- A) 5040 NM
- B) 4900 NM
- C) 5120 NM
- D) 4630 NM

**65- (Refer to figure I-13) For a turbojet aeroplane flying with a mass of 190000 kg, at Mach 0.82, and knowing that the temperature at flight level FL370 is - 35°C, the optimum flight altitude calculated using the annex is:**

- A) 37400 ft
- B) 37800 ft
- C) 34800 ft
- D) 38600 ft

**66- (Refer to figure I-14) Find the short distance cruise altitude for the twin jet aeroplane.**

**Given:**

**Brake release mass:** 45000 kg  
**Temperature:** ISA + 20 °C  
**Trip distance:** 50 Nautical Air Miles (NAM)

- A) 11000 ft
- B) 12500 ft
- C) 10000 ft
- D) 7500 ft

**67- (Refer to figure I-15) Find the fuel flow for the twin jet aeroplane.**

**Given:**

**Cruise:** Mach 0.74 at FL310  
**Weight:** 50000 kg  
**Temperature:** ISA

- A) 2560 kg / hr
- B) 1150 kg / hr
- C) 2994 kg / hr
- D) 2300 kg / hr

**68- The following fuel consumption figures are given for a jet airplane:**

**Standard taxi fuel:** 600 kg  
**Average cruise consumption:** 10000 kg/hr  
**Holding fuel consumption at 1500 ft above alternate airfield elevation:** 8000 kg/hr  
**Flight time from departure to destination:** 6 hrs  
**Fuel for diversion to alternate:** 10200 kg  
**Forecast visibility at destination:** 2000 m  
**The minimum ramp fuel load is:**

- A) 77800 kg
- B) 74800 kg
- C) 79800 kg
- D) 77200 kg

**69- An aeroplane has the following masses:**

<b>Estimated LM:</b>	<b>50000 kg</b>
<b>Trip Fuel:</b>	<b>4300 kg</b>
<b>Contingency fuel:</b>	<b>215 kg</b>
<b>Alternate fuel (final reserve included):</b>	<b>2100 kg</b>
<b>Taxi:</b>	<b>500 kg</b>
<b>Block Fuel:</b>	<b>7115 kg</b>

**Before departure the captain orders to make the Block Fuel 9000 kg. After this change the trip fuel in the operational flight plan should read:**

- A) 4300 kg
- B) 6185 kg
- C) 9000 kg
- D) 6400 kg

**70- (Refer to figure I-16) A descent is planned at 0.74M/250 KIAS from 35000 ft to 5000 ft. How much fuel will be consumed during this descent?**

- A) 278 kg
- B) 290 kg
- C) 150 kg
- D) 140 kg

**71- (Refer to figure I-17) Find time, fuel, still air distance and TAS for an en-route climb 280/0.74 to FL350.**

**Given:**

<b>Brake release mass:</b>	<b>64000 kg</b>
<b>Temperature:</b>	<b>ISA +10 °C</b>
<b>Airport elevation:</b>	<b>3000 ft</b>

- A) 25 min, 1875 kg, 148 Nautical Air Miles (NAM), 391 kts.
- B) 26 min, 2050 kg, 157 Nautical Air Miles (NAM), 399 kts.
- C) 20 min, 1750 kg, 117 Nautical Air Miles (NAM), 288 kts.
- D) 26 min, 1975 kg, 157 Nautical Air Miles (NAM), 399 kts.

**72- (Refer to figure I-16) What is the time, fuel required and nautical air miles to descend from FL350 to sea level in turbulent air given an estimated landing weight of 50000 kg?**

- A) 20 min, 325 kg, 99 NAM
- B) 22 min, 290 kg, 108 NAM
- C) 22 min, 290 kg, 105 NAM
- D) 20 min, 275 kg, 99 NAM

**73- (Refer to figure I-10) What is the alternate fuel required?**

**Given:**

**Distance to Alternate:** 450 NM  
**Landing Mass at Alternate:** 45000 kg  
**Tailwind component:** 50 kts

- A) 2900 kg
- B) 2750 kg
- C) 3050 kg
- D) 2500 kg

**74- (Refer to figure I-10) What is the alternate fuel required?**

**Given:**

**Distance to alternate:** 400 NM  
**Landing Mass at alternate:** 50000 kg  
**Headwind component:** 25 kts

- A) 2550 kg
- B) 2800 kg
- C) 2900 kg
- D) 2650 kg

**75- The quantity of fuel which is calculated to be necessary for a jet airplane to fly IFR from departure aerodrome to the destination aerodrome is 6532 kg. Fuel consumption in holding mode is 7000 kg/hr. Alternate fuel is 5356 kg. Contingency should be 5% of Trip Fuel. What is the minimum required quantity of fuel which should be on board at takeoff?**

- A) 19215 kg
- B) 15656 kg
- C) 15715 kg
- D) 19521 kg

**76- (Refer to figure I-18) What is the fuel required to fly from C to D?**

**Given:**

**Cruise:** LRC at FL340  
**Distance C-D:** 3200 NM  
**Temperature:** ISA +12 °C  
**Tailwind component:** 50 kts  
**Gross mass at C:** 55000 kg

- A) 17500 kg
- B) 14200 kg
- C) 17800 kg
- D) 14500 kg

**77- (Refer to figure I-19) What is the trip fuel?**

**Given:**

**Temperature:** ISA +15°C  
**Brake release mass:** 62000 kg  
**Trip time:** 5 hrs 20 min

- A) 13800 kg
- B) 13000 kg
- C) 13200 kg
- D) 13500 kg

**78- (Refer to figure I-20) What are the climb fuel and time?**

**Given:**

**Track:** 340° (T)  
**W/V:** 280°/40 kts  
**Aerodrome elevation:** 387 ft  
**Temperature:** ISA -10 °C  
**Brake release mass:** 52000 kg  
**Cruise at:** FL280

- A) 15 min, 1100 kg.
- B) 12 min, 1100 kg.
- C) 10 min, 1000 kg.
- D) 11 min, 1000 kg.

**79- (Refer to figure I-10) What is the fuel and time to alternate?**

**Given:**

**Estimated dry operation mass:** 35500 kg  
**Estimated load:** 14500 kg  
**Final reserve fuel:** 1200 kg  
**Distance to alternate:** 95 NM  
**Average true track:** 219°  
**Headwind component:** 10 kts

- A) 1100 kg; 44 min.
- B) 1100 kg; 25 min.
- C) 800 kg; 24 min.
- D) 800 kg; 40 min.

**80- (Refer to figure I-21) An aircraft climbs out from an aerodrome at MSL to FL250, under ISA +20°C conditions. If the brake release weight is 60000 kg, what is the fuel and ground distance covered with a 40 kts tailwind?**

- A) 1100 kg, 62 NGM.
- B) 1100 kg, 48 NGM.
- C) 1300 kg, 64 NGM.
- D) 1300 kg, 81 NGM.

**81- (Refer to figure I-22) The fuel required for 45 minutes holding, in a racetrack pattern, at PA 5000 ft, mean gross mass 47000 kg, is:**

- A) 1635 kg
- B) 1090 kg
- C) 1690 kg
- D) 1125 kg

**82- (Refer to figure I-22) Mean gross mass is 47000 kg. Find the fuel required for 15 minutes holding in a straight and level flight at 5000 ft:**

- A) 2180 kg
- B) 1090 kg
- C) 518 kg
- D) 545 kg

**83- (Refer to figure I-10) Using the simplified flight planning (alternate planning), find fuel required and trip time to alternate.**

**Given:**

<b>Basic Operating weight:</b>	<b>35500 kg</b>
<b>Pay load:</b>	<b>14500 kg</b>
<b>Final reserve fuel:</b>	<b>1200 kg</b>
<b>Distance to alternate:</b>	<b>95 NM</b>
<b>Tailwind component:</b>	<b>10 kts</b>

- A) 800 kg, 0.7 hrs.
- B) 1000 kg, 40 min.
- C) 800 kg, 24 min.
- D) 1000 kg, 24 min.

**84- (Refer to figure I-23) What would be the change in fuel required if the temperature at FL280 was -31°C?**

- A) + 0.3%
- B) - 0.3%
- C) + 0.6%
- D) - 0.6%

**85- Given:**

**Wind:** 330°/40 Kts

**True course:** 300°

**TAS:** 200 Kts

**Variation:** -5°

**Deviation:** +3°

**Find ground speed and compass heading.**

A) 165 Kts – 308°

B) 235 Kts – 304°

C) 220 Kts – 298°

D) 180 Kts – 302°

**86- Determine the amount of drift angle for an airplane that is flying at FL320 from Shiraz at 360 Kts TAS to Esfahan via R659 on 346° magnetic direction and experiencing wind from 300° at 60 Kts.**

A) 5°

B) 7°

C) 9°

D) 11°

**87- What is the A320's ground speed at FL380 with 0.79 Mach number from Mashhad to Sabzevar via A416 on magnetic direction 265° and experiencing wind from 065° at 80 Kts and OAT is ISA+10°C?**

A) 530 Kts

B) 383 Kts

C) 538 Kts

D) 388 Kts

**88- Calculate A320's Mach number at FL320 with TAS 450 Kts and deviation from ISA is -20°C?**

A) 0.72

B) 0.75

C) 0.83

D) 0.80

**89- What is the specific range formula versus specific amount of fuel?**

A)  $(TAS \times \text{Specific Amount of Fuel}) / (\text{Fuel Flow} \times \text{Number of Engines})$

B)  $TAS / (SFC \times \text{Number of Engines})$

C)  $GS / (\text{Fuel Flow} \times \text{Number of Engines})$

D)  $GS / (SFC \times \text{Total Drag} \times \text{Number of Engines})$

**90- What is the B727 specific range (NAM/1000 lbs fuel) at FL320 at 425 TAS and 2100 PPH/engine Fuel consumption?**

- A) 67.5
- B) 202
- C) 101
- D) 50.59

**91- Given:**

**TAS:** 350 Kts  
**P.A:** FL300  
**Wind:** 350° / 70 Kts  
**True course:** 300°  
**Fuel flow:** 3400 PPH/engine

**Twin jet engine airplane**

**Find the specific range (NAM/1000 lbs fuel).**

- A) 51.4
- B) 60
- C) 45
- D) 70

**92- What is the cabin rate of climb, if:**

**Field elevation:** 2000 ft  
**Enroute cruise altitude:** FL290  
**Airplane rate of climb:** 1500 ft/min  
**Pressurization begins at:** 1000 ft AGL  
**Cabin altitude at cruise:** 5500 ft

- A) 317 ft/min
- B) 145 ft/min
- C) 260 ft/min
- D) 130 ft/min

**93- What is the cabin rate of climb, if:**

**Field elevation:** 3500 ft  
**Enroute cruise altitude:** FL180  
**Airplane rate of climb:** 1350 ft/min  
**Pressurization begins at:** 1000 ft AGL  
**Cabin altitude at cruise:** 5500 ft

- A) 150 ft/min
- B) 135 ft/min
- C) 100 ft/min
- D) 80 ft/min



**94- What is the cabin altitude at cruise flight level, if:**

**Field elevation:** 500 ft  
**Enroute cruise altitude:** FL310  
**Airplane rate of climb:** 1780 ft/min  
**Begin pressurization:** 1000 ft AGL  
**Cabin rate of climb:** 209 ft/min

- A) 4000 ft
- B) 4970 ft
- C) 5250 ft
- D) 6000 ft

**95- What is the cabin altitude at cruise flight level, if:**

**Field elevation:** 2500 ft  
**Enroute cruise altitude:** FL350  
**Time to climb:** 20.8 min  
**Begin pressurization:** 500 ft AGL  
**Cabin rate of climb:** 144 ft/min

- A) 4000 ft
- B) 5000 ft
- C) 6000 ft
- D) 7000 ft

**96- What would be the airplane magnetic heading to return to planned track when:**

**Magnetic heading:** 213°  
**Miles flown:** 14 mile  
**Miles to destination:** 72 mile  
**Miles off course:** 2 miles to the left

- A) 233°
- B) 223°
- C) 203°
- D) 193°

**97- What would be the airplane magnetic heading to return to planned track when:**

**Magnetic heading:** 147°  
**Miles flown:** 114 mile  
**Miles to destination:** 177 mile  
**Miles off course:** 6 miles to the left

- A) 162°
- B) 142°
- C) 152°
- D) 132°

**98- What would be the airplane magnetic heading to return to planned track when:**

**Magnetic heading:** 211°  
**Miles flown:** 28 mile  
**Miles to destination:** 100 mile  
**Miles off course:** 3 miles to the right

- A) 219°
- B) 229°
- C) 193°
- D) 203°

**99- What is the correct formula to calculate "Range"?**

- A) Endurance  $\times$  Speed
- B) Time  $\times$  Fuel Flow
- C) Fuel  $\div$  Fuel Flow
- D) Speed  $\div$  Endurance

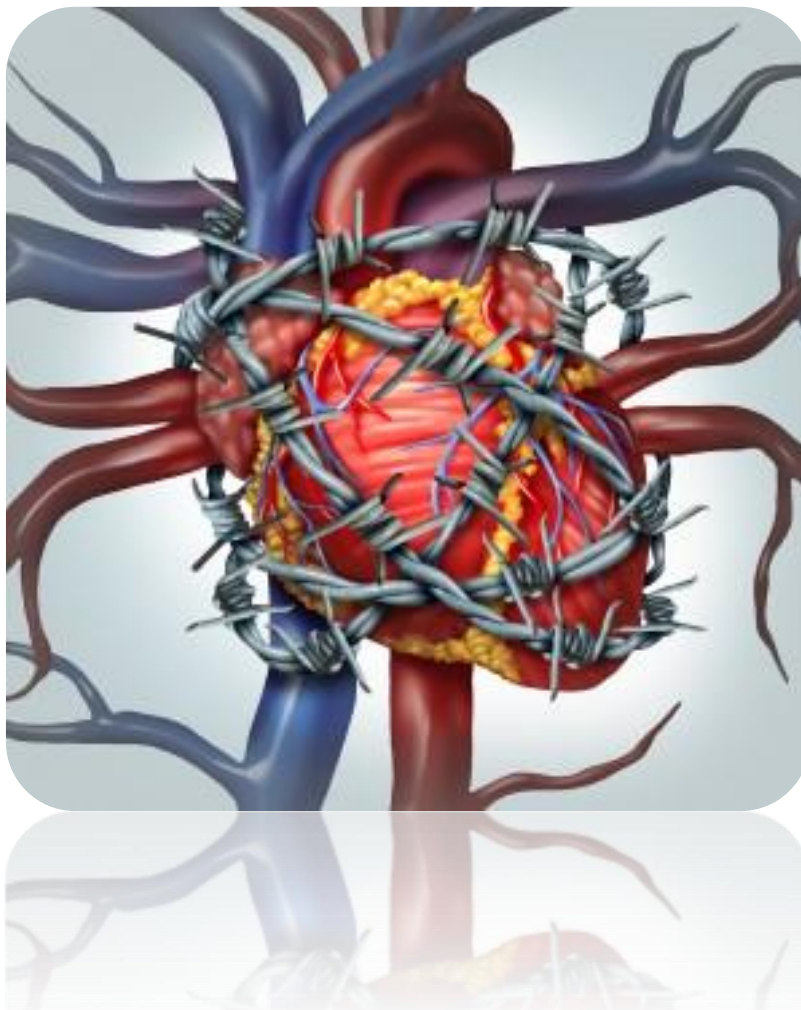
**100- What is the ISA temperature value at FL390?**

- A) -63°C
- B) -66°C
- C) -51°C
- D) -56.5°C

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	D	26	B	51	B	76	D
2	C	27	C	52	B	77	D
3	D	28	A	53	A	78	D
4	D	29	C	54	A	79	B
5	C	30	D	55	C	80	D
6	A	31	C	56	C	81	A
7	C	32	B	57	A	82	C
8	D	33	B	58	B	83	D
9	B	34	A	59	B	84	C
10	D	35	B	60	A	85	A
11	A	36	A	61	B	86	B
12	D	37	A	62	D	87	C
13	A	38	D	63	A	88	D
14	C	39	A	64	B	89	A
15	B	40	A	65	A	90	A
16	A	41	B	66	C	91	A
17	C	42	B	67	D	92	B
18	A	43	C	68	A	93	C
19	A	44	B	69	A	94	B
20	C	45	B	70	C	95	C
21	C	46	D	71	D	96	B
22	C	47	C	72	D	97	C
23	C	48	B	73	D	98	D
24	B	49	B	74	B	99	A
25	C	50	D	75	C	100	D



# HUMAN PERFORMANCE



**1- Acute stress quickly leads to:**

- A) A state of over activation beyond the control of willpower.
- B) The mobilization of resources required to cope with the stressor.
- C) A decrease in the amount of resources mobilized to face the situation.
- D) A permanent state of incapacitation.

**2- Which of the following statements concerning stress is correct?**

- A) Stress is a necessary way of demonstrating ones own work.
- B) Stress will be evaluated differently depending on whether it improves or reduces performance.
- C) Stress always creates a state of high tension which decreases cognitive and behavioral performance.
- D) Stress is evaluated as a positive mechanism only in connection with precise tasks of the kind encountered in aeronautics.

**3- What is the effect of stress on performance?**

- 1) It always reduces performance.
- 2) Optimum performance is obtained with optimum arousal.
- 3) Excessive stress weakens performance.
- 4) Insufficient stress weakens performance.

**The combination of correct statements is:**

- A) 1, 2, 3
- B) 1, 3, 4
- C) 1, 2, 4
- D) 2, 3, 4

**4- Which of the following may be affected by stress?**

- 1) Attention
- 2) Concentration
- 3) Memory
- 4) Judgment

- A) 1, 4
- B) 1, 2, 3, 4
- C) 1, 3
- D) 2, 3, 4

**5- What are easily observable indications of stress?**

- A) Lowering of the blood pressure.
- B) Faster, deep inhalation, stabbing pain around the heart.
- C) Rising of the blood pressure, pupils narrowing, stabbing pain around the heart.
- D) Perspiration, flushed skin, dilated pupils, fast breathing.

**6- In relation to the word stress as it affects human beings, which of the following responses is correct?**

- A) Reactive stressors relate purely to a pilot's physical condition.
- B) All forms of stress should be avoided.
- C) Stress is a term used to describe how a person reacts to demands placed upon him/her.
- D) Self-imposed obligations will not create stress.

**7- In case of in-flight stress, one should:**

- A) Only trust in oneself, being sure to know the own limits.
- B) Use all available resources of the crew.
- C) Demonstrate aggressiveness to stimulate the crew.
- D) Always carry out a breathing exercise.

**8- What are the effects of excessive stress?**

- A) It increases vigilance for a longer period than stress itself, but may focus attention inappropriately.
- B) It reduces vigilance and focuses attention.
- C) It activates resources stored in memory.
- D) It has very little immediate effect on vigilance and attention.

**9- Which statement about acute or chronic fatigue is incorrect?**

- A) Chronic fatigue may be caused by inadequate recuperation from periods of acute fatigue.
- B) Acute fatigue generally has psychological roots.
- C) Chronic fatigue may lead to a person being totally apathetic and indifferent to what goes on around them.
- D) Acute fatigue is felt after a period of significant exertion or emotional excitement.

**10- Pilot stress reactions:**

- A) Are related to an internationally recognized list of stressors where the top-ten items should be avoided by every means.
- B) Seem to be the same for most pilots.
- C) Differ from pilot to pilot, depending on how a person manages the particular stressors.
- D) Do not change with the environment or different situations but mainly with the characters themselves.

**11- Which of the following statements is true?**

- A) Stressors accumulate thus increasing the likelihood to exhaustion.
- B) Stressors are independent from each other.
- C) Stress should always be avoided under any circumstances.
- D) People are capable of living without stress.

**12- Stress management programs usually involve:**

- A) The use of psychoactive drugs.
- B) Only the removal of stress.
- C) Only the prevention of stress.
- D) The prevention and/or the removal of stress.

**13- The effects of sleep deprivation on performance:**

- 1) Increase with altitude
- 2) Decrease with altitude
- 3) Increase with higher workload
- 4) Decrease with higher workload

- A) 1, 3, 4
- B) 1, 2, 3
- C) 1, 3
- D) 2, 3, 4

**14- Stress is above all:**

- A) A phenomenon which is specific to modern man.
- B) A psychosomatic disease that one can learn to control.
- C) A response of man to his problems, which automatically leads to a reduction in his performance.
- D) The best adaptation phenomenon that man possesses for responding to the various situation which he may have to face.

**15- A person being exposed to extreme or prolonged stress factors can perceive:**

- A) Coping stress.
- B) Distress (stress reactions).
- C) Eustress.
- D) Stressors.

**16- Check the following statements:**

- 1) A stressor causes activation.
- 2) Activation stimulates a person to cope with it.

- A) 1 and 2 are both not correct.
- B) 1 is correct, 2 is not correct.
- C) 1 is not correct, 2 is correct.
- D) 1 and 2 are both correct.



**17- Which of the following physical stimuli may cause stress reactions?**

- 1) Noise
- 2) Interpersonal conflict
- 3) Temperature
- 4) Administrative problem
- 5) Hunger

**The combination of correct statements is:**

- A) 3, 4, 5
- B) 1, 3, 4
- C) 1, 3, 5
- D) 2, 3, 5

**18- Physical stress takes place when:**

- A) The perceived demand is greater than the perceived ability.
- B) The brain can no longer cope due to either quantitative or qualitative overload.
- C) Outside conditions put a strain upon the homeostatic mechanisms of the body.
- D) Overload of the neurons in the nervous system.

**19- Stress is a response which is prompted by the occurrence of various stressors. Of these, which can be called physiological?**

- A) Noise, temperature (low or high), humidity, sleep deprivation.
- B) Noise, hunger, conflicts, death.
- C) Heat, humidity, fatigue, administrative problems.
- D) Temperature, hunger, thirst, divorce.

**20- In order to overcome an overload of work during the flight, it is necessary to:**

- 1) Know how to use one's own reserve of resources in order to ease the burden of the crew.
- 2) Divide up tasks among the crew.
- 3) Abandon automatic mode and instead process as much information as possible consciously.
- 4) Drop certain tasks and stick to high-level priorities.

**The correct statements are:**

- A) 1, 2, 3
- B) 1, 3
- C) 1, 2, 4
- D) 3, 4

**21- The physiology of stress is now well known:**

- A) The only stress hormone is adrenaline.
- B) Stress promotes an increase in physical strength rather than promoting mental performance.
- C) Stress develops in 2 stages, sublimation of performance and then acceleration of heart rate and increase in vision.
- D) Stress slows down the production of sugar by the organism and thereby slows down the heart rate.

**22- Concerning the relation between performance and stress, which of the following statement is correct?**

- A) A student will learn faster and better under severe stress.
- B) A moderate level of stress may improve performance.
- C) Domestic stress will not affect the pilot's performance because he is able to leave this type of stress on the ground.
- D) A well trained pilot is able to eliminate any kind of stress completely when he is scheduled to fly.

**23- Vertigo can be brought on by:**

- A) Disease, accelerations, pressure changes and flashing lights.
- B) Accelerations and flashing lights.
- C) Disease only.
- D) Accelerations and pressure changes.

**24- The part of the eye that bends the light the most is:**

- A) Fluid in the eye.
- B) The iris.
- C) The lens.
- D) The cornea.

**25- Below are four statements about rods and cones. Which one is true?**

- A) Cones give the best visual acuity.
- B) Rods are sensitive to color and small details.
- C) Rods are concentrated around the outer edges of the fovea.
- D) Cones are effective in both daylight and darkness.

**26- If the pilot of an aircraft approaches a runway that is wider than normal, one of the possible consequences could be that:**

- A) He would choose a visual touchdown point too far into the runway.
- B) He would flare at a too low altitude.
- C) The aircraft would touch down after he expects to.
- D) He would touch down with excess speed.

**27- Which one of the following statements is correct regarding the use of cockpit lighting for night flight?**

- A) Reducing the light intensity to a minimum level will eliminate blind spots.
- B) Coloration shown on maps is least affected by the use of direct red lighting.
- C) Cockpit lighting may only be used during short intervals to protect the light adaption.
- D) The use of regular white light, such as flash light, will impair night adaption.

**28- The common illusion created by linear acceleration or deceleration is:**

- A) A banking sensation due to disturbances in the fluid circulation in the inner ear.
- B) A feeling that the aircraft has started to pitch up when the aircraft decelerates, causing an automatic attempt to push the nose down.
- C) A pitch up feeling when the aircraft accelerates.
- D) A combined pitch up and banking sensations.

**29- Among the physiological responses to stress are:**

- A) Dry mouth, anxiety and sweating.
- B) Increased heart rate, apprehension and sweating.
- C) Sweating, dry mouth and breathing difficulties.
- D) Anxiety, fatigue and fear.

**30- The optic system of the eye consists of:**

- A) Uvea, sclera, retina.
- B) Cornea, lens, vitreous humor.
- C) Retina, optic nerve, blind spot.
- D) Rods, cones, fovea centralize.

**31- How long does it take to develop full night vision adaption?**

- A) 30 seconds
- B) 10 minutes
- C) 30 minutes
- D) 1 hour

**32- A sudden change from climb to straight and level flight can give you an illusion of:**

- A) Tumbling backwards.
- B) A nose up attitude.
- C) Turning to the left.
- D) A nose low attitude.

**33- Disorientation is more likely to occur when the pilot is:**

- 1) Flying in IMC
- 2) Frequently changing between inside and outside references
- 3) Flying from IMC into VMC
- 4) Approaching over still water at night

- A) 1, 2, 4
- B) 1, 2, 3
- C) 2, 3, 4
- D) 1, 3, 4

**34- While flying VFR "wings level" on top of clouds at 10000 ft, your artificial horizon indicates a 20° bank.**

- A) No attitude correction is needed since you know that your vision is more reliable than the instrument with regards to spatial orientation.
- B) You pull the circuit breaker to the artificial horizon knowing that perceptual illusions called "leans" might severely impair your control of the aircraft.
- C) You take the proper action by "leaning" toward the lower end of the artificial horizon, thus compensating for the perceptual illusion.
- D) You trust the instrument and level off according to the instrument read-out.

**35- When the weather is foggy, on approach, a pilot may get a feeling of:**

- A) His/her visual field shrinking (e.g. tunnel vision).
- B) The airfield being further away than actually is.
- C) His/her eyes focusing on infinity.
- D) Aircraft altitude being lower than it actually is.

**36- What factors can lead to a deterioration in vision?**

- 1) Hypoxia.
- 2) Smoking.
- 3) Poor diet, lacking vitamin A.
- 4) Exposure to bright lights.

**Which of the following lists all the correct statements?**

- A) 2, 3
- B) 1, 3
- C) 1, 2, 3, 4
- D) 1,3,4

**37- What can cause spatial disorientation?**

- A) Reference to well-defined external visual references, such as the horizon.
- B) Damage to the receptor cells in the eyes.
- C) False perception of orientation of the aircraft with respect to spatial references.
- D) Flying in clear daylight conditions.

**38- To prevent empty field myopia at higher altitudes:**

- A) It is recommended that a pilot focuses on an object known to be approximately one metre away.
- B) It is recommended that a pilot uses short sharp scans, or periodically focuses on a distant object such as a wingtip or cloud edge.
- C) One should concentrate only on instruments.
- D) One should book an appointment with an ophthalmologist as soon as possible.

**39- The human vestibular system performs spatial orientation by:**

- A) Measuring linear and radial acceleration within the inner ear.
- B) Comparing the body's position to gravity over the tympanic membrane.
- C) Comparing linear and radial speeds of the body to the attitude of the aircraft.
- D) Measuring fluid movements in the tympanic membrane of the middle ear.

**40- The fovea is:**

- A) The area of best day vision and best night vision.
- B) The area of the blind spot (optic disc).
- C) Where the optic nerves come together with the pupil.
- D) The area of best day vision and of reduced value at night.

**41- One of the major protective, measures against illusions is:**

- A) Wearing of good quality sun glasses.
- B) Regular eye tests.
- C) Comprehensive briefing and debriefing.
- D) Wearing polarized sun glasses.

**42- On approach, by day in snowy conditions, without reference to glide slope information:**

- A) There is a risk of you underestimating your speed.
- B) Judgment of height is extremely difficult.
- C) Estimation of height and distance is not a problem for a well-trained pilot.
- D) There is a risk of you entering a spin.

**43- Illusions that pilots experience in conditions of fog or mist are that:**

- A) Objects appear closer than they really are and lead to steep approaches.
- B) Objects appear closer than they really are and lead to shallow approaches.
- C) Objects appear further away than they really are and lead to shallow approaches.
- D) Objects appear further away than they really are and can lead to steep approaches.

**44- If warned of an imminent thunderstorm:**

- A) No specific action is advised with regards to the adjustment of the brightness of cockpit lights.
- B) Cockpit lights should be dimmed.
- C) Cockpit lights should be turned off.
- D) Cockpit lights should be turned up.

**45- During poor weather conditions a pilot should fly with reference to instruments because:**

- A) His attention will be distracted automatically under these conditions.
- B) Perception of distance and speed is difficult in an environment of low contrast.
- C) The danger of a "greying out" will make it impossible to determine the height above the terrain.
- D) Pressure differences can cause the altimeter to give wrong information.

**46- An illusion of obtaining greater height above ground can occur when:**

- A) Accelerating at low altitude.
- B) Suddenly flying over small trees after prolonged flying over tall trees.
- C) Decelerating at low altitude.
- D) Flying over high terrain in low visibility.

**47- A forward acceleration, without visual reference, can cause:**

- A) An illusion of a turn in the opposite direction.
- B) An illusion of backward tilt because it results in backward displacement of the otolithic membranes.
- C) An illusion of descent, because it results in backward displacement of the otolithic membranes.
- D) Alternobar illusion.

**48- The retina of the eye:**

- A) Only regulates the light that falls into the eye.
- B) Filters the UV light.
- C) Is the muscle changing the size of the crystalline lens.
- D) Is the light-sensitive inner lining of the eye containing the photoreceptors essential for vision.

**49- The vestibular system:**

- A) Consists of the outer, middle and inner ear.
- B) Is the body's motion and gravity sensing organs.
- C) Should always be trusted to judge an aeroplanes attitude.
- D) Is the body's sound, motion, and gravity sensing organ.

**50- Myopia is commonly called:**

- A) Farsightedness.
- B) Nearsightedness.
- C) Nutritional deficiency.
- D) Color blindness.

**51- Why are the eyes more sensitive (better night vision), after 30 - 45 minutes in a dark environment?**

- A) The pupil is expanded and the Iodopsin level is increased, improving night sensitivity.
- B) Light bleaches out visual purple (rhodopsine).
- C) For night vision to take place, visual purple must build up in the rods.
- D) Light bleaches out visual purple (rhodopsine) for night vision to take place, visual purple must build up in the rods.

**52- The kinesthetic sense does not orient an individual to his surroundings, but informs him of:**

- A) The relative motion and relative position of his body parts.
- B) A touch on the skin.
- C) The condition in the body itself.
- D) His surroundings.

**53- When focusing on near objects:**

- A) The cornea gets smaller.
- B) The shape of lens gets more spherical.
- C) The pupil gets larger.
- D) The shape of lens gets flatter.

**54- Linear acceleration when flying straight and level in IMC may give the illusion of:**

- A) Descending
- B) Yawing
- C) Spinning
- D) Climbing

**55- The inner ears able to perceive:**

**1) Angular acceleration**

**2) Linear acceleration**

**3) Noise**

- A) 1 and 2 are correct, 3 is false.
- B) 2 is correct, 1 and 3 are both false.
- C) 1 and 2 and 3 are correct.
- D) 2 and 3 are correct, 1 is false.

**56- Which of the following systems are involved in the appearance of motion sickness?**

- 1) Hearing.
- 2) The vestibular system.
- 3) Vision.
- 4) The proprioceptive sense (seat-of-the-pants sense).
- 5) The gastrointestinal system.

- A) 1, 3, 4, 5
- B) 1, 2, 5
- C) 2, 3, 4
- D) 1, 2, 3

**57- With regard to illusions due to perceptive conflicts, it may be said that they:**

- A) Originate from a conflict between instrument readings and external visual perceptions.
- B) Are mainly due to a sensory conflict concerning perception of the vertical and the horizontal between the vestibular and the visual system.
- C) Are caused by the absence of internal visual cues exclusively.
- D) Are caused by a conflictual disagreement concerning attitudinal perception between the various members of a crew.

**58- The ability of the human eye to read alphanumeric information (piercing vision):**

- A) Is limited to daytime using the rod cells.
- B) Is limited to the foveal area of the retina.
- C) Is almost equally shared by the entire retina.
- D) Is governed by peripheral vision over an area of approximately 20° of angle.

**59- Excessive exposure to noise damages:**

- A) The eardrum.
- B) The semicircular canals.
- C) The ossicles.
- D) The sensitive membrane in the cochlea.

**60- The phenomenon of accommodation, which enables a clear image to be obtained, is accomplished by which of the following?**

- A) The retina.
- B) The rods.
- C) The cones.
- D) The crystalline lens.



**61- The so-called Coriolis effect (a conflict in information processing in the brain) in spatial disorientation occurs:**

- A) On stimulating the saccule and the utricle of the inner ear.
- B) On stimulating the cochlea intensely.
- C) When no semicircular canal is stimulated.
- D) On stimulating several semicircular canals simultaneously.

**62- The semicircular canals form part of the:**

- A) Middle ear.
- B) Eardrum.
- C) External ear.
- D) Inner ear.

**63- Hypoxia affects visual performance. A pilot may:**

- A) Get color blindness accompanied by severe headache.
- B) Get blurred and/or tunnel vision.
- C) Have a reduction of 25% in visual acuity at 8000 ft.
- D) Be unable to maintain piercing vision below 5000 ft.

**64- Pilot's vertigo is:**

- A) The impression of climbing when banking.
- B) A sensation of rotation during flight due to multiple irritation of several semicircular canals at the same time.
- C) The impression of flying straight and level while the aircraft is spinning.
- D) A sudden loss of visual perception during flight due to multiple irritation of the utricle and saccule at the same time.

**65- Starting a coordinated level turn can make the pilot believe to:**

- A) Descent.
- B) Turn into the opposite direction.
- C) Increase the rate of turn into the same direction.
- D) Climb.

**66- Vertigo is the result of:**

- A) Oculogyral illusion.
- B) Autokinetic illusion.
- C) Elevator illusion.
- D) Coriolis effect.

**67- How can a pilot overcome a vertigo encountered during a real or simulated instrument flight?**

- 1) Establish and maintain an effective instrument crosscheck.**
- 2) Always believe the instruments, never trust your sense of feeling.**
- 3) Ignore arising illusions.**
- 4) Move the head sideward and back and forth to shake off illusions.**

- A) Only 4 is correct.
- B) 1, 2, 3 and 4 are correct.
- C) 1, 2 and 3 are correct.
- D) 1 and 2 are correct, 3 and 4 are false.

**68- Which sensations does a pilot get, when he is rolling out of a coordinated level turn?**

- A) Flying straight and level.
- B) Climbing.
- C) Turning into the original direction.
- D) Descending and turning into the opposite direction.

**69- Being pressed into the seat can cause illusions and/or false reactions in a pilot lacking visual contact to the ground, because this sensation:**

- A) Will not stimulate the seat-of-the-pants sense.
- B) Corresponds with the sensation a pilot gets when starting a climb or performing a level turn.
- C) Corresponds with the sensation a pilots gets, when flying straight and level or starting a descent.
- D) Makes the pilot to pull up the nose to compensate for level flight.

**70- The probability to suffer from airsickness is higher when:**

- A) The passenger has taken anti-motion sickness remedies prior flight.
- B) The student is motivated and adapted to the specific stimuli of flying.
- C) The student has good outside visual reference.
- D) The passenger or student is afraid and/or demotivated to fly.

**71- What could the crew do in order to avoid airsickness with passengers?**

- 1) Avoid turbulences.**
- 2) Avoid flying through rough weather.**
- 3) Seat passenger close to the center of gravity.**
- 4) Give pertinent information.**

- A) 1, 2, 3 and 4 are correct.
- B) 1, 2 and 3 are correct, 4 is false.
- C) 3 and 4 are correct, 1 and 2 are false.
- D) Only 4 is correct.

**72- Which of the following components belong to the middle ear?**

- A) Ossicles
- B) Otoliths
- C) Endolymph
- D) Semicircular canals

**73- A pilot approaching a runway which is narrower than normal may feel he is at a greater height than he actually is, to compensate he may fly a:**

- A) Higher than normal approach with the tendency to overshoot.
- B) Flatter than normal approach with the tendency to undershoot.
- C) Compensatory glide path and land long.
- D) Compensatory glide path and stall out.

**74- Adaptation is:**

- A) The reflection of the light at the cornea.
- B) The adjustment of the crystalline lens to focus light on the retina.
- C) The adjustment of the eyes to high or low levels of illumination.
- D) The change of the diameter of the pupil.

**75- Illuminated anti-collision lights in IMC:**

- A) Can cause color illusions.
- B) Will improve the pilot's depth perception.
- C) Will affect the pilot's binocular vision.
- D) Can cause disorientation.

**76- The semicircular canals of the inner ear monitor:**

- A) Relative speed and linear accelerations.
- B) Movements with constant speeds.
- C) Angular accelerations.
- D) Gravity.

**77- Among the factors which affect night vision are:**

- A) Age, cabin altitudes above 8000 ft, smoking and alcohol.
- B) Age, cabin altitudes above 8000 ft, smoking, alcohol and lack of vitamin C.
- C) Age, cabin altitudes above 8000 ft, smoking, alcohol and lack of vitamin D.
- D) Age, cabin altitudes above 8000 ft, smoking, alcohol and lack of vitamin B.

**78- If coping with a stress situation is impossible, one will remain in the state of:**

- A) Eustress
- B) Distress
- C) Adaptation
- D) Hypoxia

**79- Stress is a reaction in order to adapt to a specific situation, this reaction:**

- A) Can only be controlled by medical treatment.
- B) Is purely physiological and automatic.
- C) May include various psychological and physiological elements which one can learn to manage.
- D) Is always linked to excessive fear.

**80- What triggers stress in humans?**

- A) Always the awareness of an emotion and a physiological activation (e.g. rapid heart rate).
- B) The subjective interpretation an individual gives to a situation experienced.
- C) Objective stimulation from the environment regards of subjective perceptions.
- D) Only strong excitations of the sensory organs: a flash of light, noise, the smell of smoke.

**81- Which of the following statement(s) is/are correct?**

- 1) The retina has rods on its peripheral zone and cones on its central zone.
- 2) The retina has cones and the crystalline lens has rods.
- 3) The rods allow for night vision.
- 4) The cones are located on the peripheral zone of the retina.

- A) 2, 3
- B) 1
- C) 1, 3
- D) 4

**82- With vertigo the instrument-panel seems to tumble. This is due to:**

- A) Conflicting information between the semicircular canals and the tympanic membrane.
- B) Tuned resonance caused by vibration.
- C) The Coriolis effect in the semicircular canals.
- D) Oxygen deficiency.

**83- Positive linear acceleration when flying in IMC may cause a false sensation of:**

- A) Vertigo.
- B) Pitching down.
- C) Apparent sideward movement of objects in the field of vision.
- D) Pitching up.

**84- Without visual reference, what illusion could the pilot get, when he is stopping the rotation to recover from a spin? He will get the illusion of:**

- A) Spinning into the same direction.
- B) Spinning into the opposite direction.
- C) Straight and level flight.
- D) Climbing and turning into the original direction of the spin.

**85- What do you do, when you are affected by pilot's vertigo?**

- 1) Establish and maintain an effective instrument cross check.**
  - 2) Believe the instruments.**
  - 3) Ignore illusions.**
  - 4) Minimize head movements.**
- A) 1, 2, 3 and 4 are correct.  
B) 1, 2 and 3 are correct, 4 is false.  
C) 1 and 2 are correct, 3 and 4 are false.  
D) Only 4 is false.

**86- Visual acuity during flight at high altitudes can be affected by:**

- 1) Anemia**
  - 2) Smoking in the cockpit**
  - 3) Carbon monoxide poisoning**
  - 4) Hypoxia**
- A) 1,3 and 4 are correct.  
B) 1,2 and 3 are correct.  
C) 2,3 and 4 are correct.  
D) 1, 2, 3 and 4 are correct.

**87- Orientation in flight is accomplished by:**

- 1) Eyes**
  - 2) Utricles and sacculus**
  - 3) Semicircular canals**
  - 4) Seat-of-the-pants sense**
- A) 1, 2, 3 and 4 are correct.  
B) Only 1 and 4 are correct.  
C) 2, 3 and 4 are correct, 1 is false.  
D) 2, 3 and 4 are false, only 1 is correct.

**88- How can a pilot prevent spatial disorientation in flight?**

- A) Establish and maintain a good instrument cross check.
- B) Always try to catch outside visual cues.
- C) Rely on good situational awareness believing your natural senses.
- D) Rely on the kinesthetic sense.

**89- When flying through a thunderstorm with lightning you can protect yourself from flash blindness by:**

- 1) Turning up the intensity of cockpit lights
- 2) Looking inside the cockpit
- 3) Wearing sunglasses
- 4) Using face blinds or face curtains when installed

- A) 3 and 4 are correct, 1 and 2 are false.
- B) 1, 2 and 3 are correct, 4 is false.
- C) 1 and 2 are correct, 3 and 4 are false.
- D) 1, 2, 3 and 4 are correct.

**90- Among the factors which affect acuity are:**

- A) Smoking, color blindness and angular distance from the fovea.
- B) Hypoxia, age and angular distance from the fovea.
- C) Color blindness, alcohol and angular distance from the fovea.
- D) Color blindness, visibility and angular distance from the fovea.

**91- Scanning at night should be performed by:**

- A) Avoiding food containing vitamin A.
- B) Scanning with one eye open.
- C) Concentrated fixation on an object (image must fall on the fovea centralize).
- D) Slight eye movements to the side of the object.

**92- Pilot's vertigo:**

- A) Is the sensation to keep a rotation after completing a turn.
- B) Is the condition of dizziness and/or tumbling sensation caused by contradictory impulses to the central nervous system (CNS).
- C) Is the sensation of climbing caused by a strong linear acceleration.
- D) Announces the beginning of airsickness.

**93- Which part of the inner ear is responsible for the perception of noise?**

- A) The Eustachian tube.
- B) The semicircular canals.
- C) The sacculus and utricle.
- D) The cochlea.

**94- The so-called seat-of-the-pants sense is:**

- A) Not suitable for spatial orientation when outside visual references are lost.
- B) Only to be used by experienced pilots with the permission to fly in IMC.
- C) Useful for instrument and contact flight.
- D) The only sense a pilot can rely on, when flying in IMC.

**95- A shining light is fading out (e.g. when flying into fog, dust or haze), what kind of sensation could the pilot get?**

- A) The source of light moves away from him.
- B) The light source will make the pilot believe, that he is climbing.
- C) The source of light stands still.
- D) The source of light is approaching him with increasing speed.

**96- In order to get color vision, it is necessary:**

- A) To allow the eye a period of time to get used to the light.
- B) At night to look at the point to be observed at an angle of 15°.
- C) For there to be considerable amount of light (ambient luminosity).
- D) To avoid white light.

**97- Which part of the vestibular apparatus is affected by changes in gravity and linear acceleration?**

- A) The Eustachian tube.
- B) The sacculus and utriculus.
- C) The semicircular canals.
- D) The cochlea.

**98- Choose the correct combination:**

- 1) In case of conflicting information you can always trust your seat-of-the-pants sense.
- 2) In case of conflicting information between the sensory organs and the instruments you must believe the instruments

- A) 1 is correct, 2 is false.
- B) 1 is false, 2 is correct.
- C) 1 and 2 are correct.
- D) 1 and 2 are false.

**99- Disorientation is more likely to occur when the pilot is:**

- 1) Flying in IMC
- 2) Frequently changing between inside and outside references
- 3) Flying from IMC into VMC
- 4) Having a cold

- A) 2, 3, 4
- B) 1, 2, 4
- C) 1, 3, 4
- D) 1, 2, 3

**100- What is understood by airsickness?**

- A) An illness caused by evaporation of gases in the blood.
- B) A sensory conflict within the vestibular system accompanied by nausea, vomiting and fear.
- C) An illness caused by reduced air pressure.
- D) An illness caused by an infection of the middle ear.

**101- Which of the following statements is correct?**

- A) Hearing is the sense which collects most information in man.
- B) 70% of information processed by man enters via the visual channel.
- C) 40% of information processed by man enters via the visual channel.
- D) The kinesthetic channel provides the most important information for flying.

**102- What should a pilot do to keep his night vision (scotopic vision)?**

- A) Avoid food containing high amounts of vitamin A.
- B) Not smoke before start and during flight and avoid flash blindness.
- C) Wait at least 60 minutes to night adapt before he takes off.
- D) Select meals with high contents of vitamin B and C.

**103- The group of tiny bones (the hammer, anvil and stirrup) are situated in:**

- A) The inner ear.
- B) The middle ear.
- C) The outer ear.
- D) The maxillary sinus.

**104- All pilots are going to suffer some hearing deterioration as part of the process of growing old.  
The effects of ageing:**

- A) Are to cut out the high tones first.
- B) Are to cut out all tones equally.
- C) Are to cut out the low tones first.
- D) Will not affect a pilot's hearing if he is wearing earplugs all the time.

**105- What is the name for the sensation of rotation occurring during flight and which is caused by multiple irritation of several semicircular canals at the same time?**

- A) Sudden incapacitation.
- B) Pilot's vertigo.
- C) Seat-of-the-pants illusions.
- D) Graveyard spin.



**106- The area in front of a runway threshold descends towards the threshold. Possible danger is:**

- A) Approach is lower than normal and may result in a short landing.
- B) To drop far below the glide path.
- C) Approach is higher than normal and may result in a long landing.
- D) To misjudge the length of the runway.

**107- Dizziness and tumbling sensations, when making head movements in a tight turn, are symptoms of:**

- A) Pilot's vertigo.
- B) Flicker vertigo.
- C) Nystagmus.
- D) Oculogravic illusion.

**108- The leans can be caused by:**

- A) Going into a turn too quickly.
- B) Bunting the aircraft.
- C) Prolonging a turn.
- D) A carrier takeoff.

**109- Why should a pilot turn his attention to the instruments when approaching on a snowed up, foggy or cloudy winter day? Because:**

- A) Perception of distance and speed is difficult in an environment of low contrast.
- B) His attention will be distracted automatically under these conditions.
- C) The danger of a greying out will make it impossible to determine the height above the terrain.
- D) Pressure differences can cause the altimeter to give wrong information.

**110- Which flight maneuver will most likely induce vertigo? Turning the head while:**

- A) Banking.
- B) Descending.
- C) Climbing.
- D) Flying straight and level.

**111- During a night flight at 10000 feet you notice that your acuity of vision has decreased, in this case you can increase your acuity by:**

- A) Dim the instrument lights.
- B) Closing one eye.
- C) Scanning sectors of the field of vision.
- D) Breathing extra oxygen through the oxygen mask.

**112- Flying a coordinated level turn will:**

- A) Make the seat-of-the-pants sense feel a decreased pressure along the body's vertical axis.
- B) First give the impression of climb, then the impression of descent.
- C) Make the blood being pooled in the head.
- D) Make the body's pressure receptors feel an increased pressure along the body's vertical axis.

**113- Which of the following illusions are brought about by conflicts between the visual system and the vestibular system?**

- 1) Illusions concerning the attitude of the aircraft.
- 2) Autokinetic illusion (fixed point viewed as moving).
- 3) Illusions when estimating the size and distance of objects.
- 4) Illusions of rotation.

- A) 1, 4
- B) 2, 3, 4
- C) 2
- D) 3, 4

**114- To optimize one's night vision performance, it is necessary:**

- 1) To spend some time getting adapted to low levels of illumination
- 2) To increase the instrument panel lighting by reducing the cockpit lighting
- 3) Not to focus on the point to be observed
- 4) To avoid blinding

- A) 2
- B) 2, 3, 4
- C) 1, 2, 4
- D) 1, 3, 4

**115- What is the remedy for decompression sickness, or "bends"?**

- A) Decrease the pressure on the body.
- B) Increase the amount of oxygen.
- C) Decrease the rate and depth of breathing.
- D) Increase the pressure on the body.

**116- A person experiences increased breathing rate, which of the following is the most likely explanation?**

- A) A low level of waste carbon dioxide in the lungs.
- B) A high level of waste carbon dioxide in the lungs.
- C) A high level of water vapor in the lungs.
- D) A low level of water vapor in the lungs.

**117- Which one of the following signs distinguishes hypoxia from hyperventilation?**

- A) Cyanosis
- B) Sensory loss
- C) Dizziness
- D) Headache

**118- An altitude where the pressure is half of that at sea level a person will have to:**

- A) Breathe pure oxygen.
- B) Breathe pressurized oxygen.
- C) Use supplementary oxygen.
- D) Breathe slow to avoid hypoxia.

**119- The time of useful consciousness without oxygen at an altitude of 25000 ft is:**

- A) 2 - 3 minutes.
- B) 30 minutes.
- C) 45 - 75 seconds.
- D) 12 seconds.

**120- What is the correct remedial action if symptoms of hyperventilation occur at an altitude where hypoxia is not a consideration?**

- A) Increase rate and depth of breathing.
- B) Increase rate and decrease depth of breathing.
- C) Decrease rate and increase depth of breathing.
- D) Decrease rate and depth of breathing.

**121- Which gas most readily combines with hemoglobin?**

- A) Oxygen
- B) Nitrogen
- C) Carbon monoxide
- D) Carbon dioxide

**122- When hyperventilating you should:**

- A) Descend.
- B) Control your rate and depth of breathing.
- C) Apply the Valsalva method.
- D) Use the oxygen mask.

**123- Environmental sources of stress in the cockpit could be:**

- 1) Noise and vibration**
- 2) Acceleration**
- 3) Radiation**
- 4) Extreme temperatures**

**Which of the following lists all the correct answers?**

- A) 1, 4
- B) 1, 2, 3
- C) 2, 3
- D) 1, 2, 4

**124- What is the effect of increasing altitude on the total pressure and partial pressure of the main gases in the atmosphere?**

- A) The total pressure will decrease and the partial pressures will remain constant.
- B) The total pressure remains constant and the partial pressures will decrease.
- C) The total pressure will decrease and the partial pressures will increase.
- D) The total pressure will decrease and the partial pressures will decrease.

**125- The primary symptom of decompression sickness / illness is:**

- A) Red colored cheeks and lips.
- B) The chokes.
- C) The bends.
- D) Neurological damages to the CNS.

**126- The circulation of blood:**

- 1) Transports oxygen to the body cells**
- 2) Withdraws waste products from the cells**
- 3) Conveys nutrients to the cells**

**Which of the following lists all the correct answers?**

- A) 1, 3
- B) 2, 3
- C) 1, 2, 3
- D) 1, 2

**127- The ability to withstand G forces is reduced by a number of factors, among these factors are:**

- A) Hypoxia, fatigue and vibrations.
- B) Low blood sugar, obesity and hypoxia.
- C) Smoking, obesity and vibrations.
- D) Physical fitness, heat and hypotension.

**128- Out of the list of possible measures to counteract hyperventilation, the most effective measure is:**

- A) Breathe into a plastic or paper bag.
- B) Hold breath.
- C) Avoid strenuous flight maneuvers.
- D) Speak soothingly and get the person to breathe slowly.

**129- Night vision is significantly reduced (e.g. a loss of more than 25%) at 15000 ft in which stage of hypoxia?**

- A) Clinical manifestation phase.
- B) Indifferent.
- C) Compensatory.
- D) Anemic phase.

**130- List the constituent parts of the blood and state their function.**

- A) Red cells carry oxygen, white cells are involved in immunity and platelets coagulate blood.
- B) Red cells carry oxygen, white cells coagulate blood and platelets are involved in immunity.
- C) Red cells coagulate blood, white cells are involved in immunity, and platelets carry oxygen.
- D) Red cells are involved in immunity, white cells carry oxygen and platelets coagulate blood.

**131- Hypoxic hypoxia may be caused by:**

- 1) Climbing to a high altitude without using additional oxygen.
- 2) Malfunction in the oxygen supply system.
- 3) Loss of cabin pressurization at high altitude.

**Which of the following lists all the correct answers?**

- A) 1, 2, 3
- B) 1, 3
- C) 2, 3
- D) 1, 2

**132- How will hyperventilation cause the acid-base balance of the blood to be affected?**

- A) Hyperventilation causes too much oxygen to be removed from the blood causing the level of carbonic acid to fall.
- B) Hyperventilation causes too much CO<sub>2</sub> to be removed from the blood causing the level of carbonic acid to rise.
- C) Hyperventilation causes too much CO<sub>2</sub> to be removed from the blood causing the level of carbonic acid to fall.
- D) Hyperventilation causes too much oxygen to be removed from the blood causing the level of carbonic acid to rise.

**133- How does an increase in altitude affect the hemoglobin oxygen saturation?**

- A) As altitude increases, the hemoglobin oxygen saturation will remain constant at 57% from 24000ft.
- B) As altitude increases, the hemoglobin oxygen saturation increases.
- C) As altitude increases, the hemoglobin oxygen saturation decreases.
- D) As altitude increases, the hemoglobin oxygen saturation will remain constant at 97.5% from 10000 ft.

**134- How are oxygen and carbon dioxide transported throughout the body?**

- A) Diffusion
- B) Oxidization
- C) Circulation
- D) Metabolism

**135- Flights immediately after scuba diving, using compressed gas, to depths greater than 10 meters:**

- A) Can be performed without any danger.
- B) Are to be avoided because of the possibility of decompression sickness.
- C) Are allowed if you fly no higher than 38000 ft.
- D) Should be avoided because hypoxia may develop.

**136- During hyperventilation:**

- A) Acidity level of the blood is reduced.
- B) Alkalinity level of the blood is reduced.
- C) Oxygen concentration of the blood is below normal.
- D) Nitrogen concentration of the blood is above normal.

**137- Define hypoxia and explain why living tissues require oxygen.**

- A) Hypoxia is the lack of sufficient oxygen to meet the needs of the body tissues which require oxygen for oxidation of carbohydrates from food to produce energy.
- B) Hypoxia is the lack of sufficient oxygen to meet the needs of the body tissues which require oxygen to coagulate the blood in case of infection.
- C) Hypoxia is the lack of sufficient oxygen to meet the needs of the body tissues which require oxygen to fight infection or invading bacteria.
- D) Hypoxia is the lack of sufficient oxygen to meet the needs of the body tissues which require carbon dioxide for metabolism.

**138- Decompression sickness / illness is characterized by:**

- A) Negligible symptoms that need no attention or therapy.
- B) Muscle pains in small muscles such as the finger and toe muscles, which are also known as the "chokes".
- C) Over-saturated nitrogen gas molecules in the body tissues.
- D) Headache and dizziness caused by oxygen bubbles due to the low partial pressure of oxygen.

**139- Carbon monoxide is particularly dangerous because:**

- 1) Its initial symptoms are not alarming.
- 2) It is colorless.
- 3) It is odorless.
- 4) It is highly toxic.
- 5) Its effects are cumulative.

- A) 1, 2, 3, 4, 5
- B) 1, 2, 3, 5
- C) 2, 3, 4
- D) 2, 3, 4, 5

**140- Breathing 100% oxygen at 40000 ft is equivalent to breathing ambient air at:**

- A) 14000 ft
- B) 8000 ft
- C) 10000 ft
- D) 18000 ft

**141- At which altitude is it necessary to breathe 100% oxygen under pressure after a rapid decompression?**

- A) Approximately 50000 ft.
- B) Approximately 14000 ft.
- C) Approximately 20000 ft.
- D) Approximately 40000 ft.

**142- An increase in the amount of carbon dioxide in the blood leads to:**

- A) An increase of acidity in the blood.
- B) An increased respiratory rate.
- C) A reduction of red blood cells.
- D) An improving resistance to hypoxia.

**143- The purpose of cabin pressurization system is:**

- A) To reduce gastrointestinal, trapped gas, middle ear and sinus problems.
- B) To allow the crew and passengers to move about freely in a comfortable environment, unencumbered by oxygen masks or other life support equipment.
- C) To prevent hypoxia.
- D) All answers are correct.

**144- How does CO affect O<sub>2</sub> carriage in the blood?**

- A) By killing red blood cells.
- B) By killing white blood cells.
- C) By binding to the hemoglobin before O<sub>2</sub> does.
- D) By splitting the O<sub>2</sub> into CO<sub>2</sub>.

**145- How long TUC can be expected after a loss of cabin pressure at 37000 feet?**

- A) 18 sec.
- B) 15 sec.
- C) 10 sec.
- D) 5 sec.

**146- What may predispose a person for a heart attack?**

- A) Smoking, high cholesterol level, diet or high blood pressure.
- B) Smoking, asthma, alcohol use and high blood pressure.
- C) Age, stress or low blood pressure.
- D) Family history of asthma, smoking, over exertion and weight.

**147- Which statement about partial pressure is correct?**

- A) Partial pressure decreases approximately 2% per 1000 feet.
- B) One can calculate the partial pressure of a gas in a mixture by using Boyle's law.
- C) The sum of the partial pressure of individual gases, in a mixture of gases, is equal to the total pressure.
- D) Partial pressure of oxygen in air is always approximately 20.

**148- Carbon monoxide is always present in the exhaust gases of engines, if a pilot is exposed to carbon monoxide, which of the following responses is correct?**

- A) Carbon monoxide can only affect pilots if they are exposed to them for a long period of time.
- B) When exposed to carbon monoxide for a long period of time, the body will adapt to it and no adverse physical effects are experienced.
- C) Carbon monoxide is easily recognized by odour and taste.
- D) A short exposure to relatively high concentrations of carbon monoxide can seriously affect a pilot's ability to operate an aircraft.

**149- The rate and depth of breathing is primarily controlled by:**

- A) The amount of nitrogen in the blood.
- B) The amount of carbon dioxide in the blood.
- C) The total atmospheric pressure.
- D) The amount of carbon monoxide in the blood.



**150- Which of the following symptoms can indicate the beginning of hypoxia?**

- 1) Blue lips and finger nails.**
- 2) Euphoria.**
- 3) Flatulence.**
- 4) Unconsciousness.**

- A) 1, 2, 4
- B) 1, 2, 3
- C) 2, 3, 4
- D) 1, 3, 4

**151- The severity of hypoxia depends on the:**

- 1) Rate of decompression**
- 2) Physical fitness**
- 3) Flight level**
- 4) Individual tolerance**

- A) 2, 3 and 4 are correct, 1 is false.
- B) 1 and 3 are correct, 2 and 4 are false.
- C) 1, 2, 3 and 4 are correct.
- D) 1, 2 and 3 are correct, 4 is false.

**152- The primary factor to control the rate and depth of breathing is the:**

- A) Partial pressure of nitrogen.
- B) Partial pressure of oxygen in the blood.
- C) Total air pressure in the blood.
- D) Pressure of carbon dioxide in the blood.

**153- The physiological effects of accelerations to the human body depend on:**

- 1) The duration of the G force**
- 2) The onset rate of the G force**
- 3) The magnitude of the G force**
- 4) The direction of the G force**

- A) 2, 3 and 4 are correct, 1 is false.
- B) 1, 2 and 4 are correct, 3 is false.
- C) 1, 2, 3 and 4 are correct.
- D) 1, 2, 3 are correct, 4 is false.

**154- The part of blood without cell is called:**

- A) Serum
- B) Water
- C) Plasma
- D) Lymph

**155- The circulatory system, among other things, allows for:**

- 1) Transportation of oxygen and carbon dioxide**
- 2) Transportation of information by chemical substances**

- A) Both are false.  
B) 1 and 2 are correct.  
C) 1 is correct and 2 is false.  
D) 1 is false and 2 is correct.

**156- Which data compose the ICAO standard atmosphere?**

- 1) Density**
- 2) Pressure**
- 3) Temperature**
- 4) Humidity**

- A) 1, 2, 3  
B) 1, 2, 4  
C) 2, 3, 4  
D) 3, 4

**157- What is the average Time of Useful Consciousness after a rapid decompression at 40000 ft?**

- A) About 40 seconds.  
B) More than 1 minute.  
C) About 12 seconds.  
D) Between 20 seconds and 1 minute.

**158- During a climb, we can observe the following with regard to the partial oxygen pressure:**

- A) An increase up to 10000 ft followed by a sudden pressure drop above that altitude.  
B) An increase which is inversely proportional to the decrease in atmospheric pressure.  
C) An identical decrease to that for atmospheric pressure.  
D) A decrease which is three times faster than the decrease in atmospheric pressure.

**159- The Time of Useful Consciousness may vary according to:**

- 1) Physical activity of the subjected crew**
- 2) The experience of the pilot on the type of aircraft in question**
- 3) The strength and time of decompression**
- 4) The cabin temperature**

- A) 4  
B) 1, 3  
C) 1, 2  
D) 3, 4

**160- The procedure to be followed in the event of decompression when flying above 10000 ft must:**

- A) Allow for the rapid supply of oxygen in order to prevent the pilot becoming hypoxic.
- B) Allow for a rapid descent independent from sufficient supply of oxygen in order to prevent disorders due to hypoxia.
- C) Make it possible to prevent hyperventilation owing to the inhalation of 100% oxygen.
- D) Make it possible to eliminate the risk of fogging due to the sudden pressure changes.

**161- What are the main clinical signs of hypoxia during explosive decompression?**

- A) Headaches, fatigue, somnolence, palpitations.
- B) Increase in heart and respiratory rates, euphoria, impairment of judgment, memory disorders.
- C) Increase in heart rate, decrease in body temperature impairment of judgment.
- D) Headaches, articular pain, speeding-up of the respiratory rate, memory disorders.

**162- What is the procedure above 10000 ft altitude when faced with explosive decompression?**

- A) Don an oxygen mask and descend to below 10000 ft.
- B) First inform ATC.
- C) Descend to below 10000 ft and signal an emergency.
- D) Check the cabin altitude, don an oxygen mask and maintain level flight.

**163- The following actions are appropriate when faced with symptoms of decompression sickness:**

- 1) Climb to higher level
- 2) Descent to the higher of 10000 ft or MSA and land as soon as possible
- 3) Breathe 100% oxygen
- 4) Get medical advice about recompression after landing

- A) 1, 3
- B) 1, 2, 3
- C) 1, 4
- D) 2, 3, 4

**164- If someone hyperventilates due to stress his blood will get:**

- A) More alkaline.
- B) Less saturated with oxygen.
- C) More saturated with carbon dioxide.
- D) More acid.

**165- You suffered a rapid decompression without the appearance of any decompression sickness symptoms. How long should you wait until your next flight?**

- A) 36 hours.
- B) 24 hours.
- C) 10 hours.
- D) 48 hours.

**166- Dry air is a mixture of gases. Their volume percentage is about:**

- A) 18% oxygen, 80% nitrogen, 2% other gases.
- B) 21% oxygen, 78% nitrogen, 1% other gases.
- C) 19% oxygen, 80% nitrogen, 1% other gases.
- D) 25% oxygen, 74% nitrogen, 1% other gases.

**167- Hyperventilation is:**

- A) A reduction of partial oxygen pressure in the brain.
- B) An accelerated heart frequency caused by an increasing blood pressure.
- C) An accelerated heart frequency caused by a decreasing blood pressure.
- D) A normal compensatory physiological reaction to a drop in partial oxygen pressure (e.g. when climbing a high mountain).

**168- During flight all crew members have one or more of the following symptoms:**

- 1) Blue lips
- 2) Mental disturbances
- 3) Tingling sensations in arms and/or legs
- 4) Reduction of peripheral vision

**Which is the possible cause?**

- A) Hypothermia.
- B) Glaucoma.
- C) Hypoxia.
- D) Hypoglycemia.

**169- The symptoms caused by gas bubbles under the skin following a decompression are called:**

- A) Leans
- B) Bends
- C) Chokes
- D) Creeps

**170- Pain in the joints (bends), which suddenly appear during a flight, are symptoms of:**

- A) Hypoxia.
- B) Decompression sickness.
- C) Barotrauma.
- D) Air-sickness.

**171- The time between inadequate oxygen supply and incapacitation is called TUC (Time of Useful Consciousness), it:**

- A) Varies individually and depends on cabin pressure altitude.
- B) Is the same amount of time for every person.
- C) Is not dependent on physical or psychological pressure.
- D) Varies individually and does not depend on altitude.

**172- What event can cause a hyperventilation (not required by physical need)?**

- 1) Pressure breathing.
- 2) Anxiety or fear.
- 3) Overstress.
- 4) Strong pain.
- 5) Jogging.

- A) 1, 2, 3, 4 and 5 are correct.
- B) 1 and 5 are both false.
- C) 1, 2, 3 and 4 are correct, 5 is false.
- D) Only 2 and 3 are correct.

**173- Spatial disorientation may be defined as:**

- A) A physiological illness of the inner ear.
- B) An incorrect mental image of where you are on the map.
- C) An incorrect mental image of your position, attitude or movement in space.
- D) An incorrect mental image caused exclusively by fatigue and anxiety.

**174- The utricle and the saccule organs are responsible for the perception of .....**

- A) Angular acceleration.
- B) Linear acceleration.
- C) G-loads.
- D) A and C are correct.

**175- The sensory organ(s) in the inner ear responsible for vestibular sense is (are) the:**

- A) Utricle.
- B) Saccule.
- C) Semicircular canals.
- D) Semicircular canals, vestibule (static organ).

**176- The sense that we rely on most for orientation is ..... sense.**

- A) Vestibular.
- B) Kinesthetic.
- C) Visual.
- D) Saccule.

**177- The primary sense(s) used in maintaining balance is(are) the:**

- A) Visual.
- B) Vestibular.
- C) Kinesthetic.
- D) All answers are correct.

**178- The cockpit light color that best preserves your dark adaptation is ..... light.**

- A) Green
- B) Yellow
- C) Red
- D) Blue

**179- ..... light severely distorts some colors, especially those found on aeronautical charts.**

- A) Red
- B) Amber
- C) Green
- D) White

**180- If you look directly at an object at night, you will see it?**

- A) Less clearly because there are no as many cones as rods.
- B) Less clearly because the fovea is a night blindspot.
- C) More clearly because it is focused in the fovea.
- D) More clearly because rods see better in the dark.

**181- A problem caused by the lack of visual references is known as:**

- A) Autokinesis.
- B) Flicker vertigo.
- C) Empty field myopia.
- D) Somatogravic illusion.

**182- The part of body which is responsible for the perception of linear acceleration is:**

- A) Semicircular canals.
- B) Static organ.
- C) Kinesthetic sense.
- D) A and B are correct.

**183- One of the most common types of spatial disorientation occurs when a rapid correction as made to a bank which may cause to reenter to the original attitude, is:**

- A) Coriolis illusion.
- B) Graveyard spiral.
- C) Leans.
- D) Somatogravic illusion.

**184- How a pilot generally can stop the leans?**

- A) Recovering from a bank attitude abruptly.
- B) Maintaining a level attitude for two minutes.
- C) Lowering the nose abruptly.
- D) B and C are correct.

**185- Which of the following factors increase susceptibility of spatial disorientation?**

- A) Intake of alcohol or drugs.
- B) Heavy pilot workload and fatigue.
- C) Anxiety.
- D) All answers are correct.

**186- An illusion created by an abrupt change from a climb to straight and level flight is:**

- A) Graveyard spiral.
- B) Inversion illusion.
- C) Coriolis illusion.
- D) Leans.

**187- Which statement is incorrect?**

- A) False horizon can be generated by confusing bright stars and city lights.
- B) A false horizon can occur while flying toward the shore of an ocean or large lake at night.
- C) Flying above a sloping cloud deck produce illusion of false horizon.
- D) False horizon illusion is only dangerous when actual horizon and apparent horizon are not parallel.

**188- Which statement is incorrect?**

- A) Motion sickness is caused by the brain receiving conflicting message about the state of the body.
- B) The symptoms of motion sickness are general discomfort, paleness, vomiting, dizziness, nausea and sweating.
- C) Passengers are less susceptible to airsickness than pilots.
- D) Avoiding quick maneuvers, warm, turbulent air, using ear plug and calming down the stressful passenger can reduce the likelihood of airsickness.

**189- Awareness of position obtained by the nerves in your skin, joints and muscles is called:**

- A) Vestibular sense.
- B) Kinesthetic sense.
- C) Visual sense.
- D) A and B are correct.

**190- A turn is detected by the ..... canal in the inner ear.**

- A) Lateral
- B) Horizontal
- C) Vertical
- D) Vestibule (static organ)

**191- Which part of body is responsible for keeping the pressure equalized between the ear canal and middle ear?**

- A) Throat.
- B) Eustachian tube.
- C) Sinuses.
- D) Cochlea.

**192- Find the most common factors which cause the anemic hypoxia:**

- 1) Cyanosis
  - 2) Stomach ulcer
  - 3) Diet deficiency
  - 4) Blood donation
  - 5) Excessive bleeding
  - 6) Carbon monoxide poisoning
- A) 1,3,4,5,6
  - B) 1,3,5,6
  - C) 2,5,6
  - D) 2,3,4,5,6

**193- The following statements are true, except:**

- A) Smoking three cigarettes during a night flight can dramatically reduce the sharpness of your vision.
- B) During rapid decompression at FL300 time of useful consciousness with moderate activity is 45 seconds.
- C) Hyperventilation cannot occur while breathing supplemental oxygen.
- D) The treatment for hyperventilation involves restoring the proper carbon dioxide level in the body.

**194- Clearing your ears is ..... difficult when you are ..... into ..... pressure.**

- A) Less – descending – higher
- B) More – ascending – lower
- C) Less – ascending – higher
- D) More – descending – higher



**195- When Eustachian tube does not open during an ascent, the positive air pressure in the ..... pushes the eardrum ..... .**

- A) Ear canal – outward
- B) Middle ear – outward
- C) Ear canal – inward
- D) Middle ear – inward

**196- Most passengers are aware of the pressure imbalance during descent. You can open the Eustachian by:**

- A) Valsalva technique.
- B) Swallowing.
- C) Chewing and yawning.
- D) All answers are correct.

**197- As a balloon climbs to 28000 ft, atmospheric pressure decreases and the air within the balloon ..... and volume .....**

- A) Expands – tripled
- B) Compresses – doubled
- C) Expand – doubled
- D) Compresses – tripled

**198- After consuming alcohol heart rate and blood pressure may ..... while ..... your central nervous system.**

- A) Decrease – depressing
- B) Decrease – stimulating
- C) Increase – depressing
- D) Increase - stimulating

**199- ..... drugs generally excite the central nervous system and produce an increase in alertness and activity.**

- A) Depressant
- B) Stimulant
- C) Tranquilizer
- D) Anesthetic

**200- Which gas, which is absorbed by the body during normal breathing, plays an important role in decompression sickness?**

- A) Nitrogen.
- B) Oxygen.
- C) Carbon Dioxide.
- D) Carbon Monoxide.

**201- Which body system is responsible for distributing oxygen around the body?**

- A) The nervous system.
- B) The circulatory system.
- C) The respiratory system.
- D) The oxidation system.

**202- The blood carries..... around the body and removes ..... from the body with the exchange occurring in the .....**

- A) Carbon dioxide / Oxygen / Veins.
- B) Oxygen / Carbon dioxide / Heart.
- C) Carbon dioxide / Oxygen / Capillaries.
- D) Oxygen / Carbon dioxide / Capillaries.

**203- Enter into the following statement the most correct pair of gases from the options below.**

**Hemoglobin in red blood cells is more readily attracted to.....than.....**

- A) Nitrogen / Oxygen.
- B) Carbon monoxide / Oxygen.
- C) Oxygen / Nitrogen.
- D) Carbon dioxide / Nitrogen.

**204- Which organ controls all bodily functions?**

- A) The brain.
- B) The heart.
- C) The lungs.
- D) The spinal cord.

**205- Above what altitude do pilots need to breathe supplementary oxygen?**

- A) 2000 ft.
- B) 8000 ft.
- C) 10000 ft.
- D) 20000 ft.

**206- What is the component of the eye responsible for peripheral vision and sensitive to low light levels?**

- A) The rods.
- B) The cones.
- C) The fovea.
- D) The retina.

**207- Where is the blind spot?**

- A) On the iris.
- B) Where the optic nerve enters the retina.
- C) On the fovea.
- D) On the edge of the lens.

**208- When flying solo, a pilot who suspects he is suffering from spatial disorientation should:**

- A) Blink rapidly several times.
- B) Swallow hard, pinch the nostrils and blow down the nose to clear the Eustachian tube.
- C) Believe the indications of instruments.
- D) Believe his somatosensory senses.

**209- What is the most important sense for spatial orientation?**

- A) Hearing and balance.
- B) Seat of the pants.
- C) Vision.
- D) All senses play their part in situational awareness at same amount.

**210- You fly VFR from your home base (runway width 45 m) to a small airfield (runway width 25m), on reaching your destination there is a risk of performing a:**

- A) Low approach with undershoot.
- B) High approach with overshoot.
- C) High approach with undershoot.
- D) Low approach with overshoot.

**211- Illusions can often be experienced during flight. One such illusion is created by strong forward linear acceleration. This phenomenon is called:**

- A) Autokinesis.
- B) Somatogravic or oculogravic.
- C) Coriolis.
- D) Oculogyral or leans.

**212- The Eustachian tube connects:**

- A) The semicircular canals.
- B) The auditory duct and the inner ear.
- C) The middle ear and the pharynx.
- D) The middle ear and the inner ear.

**213- The following statements are true except:**

- A) Cones are responsible for night vision and are most densely in the fovea centralize.
- B) Rods are responsible for night vision and have a poor ability to discriminate.
- C) Cones are most densely located in the fovea centralize and have a one-to-one connection to the brain.
- D) Rod are responsible for ambient vision and are in groups connected to the brain.

**214- What effect does haze have on the abilities to see traffic or terrain features during flight?**

- A) Haze creates the illusion of being at a greater distance than actual from the runway.
- B) Haze makes darker objects look closer and brighter objects look like they are further away.
- C) Haze causes the eyes to focus at infinity making terrain features harder to see.
- D) The eyes tend to overwork in haze and do not detect relative movement easily.

**215- You are carrying out a visual approach to a runway which slopes upwards away from the touchdown end. What is the main risk in this case?**

- A) Landing heavy due to an apparent increase in runway width.
- B) Landing short due to over correcting for an apparent height increase.
- C) Landing long due to over correcting for an apparent height decreases.
- D) Landing heavy due to an apparent in runway width.

**216- What is the role of the Eustachian tube in your ear?**

- A) To transfer mechanical energy from the ear drum to the ossicles.
- B) To equalize air pressure on both sides of the ear drum.
- C) To transform mechanical energy from sound waves to electrical signals.
- D) To convert acceleration and gravity forces to electrical signals, which in turn are sent to your brain for interpretation.

**217- A sloping cloud formation, an obscured horizon and a dark scene spread with ground lights and stars can create an illusion known as:**

- A) False horizon.
- B) Coriolis illusion.
- C) Autokinesis.
- D) Elevator illusion.

**218- One of the substances present in the smoke of cigarettes can make it significantly more difficult for the red blood cells to transport oxygen and as a consequence contributes to hypoxia. Which substance are we referring to?**

- A) Carbon monoxide
- B) Carbonic anhydride
- C) Tar
- D) Carbon dioxide

**219- On ascent the gases in the digestive tract will:**

- A) Expand.
- B) Be absorbed by tissues and blood.
- C) Stay the same.
- D) Shrink.

**220- Which of the following applies when alcohol has been consumed?**

- A) Small amounts of alcohol increase visual performance.
- B) Drinking coffee at the same time will increase the elimination rate of alcohol.
- C) Even after the consumption of small amounts of alcohol, normal cautionary attitudes may be lost.
- D) Acute effects of alcohol cease immediately.

**221- The Eustachian tube serves for the pressure equalization between:**

- A) Nose and pharyngeal cavity and external atmosphere
- B) Frontal, nose and maxillary sinuses.
- C) Middle ear and external atmosphere.
- D) Sinuses of the nose and external atmosphere.

**222- Barotrauma of the middle ear will most likely occur:**

- A) When climbing.
- B) In sudden steep turns.
- C) When descending rapidly.
- D) During a long high altitude flight.

**223- Alcohol, even when taken in minor quantities:**

- A) Can make the brain cells to be more susceptible to hypoxia.
- B) Will stimulate the brain, making the pilot resistant to hypoxia.
- C) Will have no effect at all.
- D) May improve the mental functions, so that the symptoms of hypoxia are much better to be identified.

**224- Which statement is correct regarding alcohol in the human body?**

- A) Judgment and decision making can be affected even by a small amount of alcohol.
- B) A small amount of alcohol increases visual acuity.
- C) An increase of altitude decreases the adverse effect of alcohol.
- D) When drinking coffee, the human body metabolizes alcohol at a faster rate than normal.

**225- It is inadvisable to fly when suffering from a cold. The reason for this is:**

- A) Swollen tissue in the inner ear will prevent the air from ventilating through the tympanic membrane.
- B) Swollen tissue in the eustachian tube will cause permanent hearing loss.
- C) Pain and damage to the ear drum can result, particularly during fast descents.
- D) Gentle descents at high altitude can result in damage to the ear drum.

**226- A fatigued pilot:**

- A) Considerably increases the ability to concentrate.
- B) Will show signs of increased irritability.
- C) Is acting similar as when encountering a state of depression.
- D) Will get precordial pain.

**227- Trapped gas disorders of the ears can be caused by:**

- A) Flying when you have a cold.
- B) Flying after deep scuba diving with decompression.
- C) Flying at too high altitude without supplemental oxygen.
- D) Too hard equalization of the pressure in your outer ear.

**228- By what action could the pressure gradient between the middle and the outer ear be balanced?**

- A) By breathing in.
- B) By swallowing.
- C) By breathing out.
- D) By coughing.

**229- Even at normal cabin altitudes (e.g. around 8000 ft) you can get severe abdominal pain and flatulence after eating gas forming foods or fizzy drinks. The correct countermeasure is:**

- A) Climb to a higher altitude.
- B) Descend to a lower altitude.
- C) Perform "Valsalva maneuver".
- D) Use supplemental oxygen.

**230- Having a cold or an infection of the upper respiratory tract you:**

- A) Should not fly because the congestion of the frontal sinuses may cause great pain which can seriously affect your ability to control yourself and the aircraft.
- B) May accept to fly an ambulance flight because "Sinus squeeze" is rare and represents a minor danger to aviation.
- C) Must be careful when flying because the infection may cause hyperglycemia.
- D) Should not fly because the infection may cause hypoxia due to congestion in the nose.

**231- Smoking 3 cigarettes in 1 hour at sea level will:**

- A) Not affect night vision when flying at sea level.
- B) Cause a lower degree of hypoxic tolerance.
- C) Increase your G tolerance considerably by increasing blood pressure.
- D) Prevent serious hyperventilation due to sedation effect of nicotine.

**232- The organ which metabolizes alcohol from the body is the:**

- A) Liver
- B) Spleen
- C) Pancreas
- D) Kidneys

**233- Concerning flying and blood alcohol content the following statement is correct:**

- A) No flying under the influence of alcohol.
- B) Flying with up to 0.05% blood alcohol.
- C) Flying with up to 0.15% blood alcohol.
- D) Flying with up to 0.08% blood alcohol is safe.

**234- The following statements about alcohol is true?**

- A) A blood alcohol content of 0.05% leads to unconsciousness.
- B) A unit of alcohol is equal to 50 ml of pure alcohol.
- C) A few drinks can make a person sleep better.
- D) Alcohol will lower the tolerance for hypoxia.

**235- The decision making in emergency situations requires firstly:**

- A) The whole crew to focus on the problem.
- B) Speed of reaction.
- C) Informing ATC thoroughly about the situation.
- D) Distribution of tasks and crew coordination.

**236- Define situational awareness:**

- A) The ability to rank tasks according to importance and to solve problems.
- B) The right to have and express your own feelings and ideas.
- C) The perception of the elements in the environment within a volume of space and time, the comprehension of their meaning and the projection of their status in the near future.
- D) The perception of the elements in the environment within a volume of space.

**237- CRM (Crew Resource Management) training is:**

- A) Intended to develop effectiveness of crew performance by improving attitudes towards flight safety and human relationship management.
- B) Not intended to change the individual's attitude at all.
- C) Intended solely to alter an individual's personality.
- D) Is mainly of relevance to pilots with personality disorders or inappropriate attitudes.

**238- Define effective communication:**

- A) Effective communication is a transmission of a message from one brain to another.
- B) Effective communication is a transmission of a message from one brain to another with a minimum of change.
- C) Effective communication occurs when one person talks to another person.
- D) Effective communication occurs when one person

**239- Which factors can influence effective communications?**

- A) Noise and voice.
- B) Workload, noise and voice.
- C) Voice.
- D) Workload and voice.

**240- What is meant by the term CRM today?**

- A) Cockpit resource management.
- B) Crew resource management.
- C) Company resource management.
- D) Crew reliability measurement.

**241- "It will not happen to me" can be used as an example to illustrate which attitude?**

- A) Resignation
- B) Anti-authority
- C) Macho
- D) Invulnerability

**242- Which of the following is not a hazardous attitude?**

- A) Domination
- B) Macho
- C) Anti-authority
- D) Impulsivity

**243- A stress reaction:**

- A) The specific response of the body to every demand placed on a person.
- B) The non-specific response of the body to every demand placed on a person.
- C) The non-specific stimuli causing a human body to respond.
- D) The specific stimuli causing a human body to respond.

**244- Stress may be defined as:**

- A) A normal phenomenon which enables an individual to adapt to encountered situations.
- B) A poorly controlled emotion which leads to a reduction in capabilities.
- C) A psychological phenomenon which only affects fragile personalities.
- D) A human reaction which one must manage to eliminate.



**245- What is a stressor?**

- A) A psychological problem developed in a situation of danger.
- B) The adaptation response of the individual to his environment.
- C) An external or internal stimulus which is interpreted by an individual as being stressful.
- D) All external stimulation are stressors since they modify.

**246- Fatigue and stress:**

- A) Lower the tolerance to hypoxia.
- B) Increase the tolerance to hypoxia.
- C) Do not affect hypoxia at all.
- D) Will increase the tolerance to hypoxia when flying below 15000 feet.

**247- In order to limit stress when flying, a pilot should:**

- A) Drop activities outside work so as to focus on his work better.
- B) Forget about bad past experiences.
- C) Avoid anticipating events during a flight to manage his workload.
- D) Maintain his competence by practicing his professional skills and learning from past experiences.

**248- Signs of stress include:**

- A) Perspiration, dry mouth, dilated pupils, fast breathing.
- B) Lowering of the blood pressure.
- C) Faster, deep inhalation, stabbing pain around the heart.
- D) Rising of the blood pressure, pupils narrowing, stabbing pain around the heart.

**249- The two types of fatigue are:**

- A) Chronic and acute.
- B) Short term and oppressive.
- C) Oppressive and negative.
- D) Heavy and light.

**250- Which gas is absorbed by the body during normal breathing, plays an important role in decompression sickness?**

- A) Oxygen.
- B) Carbon dioxide.
- C) Nitrogen.
- D) Carbon monoxide.

**251- Blood pressure may be too high due to:**

- A) Age.
- B) Stress.
- C) Smoking.
- D) All answers are correct.

**252- Which of the following gases regulate the rate and depth of breathing, depending on the levels at which the gas is present in the blood?**

- A) Oxygen.
- B) Carbon Dioxide.
- C) Nitrogen.
- D) Carbon Monoxide.

**253- When a person is experiencing stress or fear, adrenaline is released into the blood stream causing immediate:**

- A) Fatigue.
- B) Loss of consciousness.
- C) Increase in the pulse-rate.
- D) Decrease in the pulse-rate.

**254- Which organ controls all bodily functions?**

- A) The heart.
- B) The brain.
- C) The lungs.
- D) The spinal cord.

**255- Compared to a non-smoker, someone who smokes is likely to experience the effects of hypoxia at:**

- A) A higher altitude.
- B) The same altitude.
- C) A lower altitude.
- D) Any altitude.

**256- The effects of hypoxia can be increased by:**

- A) Increased altitude.
- B) Increased temperature.
- C) Alcohol.
- D) All answers are correct.

**257- What is the component of the eye responsible for peripheral vision and sensitive to low light levels?**

- A) The cones.
- B) The rods.
- C) The fovea.
- D) The retina.

**258- Empty field myopia is a condition where the eyes naturally focus at a distance of approximately:**

- A) Infinity.
- B) 20 - 500 meters.
- C) At the horizon.
- D) 1 - 2 meters.

**259- Where is the blind spot?**

- A) On the iris.
- B) On the fovea.
- C) On the edge of the lens.
- D) Where the optic nerve enters the retina.

**260- What are the vessels called that are very fine and found inside tissues?**

- A) Arteries
- B) Veins
- C) Capillaries
- D) Aorta

**261- You should not dispense blood without prior information from your flight surgeon. The most important reason for this advice is:**

- A) You are more susceptible to hypoxia after a blood donation.
- B) The chance you get the bends is higher after blood donation.
- C) Your blood-pressure is too low after blood donation.
- D) Your heart frequency is too low after blood donation.

**262- Which lenses are used to correct presbyopia?**

- A) Concave.
- B) Convex.
- C) Various depending on the eye itself.
- D) It cannot be correct.

**263- The cabin pressure in airline operation is:**

- A) Always equivalent to sea level.
- B) Normally not exceeding 6000 to 8000 feet.
- C) Normally not exceeding 2000 to 3000 feet.
- D) Normally not exceeding 4000 to 5000 feet.

**264- What is decompression sickness?**

- A) A frequent disorder in commercial aviation due to the pressurization curve of modern aircraft.
- B) A disorder which is solely encountered below 18000 ft.
- C) The formation of air bubbles in bodily tissues, with no consequences for people's capabilities.
- D) A sickness resulting from the formation of nitrogen bubbles in bodily tissues and fluids after a cabin pressure loss at high altitude.

**265- During final approach under bad weather conditions you are getting uneasy, feel dizzy and get tingling sensations in your hands. When hyperventilating you should:**

- A) Descend.
- B) Apply the Valsalva method.
- C) Use the oxygen mask.
- D) Control your rate and depth of breathing.

**266- In the event of rapid decompression, the first action for the flight deck crew is:**

- A) Descent to the higher of 10000 ft or MSA.
- B) Transmit mayday call.
- C) Carry out check for structural damage.
- D) Don oxygen masks and ensure oxygen flow.

**267- Flying Immediately after scuba diving involves the risk of getting:**

- A) Decompression sickness without having a decompression.
- B) Hyperventilation.
- C) Hypoxia.
- D) Stress.

**268- How much of the air is occupied by oxygen?**

- A) 78.0%
- B) 78.08%
- C) 17.0%
- D) 20.94%

**269- How much of the air is occupied by nitrogen?**

- A) 75.08%
- B) 29.04%
- C) 78.08%
- D) 20.94%

**270- What is the medical condition where the airways to the lungs are narrowed due to inflammation?**

- A) Asthma
- B) Barotrauma
- C) Pleurisy
- D) Angina

**271- What is the purpose of respiration?**

- A) Intake of  $N_2$ , which the living cells need for the metabolic process.
- B) Intake of  $O_2$ , which the living cells need for the metabolic process.
- C) Intake of  $CO_2$ , which the living cells need for the metabolic process.
- D) Intake of  $NO_2$ , which the living cells need for the metabolic process.

**272- What is hypertension?**

- A) A blockage of the coronary artery.
- B) A blockage of the blood supply to part of the brain.
- C) A symptom of reduced oxygen supply to the heart muscle.
- D) A physiological condition involving increased pressure on the arterial walls.

**273- Why is hypoxia particularly dangerous during flights with one pilot?**

- A) Symptoms of hypoxia maybe difficult to recognize before the pilots' reactions are affected.
- B) Night vision may be so important, that the pilot cannot see other aircraft.
- C) The pilot may not be able to control the aircraft even if using oxygen.
- D) During multi-crew operation, one pilot can fly while the other puts on his/her oxygen mask.

**274- Which statement defines hypoxia?**

- A) An abnormal increase in the volume of air breathed.
- B) A state of oxygen deficiency in the body.
- C) A condition of gas bubble formation around the joints or muscles.
- D) A condition of too low  $CO_2$  level in the blood.

**275- Night vision is greatest:**

- A) When looking directly at an object.
- B) Just after an exposure of bright light.
- C) When looking slightly off center of an object.
- D) When flying above 5000 ft.

**276- A person should be able to overcome the symptoms of hyperventilation by:**

- A) Increasing the breathing rate, in order to increase ventilation.
- B) Slowing the breathing rate and increasing the amount of carbon dioxide in the body.
- C) Refraining from the use of alcohol and over the counter drugs such as antihistamines and tranquillizers.
- D) Increasing the breathing rate, in order to increase ventilation and refraining from the use of alcohol and over the counter drugs such as antihistamines and tranquillizers.

**277- A pilot should not fly immediately after donating blood because:**

- A) His heart rate is too low after blood donation.
- B) The chance he gets the bends is higher after blood donation.
- C) His blood-pressure is too low after blood donation.
- D) He has an increased susceptibility to fainting.

**278- Carbon monoxide (CO) poisoning leads to hypoxia because:**

- A) CO is far less easily attached (200 times) to hemoglobin than oxygen.
- B) CO in blood displaces oxygen from the blood corpuscles impairing oxygen transport.
- C) Accumulation of CO in blood leads to hyperventilation and thus to hypoxia.
- D) The increasing amounts of CO in the lung alveoli gradually reverses oxygen diffusion.

**279- Flying a non-pressurized light aircraft at 9000 feet your passenger develops blue lips:**

- A) You will attempt to calm him/her and occupying the passenger with suitable tasks.
- B) You supply him with extra oxygen, but do not reduce altitude as the partial pressure of oxygen never results in symptoms below 10000 feet.
- C) Assuming he is hyperventilating you order him to stop breathing while you supply additional oxygen.
- D) Assuming he is suffering from hypoxia you reduce altitude and supply him/her with oxygen.

**280- High blood pressure is also known as:**

- A) Hypertension
- B) Hypotension
- C) Angina
- D) Hypoglycemia

**281- Preventing hypoxia at altitude is achieved by:**

- A) Hyperventilating to increase the intake of oxygen, trading oxygen for carbon dioxide.
- B) Reducing the contents of carbon dioxide by filtering the cabin air.
- C) Pressurizing the air inside the aircraft to maintain oxygen saturation in blood of 30%.
- D) Pressurizing the air inside the aircraft to achieve oxygen saturation in blood of more than 90%.

**282- The dry atmosphere of the flight deck may cause dehydration, which may lead to a reduction in the ability to pay attention. To prevent this, it is appropriate to:**

- A) Drink tea.
- B) Drink plenty of coffee.
- C) Drink cool cola drinks.
- D) Drink sufficient non-carbonated liquids.

**283- Valsalva technique is used:**

- A) During ascent to reduce the higher air pressure in the middle ear.
- B) In case of hyperventilation to reduce anxiety.
- C) During descent to increase the lower pressure in the middle ear.
- D) During descent to decrease the higher pressure in the sinuses.

**284- If a passenger has had scuba diving for 3 hours during the last 2 days, the minimum time before flying is:**

- A) 12 hours
- B) 24 hours
- C) 36 hours
- D) 48 hours

**285- Which of the following gases is fundamentally responsible for decompression sickness?**

- A) Oxygen
- B) Nitrogen
- C) Carbon dioxide
- D) Sodium

**286- The following group of drugs generally are not classified as stimulants or suppressants:**

- A) Caffeine
- B) Alcohol
- C) Antibiotics
- D) Antihistamines

**287- Airsick passengers can safely take motion sickness medication.**

- A) True
- B) False

**288- The atmospheric pressure:**

- A) Increases about exponentially with increasing altitude.
- B) Is constant up to about 100 km.
- C) Decreases about exponentially with increasing altitude.
- D) Decreases linearly from sea level up to the tropopause.

**289- The following medication is not prohibited before flying:**

- A) Cold and allergy pills
- B) Alcohol
- C) Tranquilizers
- D) Nicotine

**290- Alcohol has stimulating effect on:**

- A) Central nervous system
- B) Heart rate
- C) Respiratory rate
- D) Both B and C are correct

**291- Signs or symptom of hyperventilation are:**

- A) Increased rate and depth of respiration.
- B) Muscle twitching and tightness.
- C) Breathlessness, feelings of suffocation.
- D) All answers are correct.

**292- All of the following are true regarding the effects of altitude on alcohol consumption except:**

- A) Reduced absorption of oxygen in the bloodstream.
- B) Increased physiologic altitude.
- C) Decreased rate of alcohol metabolism.
- D) Increased rate of CO<sub>2</sub> production.

**293- The following actions may be used to treat a hyperventilation, except:**

- A) Slowing the breathing rate.
- B) Increasing rate and depth of breathing.
- C) Talking aloud.
- D) Back breathing into a paper bag.

**294- A pilot who has been scuba diving should avoid flying:**

- A) Within 12 hours, or 24 hours if a depth of 30 ft has been exceeded.
- B) Within 24 hours, or 48 hours if a depth of 30 ft has been exceeded.
- C) Within 36 hours of the last dive.
- D) Without medical advice if a depth of 30 ft has been exceeded.

**295- A person experiencing light headaches, dizziness, tingling at the fingertips and breathing rapidly may be suffering from:**

- A) Hypoxia or hyperventilation.
- B) Hyperventilation only.
- C) Hypoxia only.
- D) Carbon monoxide poisoning.



**296- Angular accelerations are picked up in the inner ear by:**

- A) The semicircular canals.
- B) The tympanum.
- C) The saccule and the utricle.
- D) The cochlea.

**297- What should a pilot do if he has no information about the dimensions of the runway and the condition of the terrain underneath the approach? He should:**

- A) Make an instrument approach and be aware of the illusory effects that can be induced.
- B) Be aware that approaches over down-sloping terrain will make him believe that he is higher than actual.
- C) Make a visual approach and call the tower for assistance.
- D) Be aware that approaches over water always make illusion.

**298- A pilot, accelerating or decelerating in level flight may get:**

- A) The illusion of turn.
- B) The feeling of rotation.
- C) The illusion of climbing or descending.
- D) The impression of stationary objects moving to the right or left.

**299- The vestibular organ:**

- A) Reacts to linear/angular acceleration and gravity.
- B) Gives the impression of hearing.
- C) Reacts to pressure changes in the middle ear.
- D) Reacts to vibrations of the cochlea.

**300- What could cause hyperventilation?**

- A) Alcohol
- B) Nicotine
- C) Fear
- D) Fatigue

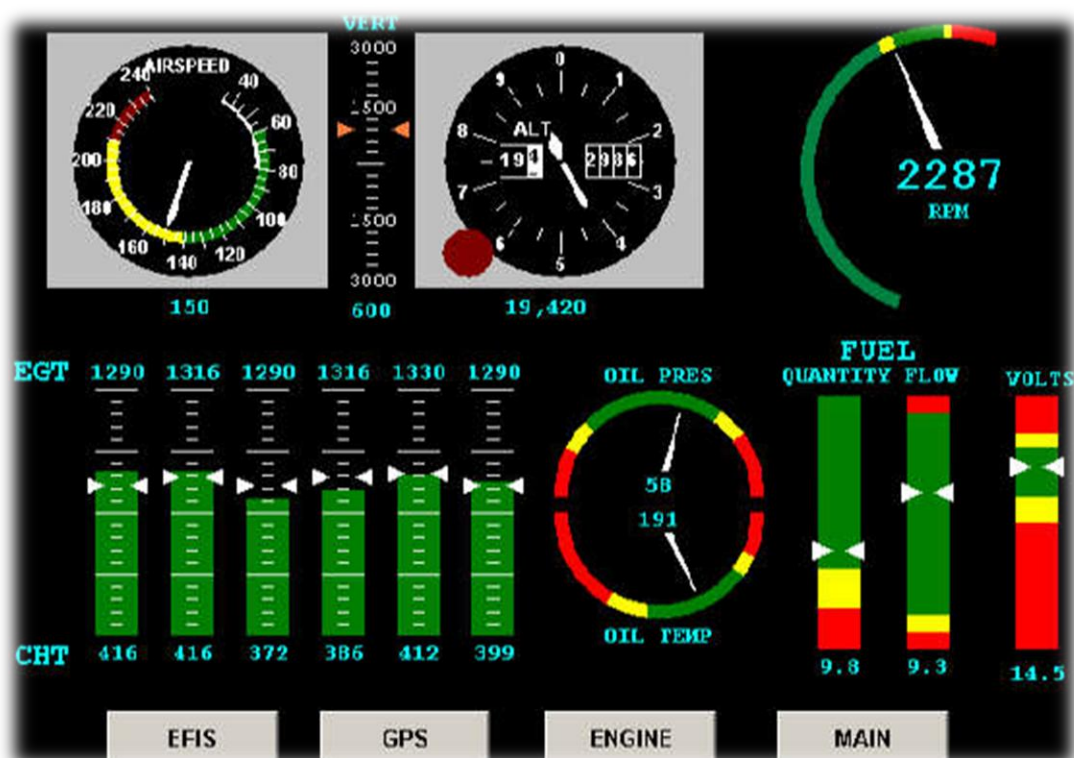
QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	B	26	C	51	D	76	C
2	B	27	D	52	A	77	A
3	D	28	C	53	B	78	B
4	B	29	C	54	D	79	C
5	D	30	B	55	C	80	B
6	C	31	C	56	C	81	C
7	B	32	D	57	B	82	C
8	A	33	A	58	B	83	D
9	B	34	D	59	D	84	B
10	C	35	B	60	D	85	A
11	A	36	C	61	D	86	D
12	D	37	C	62	D	87	A
13	C	38	B	63	B	88	A
14	D	39	A	64	B	89	D
15	B	40	D	65	D	90	B
16	D	41	C	66	D	91	D
17	C	42	B	67	C	92	B
18	C	43	D	68	D	93	D
19	A	44	D	69	B	94	A
20	C	45	B	70	D	95	A
21	B	46	B	71	A	96	C
22	B	47	B	72	A	97	B
23	A	48	D	73	B	98	B
24	D	49	B	74	C	99	B
25	A	50	B	75	D	100	B

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	B	126	C	151	C	176	C
102	B	127	B	152	D	177	D
103	B	128	A	153	C	178	C
104	A	129	C	154	C	179	A
105	B	130	A	155	B	180	B
106	C	131	A	156	A	181	C
107	A	132	C	157	C	182	B
108	C	133	C	158	C	183	C
109	A	134	C	159	B	184	B
110	A	135	B	160	A	185	D
111	D	136	A	161	B	186	B
112	D	137	A	162	A	187	D
113	A	138	C	163	D	188	C
114	D	139	A	164	A	189	B
115	D	140	C	165	B	190	A
116	B	141	D	166	B	191	B
117	A	142	B	167	D	192	D
118	C	143	D	168	C	193	C
119	A	144	C	169	D	194	D
120	D	145	A	170	B	195	B
121	C	146	A	171	A	196	D
122	B	147	C	172	C	197	A
123	D	148	D	173	C	198	C
124	D	149	B	174	B	199	B
125	C	150	A	175	D	200	A

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
201	B	226	B	251	D	276	B
202	D	227	A	252	B	277	D
203	B	228	B	253	C	278	B
204	A	229	B	254	B	279	D
205	C	230	A	255	C	280	A
206	A	231	B	256	D	281	D
207	B	232	A	257	B	282	D
208	C	233	A	258	D	283	C
209	C	234	D	259	D	284	A
210	A	235	D	260	C	285	B
211	B	236	C	261	A	286	B
212	C	237	A	262	B	287	A
213	A	238	B	263	B	288	C
214	A	239	B	264	D	289	D
215	B	240	B	265	D	290	D
216	B	241	D	266	D	291	A
217	A	242	A	267	A	292	D
218	A	243	B	268	D	293	B
219	A	244	A	269	C	294	A
220	C	245	C	270	A	295	A
221	C	246	A	271	B	296	A
222	C	247	D	272	D	297	A
223	A	248	A	273	A	298	C
224	A	249	A	274	B	299	A
225	C	250	C	275	C	300	C



# INSTRUMENTATION



**1- An Air Data Computer (ADC) obtains altitude from:**

- A) Outside air temperature
- B) Barometric data from static source
- C) Time elapsed for signal to travel to and return from the earth
- D) Difference between absolute and dynamic pressure

**2- The input data of an ADC are:**

- 1) OAT
- 2) TAT
- 3) Static pressure
- 4) Total pressure

**The combination regrouping all the correct statements is:**

- A) 1, 2, 3, 4
- B) 2, 3, 4
- C) 1, 3, 4
- D) 1, 2, 4

**3- What are the inputs to the ADC?**

- 1) OAT
- 2) Dynamic pressure
- 3) TAT
- 4) Static pressure
- 5) Electric power
- 6) Pitot pressure
- 7) AOA

- A) 1, 2, 5, 6
- B) 3, 4, 6
- C) 3, 4, 5, 6, 7
- D) All items are correct

**4- From where does the air data computer (ADC) obtain aircraft altitude?**

- A) OAT probe
- B) Dynamic – absolute ambient pressure
- C) Absolute barometric sensor on aircraft fuselage
- D) IRS

**5- The advantages of an ADC over a traditional pitot – static system are:**

- 1) Position and compressibility correction**
- 2) Reduced lag**
- 3) Ability to supply many instruments**
- 4) Ability to act as an altimeter following failure**

- A) 1, 2, 3
- B) 1, 2, 4
- C) 2, 3, 4
- D) 1, 3, 4

**6- Inertial Reference System sensors include:**

- A) One east-west and one north-south gyro; one east-west and one north-south accelerometer.
- B) Accelerometers mounted in the direction of the aircraft axis.
- C) Laser gyros mounted in the direction of the aircraft axis.
- D) Accelerometers, and laser gyros, mounted in the direction of the aircraft axis.

**7- Why must Latitude and Longitude be inserted into an IRS?**

- A) To determine the aircraft position relative to the earth
- B) To check the IRS position with the Flight Management System
- C) To enable the levelling procedure to commence
- D) To determine the accuracy of the alignment

**8- What does the sensor of an INS/IRS measure?**

- A) Velocity
- B) Precession
- C) Horizontal Earth Rate
- D) Acceleration

**9- Some inertial reference and navigation systems are known as strap down, this means that:**

- A) Only the gyros and not the accelerometers, become part of the unit's fixture to the aircraft structure.
- B) Gyros, and accelerometers are mounted on a stabilized platform in the aircraft.
- C) Gyros and accelerometers need satellite information input to obtain a vertical reference.
- D) The gyroscopes and accelerometers become part of the unit's fixture to the aircraft structure.

**10- Some inertial reference systems are known as strap down. This means:**

- A) The system is mounted on a stabilized platform.
- B) The system is mounted and fixed to the aircraft structure.
- C) The accelerometers are fixed but the gyros are stabilized.
- D) The gyros are fixed but the accelerometers are stabilized.



**11- One of the errors inherent in a ring laser gyroscope occurs at low input rotation rates tending towards zero when a phenomenon known as lock in is experienced, what is the name of the technique, effected by means of a piezo- electric motor that is used to correct this error?**

- A) Dither
- B) Cavity rotation
- C) Zero drop
- D) Beam lock

**12- In a ring laser gyro, the purpose of the dither motor is to:**

- A) Enhance the accuracy of the gyro at all rotational rates
- B) Overcome laser lock
- C) Compensate for transport wander
- D) Stabilize the laser frequencies

**13- A laser reference system (IRS), as compared to a gyro reference system (INS):**

- A) Is not strapped down and is adversely affected by G force
- B) Is strapped down and is not adversely affected by G force
- C) The platform is strapped down but the accelerometers are not
- D) The accelerometers are strapped down but the platform is not

**14- IRS differs from INS in that it:**

- A) Has a longer spin-up time and is not affected by vertical accelerations due to gravity
- B) Has a shorter spin-up time and suffers from laser lock
- C) Does not need to correct for Coriolis and central acceleration
- D) Does not experience Schuler errors as accelerometers are strapped down and are not rotated by a V/R feedback loop

**15- When and where are IRS positions updated?**

- A) During all phases of flight
- B) Only on the ground during the alignment procedure
- C) When the FMS is in IRS ONLY NAV operation
- D) When the VHF Nav Radios are selected to AUTO

**16- After alignment, is it possible to update IRS positions?**

- A) Yes, by operation of the TO/GA switch, the runway threshold co- ordinates are inserted into the IRS.
- B) No.
- C) Yes, the pilots can insert updates.
- D) Yes, the process is automatic in flight from the DMEs.

**17- The alignment time, at mid-latitudes, for an Inertial Reference System using laser ring gyros is approximately:**

- A) 5 min
- B) 20 min
- C) 8 min
- D) 10 min

**18- The data that needs to be inserted into an Inertial Reference System in order to enable the system to make a successful alignment for navigation is:**

- A) Airport ICAO identifier
- B) Aircraft heading
- C) The position of an in-range DME
- D) Aircraft position in latitude and longitude

**19- The data supplied by a radio altimeter:**

- A) Concerns only the decision height.
- B) Indicates the distance between the ground and the aircraft.
- C) Is used only by the radio altimeter indicator.
- D) Is used by the automatic pilot in the altitude hold mode.

**20- A radio altimeter can be defined as a:**

- A) Self-contained on board aid used to measure the true height of the aircraft.
- B) Ground radio aid used to measure the true altitude of the aircraft.
- C) Ground radio aid used to measure the true height of the aircraft.
- D) Self-contained on board aid used to measure the true altitude of the aircraft.

**21- A radio altimeter is:**

- A) Ground based and measures true altitude.
- B) Ground based and measures true height.
- C) Aircraft based and measures true altitude.
- D) Aircraft based and measures true height.

**22- Total air temperature(TAT) is:**

- A) Higher or equal to static air temperature (SAT), depending on altitude and SAT.
- B) Lower than static air temperature (SAT), depending on altitude and SAT
- C) Higher or equal to static air temperature (SAT), depending on Mach number and SAT.
- D) Lower than static air temperature (SAT), depending on Mach number and SAT.

**23- The airplane outside air temperature probe measures the:**

- A) Total air temperature minus kinetic heating effects in order to obtain the static temperature.
- B) Total air temperature minus compressibility effects in order to obtain the static temperature.
- C) Static air temperature minus kinetic heating effects in order to obtain the total temperature.
- D) Static air temperature minus compressibility effects in order to obtain the total temperature.

**24- Total air temperature is always ----- than static air temperature and the difference varies with ----- .**

- A) Warmer, altitude
- B) Colder, altitude
- C) Warmer, CAS
- D) Colder, CAS

**25- The measurement of SAT (static air temperature) by direct means is not possible on some (fast) aircrafts because of:**

- A) The boundary layer around the aircraft gets very turbulent.
- B) Most temperature sensors have a low recovery factor.
- C) The airflow causes too much cooling of the sensing probe.
- D) The effects from adiabatic compression and friction.

**26- The local speed of sound is equal to:  
(K = Constant)**

- A)  $K \sqrt{\text{temperature } (^{\circ}\text{F})}$
- B)  $K \sqrt{\text{temperature } (^{\circ}\text{K})}$
- C)  $K \sqrt{\text{temperature } (^{\circ}\text{C})}$
- D)  $K \sqrt{\text{temperature } (^{\circ}\text{R})}$

**27- The errors to which the Mach meter is subject are:**

- A) Instrument error, position error, compressibility error and maneuver induced error.
- B) Instrument error, position error and maneuver induced error.
- C) Instrument error, position error, barometric error, temperature error and maneuver induced error.
- D) Instrument error, position error, density error and maneuver induced error.

**28- The Mach number is the:**

- A) Equivalent airspeed (EAS) divided by the local speed of sound.
- B) Corrected airspeed (CAS) divided by the local speed of sound.
- C) Indicated airspeed (IAS) divided by the local speed of sound.
- D) True airspeed (TAS) divided by the local speed of sound.

**29- The Mach number is:**

- A) The ratio of the aircraft conventional airspeed to the sonic velocity at the altitude considered.
- B) A direct function of temperature; it varies in proportion to the square root of the absolute temperature.
- C) The ratio of the indicated airspeed to the sonic velocity at the altitude considered.
- D) The ratio of the aircraft true airspeed to the sonic velocity at the altitude considered.

**30- At FL350 with a ISA deviation of  $-12^{\circ}\text{C}$ , the true airspeed when flying at M 0.78 is:**

- A) 460 kts
- B) 447 kts
- C) 490 kts
- D) 436 kts

**31- Cruising at FL390, M 0.84 is found to give a TAS of 499 kts, The ISA deviation at this level will be:**

- A)  $-17^{\circ}\text{C}$
- B)  $+17^{\circ}\text{C}$
- C)  $+19^{\circ}\text{C}$
- D)  $-19^{\circ}\text{C}$

**32- An aircraft is flying at FL350 with a ISA deviation of  $+8$ . The Mach number is 0.83 and the TAS 485. If the aircraft descends to FL300 and maintains the same Mach number and TAS, the ISA deviation will now be:**

- A)  $+8$
- B)  $+2$
- C)  $-2$
- D)  $-18$

**33- Assuming the flight level and Mach number remain constant, when the OAT decreases:**

- A) TAS decreases.
- B) IAS increases and TAS decreases.
- C) IAS decreases and TAS increases.
- D) TAS increases.

**34- Assuming the flight level and Mach number remain constant, when the OAT increases:**

- A) TAS decreases.
- B) TAS increases.
- C) IAS increases and TAS decreases.
- D) IAS decreases and TAS increases.

**35- Mach number is defined as:**

- A) The ratio of pitot pressure to dynamic pressure.
- B) The ratio of static pressure to dynamic pressure.
- C) The ratio of dynamic pressure to static pressure.
- D) The ratio of static pressure to pitot pressure.

**36- A Mach meter measures the ratio of:**

- A) Pitot pressure to static pressure.
- B) Pitot pressure minus static pressure to static pressure.
- C) Pitot pressure times static pressure.
- D) Pitot pressure to (static pressure times pitot pressure).

**37- The Mach meter is subject to:**

- A) Position/instrument error.
- B) Density error.
- C) Density and temperature error.
- D) Temperature error.

**38- At 40000 feet the OAT is -50 °C, what is the local speed of sound?**

- A) 582 kts
- B) 601 kts
- C) 574 kts
- D) 661 kts

**39- The speed at which sound is transported through the air is dependent on:**

- A) humidity.
- B) Pressure.
- C) Density and temperature.
- D) Temperature.

**40- At a constant calibrated airspeed (CAS), the Mach number:**

- A) Increases when the altitude increases.
- B) Decreases when the altitude increases.
- C) Increases when the outside temperature increases.
- D) Increases when the outside temperature decreases.

**41- When climbing at a constant Mach number below the tropopause, in ISA conditions, the calibrated airspeed (CAS) will:**

- A) Remain constant.
- B) Increase at a linear rate.
- C) Decrease.
- D) Increase at an exponential rate.

**42- During a straight and uniform climb, the pilot maintains a constant calibrated airspeed (CAS):**

- A) The Mach number is constant and the true airspeed (TAS) decreases.
- B) The Mach number increases and the true airspeed (TAS) is constant.
- C) The Mach number is constant and the true airspeed (TAS) is constant.
- D) The Mach number increases and the true airspeed (TAS) increases.

**43- At a constant Mach number, the calibrated airspeed (CAS):**

- A) Remains unchanged when the outside temperature increases.
- B) Increases when the altitude increases.
- C) Decreases when the altitude increases.
- D) Remains unchanged when the outside temperature decreases.

**44- Sound propagates through the air at a speed which only depends on:**

- A) Temperature and the pressure.
- B) Temperature.
- C) Pressure.
- D) Density.

**45- The auto-throttle is set to climb at a constant Mach number. If the temperature does not change, what happens to the CAS?**

- A) Increases.
- B) Decreases.
- C) Increases, but only if the outside air temperature decreases.
- D) Stays the same.

**46- An aeroplane is in steady climb. The auto-throttle maintains a constant calibrated airspeed. If the total temperature remains constant, the Mach number:**

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Decreases if the static temperature is lower than the standard temperature.

**47- An airplane is in steady descent. The auto-throttle maintains a constant Mach number. If the total temperature remains constant, the calibrated airspeed:**

- A) Increases.
- B) Decreases.
- C) Remains constant.
- D) Decreases if the static temperature is lower than the standard temperature, increases if above.

- 48- An aeroplane is in steady cruise at FL270. The auto-throttle maintains a constant calibrated airspeed. If the total temperature increases, the Mach number:**
- A) Decreases.
  - B) Increases.
  - C) Remains constant.
  - D) Decreases if the outside temperature is higher than the standard temperature, increases if lower.
- 49- An airplane is in steady cruise at FL290. The auto-throttle maintains a constant Mach number. If the total temperature increases, the calibrated airspeed:**
- A) Increases.
  - B) Remains constant.
  - C) Decreases.
  - D) Increases if the static temperature is higher than the standard temperature, decreases if lower.
- 50- An aeroplane is in steady descent. The auto-throttle maintains a constant calibrated airspeed. If the total temperature remains constant, the Mach number:**
- A) Increases.
  - B) Decreases.
  - C) Remains constant.
  - D) Increases if the static temperature is lower than the standard temperature, decreases if higher.
- 51- At flight level and Mach number constant, if the total temperature decreases, the CAS:**
- A) Decreases if OAT is lower than standard temperature, increases in the opposite case.
  - B) Increases.
  - C) Decreases.
  - D) Remains constant.
- 52- Below the tropopause in standard conditions, when climbing at a constant Mach number:**
- A) TAS decreases.
  - B) TAS increases.
  - C) TAS remains constant.
  - D) The difference between surrounding conditions and ISA must be known to deduce the TAS variation.
- 53- Below the tropopause in standard conditions, when descending at a constant CAS:**
- A) Mach number and the velocity of sound decrease.
  - B) Mach number increases and the velocity of sound decreases.
  - C) Mach number and the velocity of sound increase.
  - D) Mach number decreases and the velocity of sound increases.

**54- Below the tropopause in standard conditions, when descending at a constant Mach number:**

- A) TAS remains constant.
- B) TAS decreases.
- C) TAS increases.
- D) The difference between surrounding conditions and ISA must be known to deduce the TAS variation.

**55- During a climb at a constant calibrated airspeed (CAS) below the tropopause in ISA conditions:**

- A) The Mach number decreases and the speed of sound increases.
- B) The Mach number increases and the speed of sound decreases.
- C) The Mach number and the speed of sound increase.
- D) The Mach number and the speed of sound decrease.

**56- During a climb at a constant IAS below the tropopause in ISA conditions:**

- A) The Mach number increases and the true airspeed decreases.
- B) The Mach number and the true airspeed decrease.
- C) The Mach number and the true airspeed increase.
- D) The Mach number decreases and the true airspeed increases.

**57- You are flying at a constant FL290 and constant Mach number. The total temperature increases by 5°C. The CAS will:**

- A) Remain approximately constant.
- B) Increase by 10 kts.
- C) Decrease by 10 kts.
- D) Increase or decrease depending on whether you are above or below ISA.

**58- During a descent at a constant Mach number, there is an increase of total temperature. What effect does this have on CAS?**

- A) Remains almost constant.
- B) Increases if SAT is more than standard and decreases if SAT is less than standard.
- C) Increases.
- D) Decreases.

**59- The Primary Flying Display (PFD) displays information dedicated to:**

- A) Engine data and alarms
- B) Flight path
- C) Weather radar
- D) Aircraft systems



**60- (Refer to figure I-24) The ball flag No.2 refers to:**

- A) Approach capability column
- B) Thrust mode column
- C) Vertical mode column
- D) Lateral mode column

**61- (Refer to figure I-24) The ball flag No.4 refers to:**

- A) Approach capability column
- B) Thrust mode column
- C) Vertical mode column
- D) Lateral mode column

**62- (Refer to figure I-24) Which one of the ball flags refers to pressure altimeter tape?**

- A) 5
- B) 6
- C) 8
- D) 9

**63- (Refer to figure I-24) The ball flag No.6 refers to:**

- A) Pressure altimeter indication
- B) Indicated airspeed
- C) Pressure altimeter tape
- D) Vertical speed indicator

**64- (Refer to figure I-24) The ball flag No.20 refers to:**

- A) Bank angle limit
- B) Pitch of aircraft
- C) Over bank protection
- D) Roll scale

**65- (Refer to figure I-24) The ball flag No.7 refers to:**

- A) Pressure altimeter indication
- B) Barometric reference
- C) Pressure altitude
- D) Pressure altimeter tape

**66- (Refer to figure I-24) Which one of the ball flags refers to auto flight modes?**

- A) 1
- B) 2
- C) 3
- D) 4

**67- (Refer to figure I-24) The ball flag No.9 refers to:**

- A) Radio altimeter
- B) Pressure altimeter
- C) Aircraft altitude
- D) VSI

**68- (Refer to figure I-24) The ball flag No.11 refers to:**

- A) Pressure altimeter tape
- B) Heading bug
- C) Heading tape
- D) Aircraft speed

**69- (Refer to figure I-24) Which one of the ball flags refers to NAV AID?**

- A) 3
- B) 4
- C) 7
- D) 12

**70- (Refer to figure I-24) The ball flag No.13 refers to:**

- A) Airspeed trend
- B) V stick shaker
- C) V min
- D) V max

**71- (Refer to figure I-24) The ball flag No.17 refers to:**

- A) Airspeed trend
- B) V stick shaker
- C) IAS
- D) Airspeed bug

**72- (Refer to figure I-24) The ball flag No.14 refers to:**

- A) Airspeed trend
- B) V stick shaker
- C) V min
- D) V max

**73- (Refer to figure I-24) Which one of the ball flags refers to pressure altimeter?**

- A) 5
- B) 6
- C) 15
- D) 11

**74- (Refer to figure I-24) The ball flag No.15 refers to:**

- A) IAS
- B) V stick shaker
- C) V min
- D) V max

**75- (Refer to figure I-24) The ball flag No.3 refers to:**

- A) Approach capability column
- B) Thrust mode column
- C) Vertical mode column
- D) Lateral mode column

**76- (Refer to figure I-24) The ball flag No.16 refers to:**

- A) Airspeed trend
- B) V stick shaker
- C) V max
- D) Airspeed bug

**77- (Refer to figure I-24) The ball flag No.18 refers to:**

- A) IAS
- B) V stick shaker
- C) V min
- D) V max

**78- (Refer to figure I-24) Which one of the ball flags refers to bank angle limit?**

- A) 10
- B) 11
- C) 19
- D) 20

**79- (Refer to figure I-25) The ball flag No.16 refers to:**

- A) Estimated time at destination
- B) Estimated time to next waypoint
- C) Estimated time to destination
- D) Estimated time at next waypoint

**80- (Refer to figure I-25) The ball flag No.12 refers to:**

- A) Aircraft speed
- B) Heading to FF23R
- C) Track to FF23R
- D) Final course

**81- (Refer to figure I-25) Which one of the ball flags refers to aircraft heading?**

- A) 12
- B) 14
- C) 11 (wind direction)
- D) 15

**82- (Refer to figure I-25) The ball flag No.13 refers to:**

- A) GS
- B) TAS
- C) Wind velocity
- D) Track

**83- (Refer to figure I-25) The ball flag No.15 refers to:**

- A) GS
- B) TAS
- C) Wind velocity
- D) Track

**84- If an aircraft is equipped with one altimeter which is compensated for position error and another altimeter which is not, and all other factors being equal:**

- A) There will be no difference between them if air the data computer is functioning normally.
- B) At high speed, the non-compensated altimeter will indicate a higher altitude.
- C) At high speed, the non-compensated altimeter will indicate a lower altitude.
- D) ATC will get an erroneous altitude report SSR.

**85- In a non-pressurized aircraft, if one or several static pressure ports are damaged, there is an ultimate emergency means for restoring a practically correct static pressure intake:**

- A) Calculating the ambient static pressure, allowing for the altitude and QNH and adjusting the instruments.
- B) Descending as much as possible in order to fly at a pressure as close to 1013.25 hPa as possible.
- C) Slightly opening a window to restore the ambient pressure in the cabin.
- D) Breaking the rate-of-climb indicator glass window.

**86- If during a descent:**

- 1) The pneumatic altimeter reading is constant**
- 2) The VSI shows zero**
- 3) The IAS is increasing**

**The most likely explanation is that:**

- A) The static intakes are completely clogged up by ice.
- B) The total pressure intake is completely clogged up by ice.
- C) There is a leakage in the static pressure line.
- D) The antenna of the radio altimeter is completely clogged up by ice.

**87- The position error of the static vent on which the altimeter is connected varies substantially with the:**

- A) Flight time at high altitude.
- B) Speed of the aircraft.
- C) Altitude of the aircraft.
- D) Outside air temperature.

**88- The total pressure probe (pitot tube) comprises a mast which moves its port to a distance from the aircraft skin in order:**

- A) To locate it outside the boundary layer.
- B) Not to disturb the aerodynamic flow around the aircraft.
- C) It is protected from icing.
- D) It is easily accessible during maintenance checks.

**89- Which of the following instruments are connected to the pitot-static system?**

- 1) Altimeter
- 2) Air-operated directional gyro
- 3) Vertical speed indicator
- 4) Airspeed indicator

**The combination regrouping all the correct statements is:**

- A) 1,3
- B) 1,3,4
- C) 1,2,3,4
- D) 1,2,4

**90- A dynamic pressure measurement circuit is constituted of the following pressure probes:**

- A) Total pressure and static pressure.
- B) Static pressure only.
- C) Total pressure only.
- D) Total pressure and standard pressure.

**91- Given:**

**$P_T$  = total pressure**

**$P_s$  = static pressure**

**$P_{SO}$  = static pressure at sea level**

**Dynamic pressure is:**

- A)  $(P_T - P_s) / P_s$
- B)  $P_T - P_{SO}$
- C)  $(P_T - P_{SO}) / P_{SO}$
- D)  $P_T - P_s$

**92- If the pitot tube ices up during a flight, the affected equipment(s) is (are):**

- 1) The altimeter**
- 2) The variometer**
- 3) The airspeed indicator**

**The combination regrouping all the correct statements is:**

- A) 1,2
- B) 1,2,3
- C) 1,3
- D) 3

**93- Assume that the static port of your airplane became clogged (pitot tube remains open) at 3500 feet and you climbed. How does this affect the readings on your airspeed indicator at higher altitudes?**

- A) It has no effect on the airspeed indicator's readings.
- B) Airspeed indicator will read lower than actual.
- C) Airspeed indicator will read higher than actual.
- D) Airspeed indicator continue to show an airspeed that blockage occur

**94- Which instrument does not connect to the static system?**

- A) Altimeter.
- B) Vacuum gauge.
- C) Airspeed indicator.
- D) Vertical speed indicator.

**95- The standard temperature for all our aerodynamic computations is:**

- A) 0° C or 32° F.
- B) 15° C or 59° F.
- C) 273° K or 492° R.
- D) 0° F or 460° R.

**96- The QNH is by definition the value of the:**

- A) Altimeter setting so that the needles of the altimeter indicate the altitude of the location for which it is given.
- B) Atmospheric pressure at the sea level of the location for which it is given.
- C) Altimeter setting so that the needles indicate zero when the aircraft is on ground at the location for which it is provided.
- D) Atmospheric pressure at the level of the ground overflown by the aircraft.

**97- If the static source of an altimeter becomes blocked during a descent the instrument will:**

- A) Continue to display the reading at which the blockage occurred.
- B) Gradually indicate zero.
- C) Under-read.
- D) Indicate a height equivalent to the setting on the millibar subscale.

**98- The density altitude is:**

- A) The pressure altitude corrected for the density of air at this point.
- B) The temperature altitude corrected for the difference between the real temperature and the standard temperature.
- C) The pressure altitude corrected for the relative density prevailing at this point.
- D) The pressure altitude corrected for non-standard temperature.

**99- If the static source to an altimeter becomes blocked during a climb, the instrument will:**

- A) Under-read by an amount equivalent to the reading at the time that the instrument became blocked.
- B) Continue to indicate the reading at which the blockage occurred.
- C) Over-read.
- D) Gradually return to zero.

**100- On board an aircraft the altitude is measured from the:**

- A) Density altitude.
- B) Pressure altitude.
- C) Temperature altitude.
- D) Standard altitude.

**101- When flying from a sector of warm air into one of colder air. the altimeter will:**

- A) Be just as correct as before.
- B) Under-read.
- C) Over-read.
- D) Show the actual height above ground.

**102- You are cruising at 6500 feet indicated altitude from point A where air temperature is much lower than standard to point B where air temperature is much warmer than standard.**

- A) Over point B your true altitude will be lower than point A.
- B) Over point B your true altitude will be higher than point A.
- C) Your true altitude will not change in this case.
- D) Over point B your indicated altitude shows higher than actual.

**103- The atmospheric pressure at FL070 in a standard atmosphere is:**

- A) 942.85 hPa
- B) 781.85 hPa
- C) 1013.25 hPa
- D) 644.41 hPa

**104- The altitude indicated on board an aircraft flying in an atmosphere where all the atmosphere layers below the aircraft are cold is:**

- A) Equal to the standard altitude.
- B) The same as the real altitude.
- C) Lower than the real altitude.
- D) Higher than the real altitude.

**105- An aircraft is flying at an indicated altitude of 16000 ft, the outside air temperature is -30°C. What is the true altitude of the aircraft?**

- A) 16800 ft
- B) 15200 ft
- C) 18600 ft
- D) 16000 ft

**106- An aircraft is flying straight and level, over a warm air mass. The altimeter reading will be:**

- A) Correct.
- B) Greater than the real height.
- C) Less than the real height.
- D) Oscillating around the correct height.

**107- An altimeter contains one or more aneroid capsules. Inside these capsules is:**

- A) Dynamic pressure and outside is static pressure.
- B) Static pressure and outside is dynamic pressure.
- C) A very low residual pressure and outside is static pressure.
- D) Static pressure and outside a very low residual pressure.

**108- Due to its conception, the altimeter measures a:**

- A) Temperature altitude.
- B) Density altitude.
- C) Indicated altitude.
- D) True altitude.



**109- The altimeter of your aircraft indicates 11000 ft with a subscale-setting of 1013.25 mb, the QNH is 1023 hPa, OAT is +3°C, the pressure altitude of the aircraft is:**

- A) 10260 ft
- B) 11740 ft
- C) 11000 ft
- D) 670 hPa

**110- Approximately how many percent the true altitude will be lower than your indicated altitude, if the temperature is 10°C colder than standard?**

- A) 8%
- B) 10%
- C) 4%
- D) 12%

**111- If you change the altimeter setting from 30.45 to 29.85 in.Hg, what would be the change in the indicated altitude?**

- A) Indicated altitude would increase 600 feet.
- B) Indicated altitude would decrease 600 feet.
- C) Indicated altitude would decrease 60 feet.
- D) Indicated altitude would increase 60 feet.

**112- The altimeter is based upon the same principle as:**

- A) The aneroid barometer.
- B) The hygrometer.
- C) The mercury barometer.
- D) The Bourdon tube manometer.

**113- An aircraft is maintaining a level flight at FL100 over a mountain range, which extends up to 2400 meters AMSL. If the regional QNH is 998 hPa (use 30 ft/hPa), what is the approximate terrain clearance?**

- A) 2681 feet
- B) 1680 feet
- C) 7869 feet
- D) 450 feet

**114- You are departing an aerodrome (600 ft AMSL, QNH 1012 hPa) and proceed to another airfield (150 ft AMSL) with the same QNH. After landing, which barometric setting on the altimeter makes it again indicate 600 ft?**

- A) 1027
- B) 997
- C) 1032
- D) 992

**115- The operating principle of the vertical speed indicator (VSI) is based on the measurement of the rate of change of:**

- A) Kinetic pressure.
- B) Dynamic pressure.
- C) Total pressure.
- D) Static pressure.

**116- The response time of a vertical speed detector may be improved by adding a:**

- A) Return spring.
- B) Bimetallic strip.
- C) Correction based on an accelerometer sensor.
- D) Second calibrated port.

**117- A vertical speed indicator measures the difference between:**

- A) The dynamic pressure and the static pressure.
- B) The total pressure and the static pressure.
- C) The total instantaneous pressure and the total pressure at a previous moment.
- D) The instantaneous static pressure and the static pressure at a previous moment.

**118- If the static intakes are completely clogged up by ice during a climb, the VSI shows:**

- A) A descent if the outside static pressure is less than the pressure in the VSI-gauge.
- B) Zero.
- C) A constant rate of climb, even if the aircraft is levelling out.
- D) An increasing rate of climb if the ambient static pressure decreases.

**119- If the static source of a vertical speed indicator (VSI) becomes blocked during a climb, the instrument will:**

- A) Indicate a height equivalent to the setting on the millibar subscale.
- B) Gradually indicate zero.
- C) Under-read,
- D) Continue to display the reading at which the blockage occurred.

**120- The vertical speed indicator (VSI) gives:**

- A) Immediate trend information and immediate climb or descent information.
- B) Immediate trend information and stable climb or descent information after 6 to 12 seconds (depending on type).
- C) No trend information, but stable climb or descent information after 6 to 12 seconds (depending on type).
- D) Immediate stable climb or descent information, but unreliable trend information.

**121- Within a temperature range of +50°C and -20°C the VSI is accurate to within limits of:**

- A)  $\pm 200$  ft/min
- B) 0 ft/min
- C)  $\pm 75$  ft/min
- D)  $\pm 300$  ft/min

**122- A pilot changes the altimeter setting from 29.72 to 30.17 in.Hg, what would be the change in the indicated altitude?**

- A) Indicated altitude would increase 450 feet.
- B) Indicated altitude would increase 45 feet.
- C) Indicated altitude would decrease 450 feet.
- D) Indicated altitude would decrease 45 feet.

**123- The altimeter of your aircraft indicates 17000 ft with a subscale setting of 1013.25 mb. QNH is 1031 hPa. The pressure altitude of the aircraft is:**

- A) 17540 ft
- B) 17000 ft
- C) 16460 ft
- D) 527 hPa

**124- The QFE is by definition the value of the:**

- A) Atmospheric pressure at the location for which it is given, corrected for non-standard temperature.
- B) Altimeter setting so that the altimeter, on the apron of the aerodrome for which it is given, reads the elevation.
- C) Altimeter setting so that the altimeter, on the, apron of the aerodrome for which it is given, reads zero.
- D) Atmospheric pressure at the level of the ground over-flown by the aircraft.

**125- When flying in cold air (colder than standard atmosphere), indicated altitude is:**

- A) Lower than the true altitude.
- B) The same as the true altitude.
- C) Higher than the true altitude.
- D) Equal to the standard altitude.

**126- When flying in warm air (warmer than standard atmosphere), the altimeter will:**

- A) Show the actual height above the sea level.
- B) Underestimate.
- C) Overestimate.
- D) Show the actual height above ground.

**127- An altimeter is set to 29.84" Hg and the correct altimeter setting is 30.00" Hg. If under these conditions a landing is made at an airport where the field elevation is 772 ft the altimeter would indicate approximately:**

- A) 932 ft
- B) 160 ft
- C) 612 ft
- D) 772 ft

**128- Enroute at FL250 the altimeter is set correctly. On descent a pilot fails to reset it to a local altimeter setting of 30.57". If the field elevation is 650 ft and the altimeter is functioning properly what will it indicate after landing?**

- A) Sea level
- B) 585 ft
- C) 715 ft
- D) 1300ft

**129- A pitot blockage of both the ram air input and the drain hole with the static port open causes the airspeed indicator to:**

- A) React like an altimeter.
- B) Read a little high.
- C) Read a little low.
- D) Freeze at zero.

**130- In a standard atmosphere and at the sea level, the calibrated airspeed (CAS) is:**

- A) Higher than the true airspeed (TAS).
- B) Independent of the true airspeed (TAS).
- C) Equal to the true airspeed (TAS).
- D) Lower than the true airspeed (TAS).

**131- During a climb, the total pressure probe of the airspeed indicator becomes blocked; if the pilot tries to maintain a constant indicated airspeed, the true airspeed:**

- A) Increases until reaching  $V_{MO}$ .
- B) Decreases until reaching the stall speed.
- C) Decreases by 1% per 600 ft.
- D) Increases by 1% per 600 ft.

**132- When climbing at a constant CAS in a standard atmosphere:**

- A) TAS decreases.
- B) TAS increases.
- C) TAS remains constant.
- D) TAS first decreases, then remains constant above the tropopause.

**133- When climbing at a constant CAS:**

- A) EAS decreases.
- B) EAS increases.
- C) EAS remains constant.
- D) EAS does not depend on altitude.

**134- When descending at a constant CAS:**

- A) EAS increases.
- B) EAS decreases.
- C) EAS remains constant.
- D) EAS does not depend on altitude.

**135- With EAS and density altitude, we can deduce:**

- A) CAS and TAS
- B) CAS
- C) TAS
- D) IAS

**136- With EAS and pressure altitude, we can deduce:**

- A) TAS
- B) CAS
- C) CAS and TAS
- D) IAS

**137- The input connections to an airspeed indicator are from:**

- A) A static source only.
- B) A pitot source only.
- C) Both pitot and static sources.
- D) Pitot and static sources and outside air temperature sensor.

**138- If the static pressure port iced over while descending from altitude, the airspeed indicator would read:**

- A) Zero
- B) High
- C) Low
- D) Correctly

**139- The position error of an ASI results from:**

- A) Mechanical differences in individual instruments.
- B) The difference in air density from sea level ISA density.
- C) The effects of the airflow around the static vent and pitot head.
- D) The fact that air becomes more compressible at high speeds.

**140- At constant weight, regardless of altitude, an aircraft always lifts off at a constant:**

- A) EAS
- B) TAS
- C) Ground speed
- D) CAS

**141- An ASI circuit consists of pressure sensors. The pitot probe measures:**

- A) Total pressure and static pressure.
- B) Dynamic pressure.
- C) Static pressure.
- D) Total pressure.

**142- In the building principle of a gyroscope, the best efficiency is obtained through the concentration of the mass:**

- A) On the periphery and with a high rotation speed.
- B) Close to the axis and with a high rotation speed.
- C) On the periphery and with a low rotation speed.
- D) Close to the axis and with a low rotation speed.

**143- The rigidity of a gyro is improved by:**

- A) Increasing RPM and concentrating the mass on the periphery of the rotor.
- B) Increasing RPM and concentrating the mass at the hub of the rotor.
- C) Decreasing RPM and concentrating the mass on the periphery of the rotor.
- D) Decreasing RPM and concentrating the mass at the hub of the rotor.

**144- Using a classic (air driven) artificial horizon, the aircraft performs a right 270° turn at a constant angle of bank and rate of turn. The indication is:**

- A) Nose up, too much bank.
- B) Nose up, not enough bank.
- C) Nose up, wings level.
- D) Bank and pitch correct.

**145- When executing a turn by 90° at constant attitude and bank, a classic artificial horizon (air driven) indicates:**

- A) Nose up and correct angle of bank.
- B) Attitude and bank angle are correct.
- C) Nose up and bank angle too low.
- D) Nose up and bank angle too high.

**146- The basic properties of a gyroscope are:**

- 1) The gyros weight.
- 2) The rigidity in space.
- 3) The inertia.
- 4) The high RPM.
- 5) The precession.

**The combination of correct statements is:**

- A) 3,4
- B) 2,5
- C) 2,3,5
- D) 1,3,5

**147- The inertia of a gyroscope is greater when:**

- A) Its rotation speed is lower and the mass of the spinning wheel is located further from the axis of rotation.
- B) Its rotation speed is higher and the mass of the spinning wheel is closer to the axis of rotation.
- C) Its rotation speed is higher and the mass of the spinning wheel is located further from the axis of rotation.
- D) Its rotation speed is lower and the mass of the spinning wheel is closer to the axis of rotation.

**148- The properties of a gyroscope are:**

- 1) Rigidity in space
- 2) Rigidity on Earth
- 3) Precession
- 4) Schuler oscillations

**The combination regrouping all the correct statements is:**

- A) 1,4
- B) 2,3
- C) 1,3
- D) 2,4

**149- The main advantage of electric gyros is:**

- A) Light weight, high RPM, constant speed, inexpensive.
- B) High RPM, only require low voltage DC, constant speed, sealed casing.
- C) High RPM, high moment of inertia, rapid build-up of speed, constant RPM.
- D) Sealed casing, constant speed, high precession rate, low cost.

**150- Rigidity in a gyroscope is:**

- A) A way to express the stability of the inner and out gimbal rings.
- B) To what extremes the flight attitudes might be before the gyro topples.
- C) The reaction  $90^\circ$  in the direction of rotation when applying force to the spinning wheel.
- D) The tendency it has to remain in its plane of rotation and resist attempts to alter its position.

**151- Precession in a gyroscope is:**

- A) The tendency it has to remain in its plane of rotation.
- B) A caging device.
- C) The angular limits to which the gimbals may travel before the gyro topples and the indication becomes useless.
- D) The reaction at 90° in direction of rotation caused by an applied force to the spinning wheel.

**152- How is vacuum provided for the air driven gyro instruments?**

- A) By the static tube.
- B) By an engine-driven pump.
- C) By the static vent.
- D) All answers are correct.

**153- Air driven gyro rotors are prevented from spinning too fast by the:**

- A) Air filter.
- B) Vacuum relief valve.
- C) Suction gauge.
- D) Bearing friction.

**154- What is the main cause of precession?**

- A) Magnetic variation.
- B) Magnetic declination.
- C) Bearing friction.
- D) The Earth's rotation.

**155- A turn indicator is an instrument which indicates rate of turn. Rate of turn depends upon:**

- 1) Bank angle
- 2) Aeroplane speed
- 3) Aeroplane weight

**The combination regrouping the correct statements is:**

- A) 2,3
- B) 1,2,3
- C) 1,2
- D) 1,3

**156- An aircraft is flying at a 120 kts TAS. In order to achieve a standard rate turn, the pilot will have to bank the aircraft at an angle of:**

- A) 30°
- B) 12°
- C) 36°
- D) 19°



**157- If the needle and the ball of a turn and slip indicator both show right, what does it indicate:**

- A) Turn to left and too much bank.
- B) Turn to right and too much bank.
- C) Turn to left and too little bank.
- D) Turn to right and too little bank

**158- In a right turn while taxiing, the correct indications on turn and slip indicator are:**

- A) Needle left, ball right.
- B) Needle left, ball left.
- C) Needle right, ball right.
- D) Needle right, ball left.

**159- On the ground, during a left turn, the turn indicator indicates:**

- A) Needle in the middle, ball to the left.
- B) Needle to the left, ball to the left.
- C) Needle in the middle, ball to the right.
- D) Needle to the left, ball to the right.

**160- When in flight, the needle and ball of a needle-and-ball indicator are on the left, the aircraft is:**

- A) Turning left with not enough bank.
- B) Turning left with too much bank.
- C) Turning right with too much bank.
- D) Turning right with not enough bank.

**161- The rate of turn is the:**

- A) Yaw rate in a turn.
- B) Change-of-heading rate of the aircraft.
- C) Aircraft speed in a turn.
- D) Pitch rate in a turn.

**162- On a turn and slip indicator, needle to the left and ball to the right indicates:**

- A) Turn to the right, not enough bank.
- B) Turn to the left, too much bank.
- C) Turn to the left, not enough bank.
- D) Turn to the right, too much bank.

**163- In a turn at constant angle of bank, the rate of turn is:**

- A) Independent of weight and proportional a to TAS.
- B) Dependent on weight and inversely proportional to TAS.
- C) Independent of weight and inversely proportional a to TAS.
- D) Dependent on weight and proportional to TAS.

**164- A rate gyro is used in a:**

- 1) Directional gyro indicator**
- 2) Turn coordinator**
- 3) Artificial horizon**

**The combination regrouping all the correct statements is:**

- A) 2
- B) 1,2,3
- C) 1
- D) 1,2

**165- The rate of turn given by the rate of turn indicator is valid:**

- A) For all airspeeds.
- B) For the airspeed range defined during the calibration of the instrument.
- C) With flaps retracted only.
- D) For the cruising speed.

**166- The factors which will affect a Turn Indicator are:**

- 1) Angle of bank**
- 2) Aircraft speed**
- 3) Aircraft weight**

- A) 1,2
- B) 1,3
- C) 2,3
- D) All answers are correct

**167- What angle of bank should you adopt on the attitude indicator for a standard rate turn while flying at an IAS of 80 kts?**

- A) 8°
- B) 12°
- C) 15°
- D) 20°

**168- The higher the airspeed is:**

- A) The higher the bank angle must be to turn at the standard rate.
- B) The lower the bank angle must be to turn at the standard rate.
- C) There is no relation between the speed and the rate of turn.
- D) The higher the left or right rudder input must be to turn in a coordinated manner.

**169- A direction gyro is corrected for accurate directional information using:**

- A) Air data computer.
- B) Direct reading magnetic compass.
- C) Flight director.
- D) Flux valve.

**170- During an acceleration phase at constant attitude, the resetting principle of the artificial horizon results in the horizon bar indicating a:**

- A) Constant attitude.
- B) Nose-down attitude.
- C) Nose-up attitude.
- D) Nose-down followed by a nose-up attitude.

**171- You have just taken off in a fast aircraft fitted with a vacuum operated attitude indicator. While climbing straight ahead still accelerating, the instrument may for a short while indicate:**

- A) A high nose-up attitude.
- B) A flatter attitude than actual.
- C) A climbing turn to the left.
- D) A climbing turn to the right.

**172- Following 180° stabilized turn with a constant attitude and bank, the artificial horizon (air driven) indicates:**

- A) Too high pitch-up and too low banking.
- B) Too high pitch-up and correct banking.
- C) Attitude and banking correct.
- D) Too high pitch-up and too high banking.

**173- During a deceleration phase at constant attitude, the control system of an air driven artificial horizon results in the horizon bar indicating a:**

- A) Nose up attitude.
- B) Nose down attitude.
- C) Constant attitude.
- D) Nose up followed by a nose down attitude.

**174- The magnetic heading can be derived from the true heading by means of a:**

- A) Map showing the isoclinic lines.
- B) Map showing the isogonal lines.
- C) Deviation correction curve.
- D) Compass swinging curve.

**175- In the vicinity of the Magnetic North Pole the magnetic compass is useless because:**

- A) The magnetic field is too strong.
- B) The magnetic pole is moving.
- C) The horizontal component of the magnetic field is too weak.
- D) The variation is too large.

**176- Variation is defined as the angle between:**

- A) MN and CN.
- B) TN and CN.
- C) TN and MN.
- D) CN and the longitudinal axis of the aircraft.

**177- The purpose of a compass swing is to attempt to coincide the indications of:**

- A) Compass north and True North.
- B) Compass north and Magnetic North.
- C) True North and Magnetic North.
- D) Compass north and the lubber line.

**178- The purpose of compass swinging is to determine the deviation of a magnetic compass:**

- A) On a given heading.
- B) On any heading.
- C) At any latitude.
- D) At a given latitude.

**179- The compass heading can be derived from the magnetic heading by reference to a:**

- A) Map showing the isogonic lines.
- B) Map showing the isoclinic lines.
- C) Deviation correction curve.
- D) Variation.

**180- Magnetic compass swinging is carried out to reduce as much as possible:**

- A) Variation.
- B) Deviation.
- C) Regulation.
- D) Acceleration.

**181- The fields affecting a magnetic compass originate from:**

- 1) Magnetic masses
- 2) Ferrous metal masses
- 3) Nonferrous metal masses
- 4) Electrical currents

**The combination of correct statements is:**

- A) 1,2,3
- B) 1,2,4
- C) 1,2,3,4
- D) 1,3,4

**182- The magnetic heading can be derived from the compass heading by reference to a:**

- A) Magnetic variation correction card.
- B) Map showing the magnetic variation lines.
- C) Compass deviation card.
- D) Map showing the isogonic lines.

**183- Concerning magnetic compasses, deviation is:**

- A) The angular difference between Magnetic North and True North.
- B) The angular difference between Magnetic North and Compass North.
- C) Compass North.
- D) A card in the cockpit showing compass heading errors.

**184- During deceleration following a landing in a southerly direction, a magnetic compass made for the northern hemisphere indicates:**

- A) An apparent turn to the west.
- B) No apparent turn only on northern latitudes.
- C) No apparent turn.
- D) An apparent turn to the east.

**185- A pilot wishes to turn left on to a southerly heading with 20° bank at a latitude of 20° North. Using a direct reading compass, in order to achieve this, he must stop the turn on an approximate heading of:**

- A) 190°
- B) 200°
- C) 170°
- D) 160°

**186- In the northern hemisphere, during deceleration following a landing in an easterly direction, the magnetic compass will indicate:**

- A) An apparent turn to the south.
- B) An apparent turn to the north.
- C) A constant heading.
- D) A heading fluctuating about  $090^\circ$ .

**187- In the northern hemisphere, during deceleration following a landing in a westerly direction, the magnetic compass will indicate:**

- A) A heading fluctuating about  $270^\circ$ .
- B) An apparent turn to the north.
- C) No apparent turn.
- D) An apparent turn to the south.

**188- A pilot wishes to turn right on to a northerly heading with  $20^\circ$  bank at a latitude of  $40^\circ$  North. Using a direct reading compass, in order to achieve this, he must stop the turn on to an approximate heading of:**

- A)  $030^\circ$
- B)  $350^\circ$
- C)  $330^\circ$
- D)  $010^\circ$

**189- If an aircraft fitted with a Direct Reading Magnetic Compass (DRMC), takes off on a westerly heading, in the northern hemisphere, the DRMC will indicate:**

- A) A turn to the north.
- B) Oscillates about west.
- C) No turn.
- D) A turn to south.

**190- During deceleration following a landing in a northerly direction, a magnetic compass made for the southern hemisphere indicates:**

- A) No apparent turn.
- B) An apparent turn to the east.
- C) An apparent turn to the west.
- D) A heading fluctuating about  $360^\circ$ .

**191- An aircraft is taking off on a runway heading  $045^\circ$ , in still air, with a compass having  $0^\circ$  deviation. The runway is on an agonic line. What will the compass read if you are in the northern hemisphere?**

- A) Compass moves to less than  $045^\circ$ .
- B) Compass moves to more than  $045^\circ$ .
- C) Compass stays on  $045^\circ$  if wings are kept level.
- D) Compass remains on  $045^\circ$ .

**192- In the southern hemisphere, during deceleration following a landing in an easterly direction, the magnetic compass will indicate:**

- A) A heading fluctuating about  $090^\circ$ .
- B) An apparent turn to the south.
- C) No apparent turn.
- D) An apparent turn to the north.

**193- A pilot wishes to turn left on to a northerly heading with  $10^\circ$  bank at a latitude of  $50^\circ$  North. Using a direct reading compass, in order to achieve this, he must stop the turn on an approximate heading of:**

- A)  $355^\circ$
- B)  $030^\circ$
- C)  $330^\circ$
- D)  $015^\circ$

**194- An aircraft is fitted with a direct reading magnetic compass. Upon landing in a northerly direction the compass will indicate:**

- A) No change.
- B) An oscillation to its north alignment.
- C) A turn towards east.
- D) A turn towards west.

**195- A pilot wishes to turn right on to a southerly heading with  $20^\circ$  bank at a latitude of  $20^\circ$  North. Using a direct reading compass, in order to achieve this, he must stop the turn on an approximate heading of:**

- A)  $170^\circ$
- B)  $150^\circ$
- C)  $200^\circ$
- D)  $190^\circ$

**196- Which of the following will effect a direct reading compass?**

- 1) Ferrous metals
- 2) Nonferrous metals
- 3) Electrical equipment

- A) 1
- B) 1,3
- C) 1,2
- D) 1,2,3

**197- About a magnetic compass:**

- A) Errors of parallax are due to the oscillation of the compass rose.
- B) Acceleration errors are due to the compass deviation.
- C) Acceleration errors are due to Schuler oscillations.
- D) Turning error is due to the vertical component of the earth's magnetic field.

**198- Concerning the direct reading magnetic compass, the turning error:**

- A) Does not depend on the magnetic latitude.
- B) Decreases with the magnetic latitude.
- C) Increases with the magnetic latitude.
- D) Decreases with the magnetic longitude.

**199- The direct reading magnetic compass is no more reliable when approaching:**

- 1) The magnetic poles
  - 2) The magnetic equator with an east or west heading
  - 3) The magnetic equator with a north or south heading
- The combination regrouping all the correct statements is:

- A) 1,2
- B) 1,2,3
- C) 1
- D) 1,3

**200- The turning errors of a direct reading magnetic compass are:**

- A) Maximum at the magnetic equator.
- B) Maximum at the magnetic poles.
- C) Minimum at a latitude of  $45^\circ$ .
- D) Minimum at the magnetic poles.

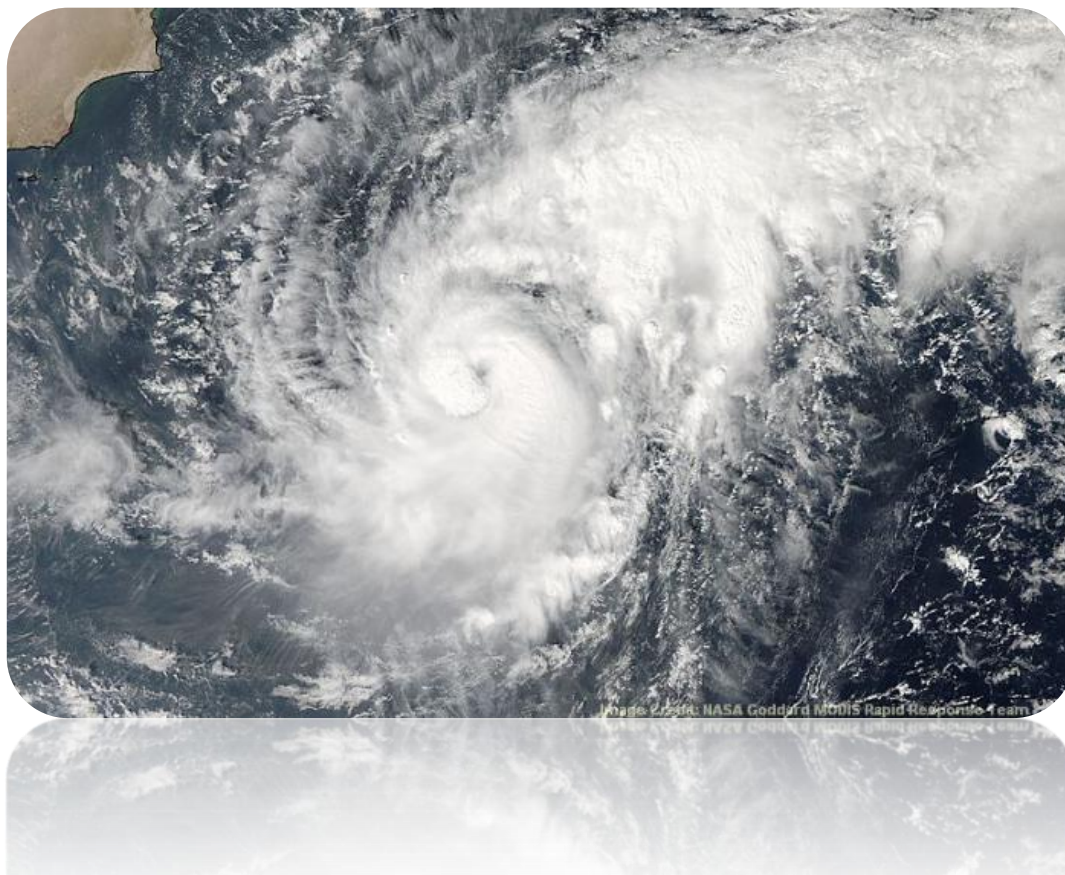


QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	B	26	B	51	D	76	D
2	B	27	B	52	A	77	D
3	C	28	D	53	D	78	C
4	C	29	D	54	C	79	D
5	A	30	D	55	B	80	C
6	D	31	B	56	C	81	B
7	A	32	C	57	A	82	B
8	D	33	A	58	C	83	A
9	D	34	B	59	B	84	B
10	B	35	C	60	B	85	D
11	A	36	B	61	D	86	A
12	B	37	A	62	C	87	B
13	B	38	A	63	D	88	A
14	B	39	D	64	D	89	B
15	B	40	A	65	B	90	A
16	B	41	C	66	A	91	D
17	D	42	D	67	A	92	D
18	D	43	C	68	C	93	B
19	B	44	B	69	D	94	B
20	A	45	B	70	B	95	B
21	D	46	A	71	A	96	A
22	C	47	A	72	C	97	A
23	A	48	C	73	A	98	D
24	C	49	B	74	A	99	B
25	D	50	B	75	C	100	B

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	C	126	B	151	D	176	C
102	B	127	C	152	B	177	B
103	B	128	A	153	B	178	B
104	D	129	A	154	C	179	C
105	B	130	C	155	C	180	B
106	C	131	B	156	D	181	B
107	C	132	B	157	B	182	C
108	C	133	A	158	D	183	B
109	C	134	A	159	D	184	C
110	C	135	C	160	B	185	D
111	B	136	B	161	B	186	A
112	A	137	C	162	C	187	D
113	B	138	B	163	C	188	C
114	A	139	C	164	A	189	A
115	D	140	D	165	B	190	A
116	C	141	D	166	A	191	A
117	D	142	A	167	B	192	D
118	B	143	A	168	A	193	B
119	B	144	A	169	B	194	A
120	B	145	C	170	C	195	C
121	A	146	B	171	D	196	B
122	A	147	C	172	B	197	D
123	B	148	C	173	B	198	C
124	C	149	C	174	B	199	C
125	C	150	D	175	C	200	B



# METEOROLOGY



**1- How does the height of the tropopause normally vary with latitude in the northern hemisphere?**

- A) It remains constant throughout the year.
- B) It remains constant from north to south.
- C) It increases from south to north.
- D) It decreases from south to north.

**2- Why are indications about the height of the tropopause not essential for flight documentation in the tropics?**

- A) The tropopause is generally well above the flight level actually flown.
- B) The meteorological services are unable to such a chart.
- C) The temperatures of the tropical tropopause are always very cold and therefore not important.
- D) Tropopause information are of no value.

**3- Which force in the northern hemisphere act at a right angle to the wind and deflect it to the right until parallel to the isobars?**

- A) Centrifugal.
- B) Pressure gradient.
- C) Coriolis.
- D) Net force.

**4- Turbulence that is encountered above 15000 ft, AGL not associated with cumuliform cloudiness, including thunderstorm should be reported as:**

- A) Convective turbulence.
- B) Severe turbulence.
- C) Orographic turbulence.
- D) Clear air turbulence.

**5- A situation most conducive to the formation of advection fog is:**

- A) An air mass moving inland from the coastline during the winter.
- B) A warm, moist air mass settling over a cool surface under no wind conditions.
- C) A warm, moist air mass on the windward side of a mountain.
- D) A light breeze moving colder air over a water surface.

**6- Which procedure should be used when penetrating turbulent air?**

- A) Set power for maneuvering speed and maintain constant air speed with pitch control.
- B) Set power for maneuvering speed and maintain a level flight attitude.
- C) Reduce air speed to maneuvering speed and maintain altitude with power control and airspeed with pitch control.
- D) Reduce air speed to maneuvering speed and maintain airspeed with power control and altitude with pitch control.

**7- Which type of approach and landing is recommended during gusty wind conditions?**

- A) A power off approach and power off landing.
- B) A power on approach and power on landing.
- C) A power off approach and power on landing.
- D) A power on approach and power off landing.

**8- The location of radiation fog would most likely occur are:**

- A) Water surfaces.
- B) Mountain valleys.
- C) Level inland areas.
- D) Mountain Slopes.

**9- The most hazardous wind shear near the ground often is produced by:**

- A) Thunderstorm.
- B) Surface winds exceeding 25 knots.
- C) Rugged terrains.
- D) Occluded fronts.

**10- Which type clouds can be expected, when an unstable air mass is to ascend a mountain slope?**

- A) Stratified clouds with intermittent showers.
- B) Layered clouds with little vertical development.
- C) Stratified clouds with considerable associated turbulence.
- D) Clouds with extensive vertical development.

**11- Dynamic hydroplaning (airplane skimming on a wet runway) occurs at:**

- A) High speeds when there is standing water on the runway.
- B) Only at low speed when there is standing water on the runway.
- C) High speed with only a thin film of water on the runway.
- D) Low speed with only a thin film of water on the runway.

**12- What term is used to describe hydroplaning, which occurs when an airplane tire is effectively held off a smooth runway surface by steam created by friction?**

- A) Viscous hydroplaning.
- B) Frictional hydroplaning.
- C) Reverted rubber hydroplaning.
- D) Dynamic hydroplaning.

**13- Which statement is true concerning the tropopause from the equator to the poles?**

- A) The tropopause decreases, the tropopause temperature increases.
- B) The tropopause decreases, the tropopause temperature decreases.
- C) The tropopause increases, the tropopause temperature increases.
- D) The tropopause increases, the tropopause temperature decreases.

**14- What can be said about the temperature in the lower stratosphere?**

- A) The temperature is constant.
- B) The temperature is increasing.
- C) The temperature is decreasing.
- D) The temperature is first increasing and then decreasing.

**15- The percentage concentration of gases in the atmosphere is constant from the surface of the Earth to a certain altitude with the exception of:**

- A) Oxygen
- B) Nitrogen
- C) Hydrogen
- D) Water vapour

**16- Several physical processes contribute to atmospheric warming. Which of the following contribute the most?**

- A) Absorption and evaporation.
- B) Solar radiation and conduction.
- C) Absorption and vaporization.
- D) Convection and condensation.

**17- A significant inversion at low height is a characteristic of:**

- A) The passage of cold front.
- B) Nocturnal radiation.
- C) Advection fog.
- D) Cumulus clouds.

**18- The radiation of the Sun heats:**

- A) The air in the troposphere only directly if no clouds are present.
- B) The air in the troposphere directly.
- C) The water vapour in the air of the troposphere.
- D) The surface of the Earth, which heats the air in the troposphere.

**19- The diurnal variation in temperature is largest when the sky is:**

- A) Clear and winds are strong.
- B) Clear and winds are weak.
- C) Overcast and winds are weak.
- D) Overcast and winds are strong.

**20- On a clear sky, continental ground surface, wind calm, the minimum temperature is reached approximately:**

- A) At the moment the sun rises.
- B) Half an hour before sunrise.
- C) Half an hour after sunrise.
- D) One hour before sunrise.

**21- Which of the following is a common cause of ground or surface temperature inversion?**

- A) Terrestrial radiation on a clear night with no or very light winds.
- B) Warm air being lifted rapidly aloft, in the vicinity of mountainous terrain.
- C) The movement of colder air under warm air, or the movement of warm air over cold air.
- D) Heating of the air by subsidence.

**22- The amount of water vapor which air can largely depends on:**

- A) The dew point.
- B) Air temperature.
- C) Stability of air.
- D) Relative humidity.

**23- How are haze layers cleared or dispersed?**

- A) By convective mixing in cool night air.
- B) Wind or movement of air.
- C) Heating during the day.
- D) B and C are correct.

**24- What are some characteristics of unstable air?**

- A) Poor visibility, steady rain, and clear icing.
- B) Good visibility, steady rain, and rime icing.
- C) Poor visibility, showers, and clear icing.
- D) Good visibility, showers and cumuliform clouds.

**25- A temperature inversion forms:**

- A) Only in summer.
- B) Only in winter.
- C) An unstable layer of air.
- D) A stable layer of air.

**26- The most frequent type of ground or surface based temperature inversion is that produced by:**

- A) Terrestrial radiation on a clear, relatively still night.
- B) Warm air being lifted rapidly aloft in the vicinity of mountainous terrain.
- C) The movement of colder air under warm air, or the movement of warm air over cold air.
- D) Widespread sinking of air within a thick layer aloft resulting in heating by compression.



**27- In which situation is advection fog most likely to form?**

- A) A warm, moist air mass on the windward side of mountains.
- B) An air mass moving inland from the coast in winter.
- C) A light breeze blowing colder air out to sea.
- D) Warm, moist air settling over a warmer surface under no-wind conditions.

**28- In which environment is aircraft structural ice most likely to have the highest accumulation rate?**

- A) Cumulus clouds.
- B) Cirrus clouds.
- C) Stratus clouds.
- D) Freezing rain.

**29- What visible indicates extreme turbulence in thunderstorms?**

- A) Cumulonimbus clouds, very frequent lightning, and roll clouds.
- B) Base of the clouds close to the surface heavy rain and hail.
- C) Low ceiling and visibility hail and precipitation static.
- D) Lightning, roll clouds, low ceilings and visibility and precipitation static.

**30- Which thunderstorms generally produce the most severe conditions, such as heavy hail and destructive winds?**

- A) Warm front thunderstorms.
- B) Squall line thunderstorms.
- C) Nocturnal air mass thunderstorms.
- D) Daytime air mass thunderstorms.

**31- Standard sea level pressure is:**

- A) 29.92 inches of mercury.
- B) 14.7 PSI.
- C) 1013.25 mb.
- D) All answers are correct.

**32- If the depth of the troposphere increases, the temperature at the tropopause must:**

- A) Decrease.
- B) Stay the same.
- C) Increase.
- D) Impossible to say.

**33- The majority of troposphere heating is the result of:**

- A) Radiation of the sun.
- B) Heating from the ground below.
- C) Re-radiation of the sun's rays from the surface of the Earth.
- D) Re-radiation from the clouds.

**34- Why is a calm and clear-sky night cooler than a cloudy night?**

- A) The clouds prevent radiation from the atmosphere.
- B) There is radiation from the clouds.
- C) The radiation from the Earth's surface slips into space.
- D) Due to contents of carbon dioxide.

**35- The QNH at an airfield located 200 meters above sea level is 1009 hPa. The air temperature is 10°C lower than a standard atmosphere. What is the QFF?**

- A) Less than 1009 hPa.
- B) 1009 hPa.
- C) More than 1009 hPa.
- D) It is not possible to give a definitive answer

**36- The QNH at an airfield located 0 meters above sea level is 1022 hPa. The air temperature is not available. What is the QFF?**

- A) It is not possible to give a definitive answer.
- B) Less than 1022 hPa.
- C) More than 1022 hPa.
- D) 1022 hPa.

**37- In the troposphere the decrease of pressure per 100 m increases in height:**

- A) Is greater at higher levels than at lower levels.
- B) Remains constant at all levels.
- C) Is smaller at higher levels than at lower levels.
- D) Is in the order of 27 hPa near MSL.

**38- The QNH at an airfield in California located 69 meters below sea level is 1018 hPa. The air temperature is 10°C higher than a standard atmosphere. What is the QFF?**

- A) More than 1018 hPa.
- B) Less than 1018 hPa.
- C) 1018 hPa.
- D) It is not possible to give a definitive answer.

**39- Which of the following statements is true?**

- A) High contour values are equivalent to high pressure.
- B) Low contour values are equivalent to high pressures.
- C) High contour values are equivalent to low pressure.
- D) There is not direct relationship between contour values and pressure.

**40- State the definition for QFF:**

- A) QFE reduced to MSL, using standard temperature gradient.
- B) QNH reduced to MSL, using standard temperature gradient.
- C) QFE reduced to MSL, using actual temperature gradient.
- D) QNE reduced to MSL, using standard temperature gradient.

**41- At a certain position, the temperature on the 300 hPa chart is -48°C; according to the tropopause chart, the tropopause is at FL330. What is the most likely temperature at FL350?**

- A) -56.5°C
- B) -50°C
- C) -54°C
- D) -58°C

**42- If you are flying at FL300 in an air mass that is 15°C warmer than a standard atmosphere, what is the outside temperature likely to be?**

- A) -30°C
- B) -45°C
- C) -60°C
- D) -15°C

**43- An aircraft is flying at FL080. The local QNH is 1000 hPa. After the second altimeter has been adjusted to the local QNH the reading will be approximately:**

- A) 7650 ft
- B) 8600 ft
- C) 8350 ft
- D) 8000 ft

**44- An aircraft lands at an airport (airport elevation 1240 ft, QNH 1008 hPa). The altimeter is set to 1013 hPa. The altimeter will indicate:**

- A) 1200 ft
- B) 1375 ft
- C) 1105 ft
- D) 1280 ft

**45- An aircraft is flying at FL180 on the northern hemisphere with a crosswind from the left. Which of the following is correct concerning its true altitude?**

- A) It remains constant.
- B) It increases.
- C) It decreases.
- D) Without knowing temperatures at FL180 this question cannot be answered.

**46- You are flying at FL200. Outside air temperature is  $-40^{\circ}\text{C}$ , and the pressure at sea level is 1033 hPa. What is the true altitude? (Note: assume 1 hPa = 27 ft)**

- A) 20660 feet.
- B) 19340 feet.
- C) 21740 feet.
- D) 18260 feet.

**47- At night when wind flows down the mountain it is called a:**

- A) Mountain wind.
- B) Valley wind.
- C) Westerly wind.
- D) Trade wind.

**48- Which of the following definitions are correct?**

- A) The movement of a cold front is usually slower and the slope of the cold front steep.
- B) The slope of the cold front have a gradual slope than warm front.
- C) The cold front produces a severe turbulence.
- D) The warm front moves faster than cold front.

**49- Which statement is correct?**

- A) Cloud are divided into four families according to height range.
- B) Steady precipitation in contrast to showers preceding a front is an indication of stratiform clouds with little or no turbulence.
- C) Temperature inversion produced by terrestrial radiation on calm & clear night.
- D) All answers are correct.

**50- Select the best statement:**

- A) Drop pressure always associated with the passage of frontal system.
- B) Change in wind direction is always associated with the passage of frontal system.
- C) Temperature change is always a good indication of frontal passage.
- D) All answers are correct.

**51- Precipitation trailing beneath clouds that evaporate before reaching the ground are called?**

- A) Frontal fog.
- B) Foehn wind.
- C) Virga.
- D) Fog.

**52- Which statement is correct?**

- A) An air mass is a body of air that covers an extensive area and has uniform temperature.
- B) An air mass is a body of air that has extensive turbulence and associated with uniform temperature and moisture.
- C) An air mass covers an extensive area and has uniform moisture.
- D) A and C are correct.

**53- Which statement is correct?**

- A) Every physical process of weather is accomplished by, or the result of a pressure difference.
- B) Every physical process of weather is accomplished by heat exchange.
- C) Every physical process of weather is accomplished by Coriolis force.
- D) None.

**54- Which statement is correct?**

- A) When cold air mass moving over warm surface stratiform clouds, turbulence and poor visibility will produce.
- B) When warm air mass moving over cold surface cumuliform clouds, turbulence and good visibility will expected.
- C) When cold air mass settle down it will be produced turbulence.
- D) None.

**55- Which statement is correct?**

- A) When temperature and temperature dew point spread increase relative humidity increase.
- B) When temperature and temperature dew point are equal we will have fog.
- C) When temperature and temperature dew point spread decrease relative humidity increase.
- D) B and C are correct.

**56- Which statement is correct?**

- A) A removal of water vapor and sinking decrease stability.
- B) Gray or dark massive cloud layer belongs high clouds.
- C) Terrestrial radiation on clear relatively still night may produce temperature inversion.
- D) B and C are correct.

**57- Which statement is correct?**

- A) Difference temperature creating different in pressure and cause wind.
- B) Water droplet and ice crystal continue to growth by condensation and sublimation.
- C) Wind shear can be expected at any level both horizontal and vertical direction.
- D) All answers are correct.

**58- Which statement is correct?**

- A) Water droplet increase in size with colliding and merging together.
- B) Water droplet increase in size with evaporation and sublimation.
- C) Water vapor increase with condensation and sublimation.
- D) All answers are correct.

**59- Which of the following clouds indicate convective turbulence?**

- A) Alto cumulus standing lenticular (ACSL).
- B) Towering cumulus (TCU).
- C) Nimbostratus (NS).
- D) Cirrus (CI).

**60- What is the feature of the air in low pressure area?**

- A) Area where descending air and then outward motion occurs.
- B) Area where inward and upward occurs.
- C) Is an area of rising air and then descending.
- D) None.

**61- Which statement is true regarding squall lines?**

- A) They are non-frontal and contains severe weather.
- B) They associated with fast moving cold front.
- C) They are associated with 15 kts winds at least for one minute.
- D) A and B are correct.

**62- A barometric altimeter always indicates:**

- A) Correct altitude to the terrain below.
- B) Altitude to the set altitude reference.
- C) Standard altitude.
- D) The dynamic pressure.

**63- At the official measuring level for a specific airport, an aircraft altimeter, set at QNH for the airport, should read:**

- A) The elevation of the airport, but only at standard ISA temperature.
- B) The elevation of the airport, regardless of temperature.
- C) Zero, regardless of temperature.
- D) Zero, only at standard ISA temperature.

**64- Which of the following is true concerning an aircraft that is flying at FL180 in the northern hemisphere, where wind is geostrophic and the true altitude remains constant?**

- A) There is a crosswind from the right.
- B) There is a crosswind from the left.
- C) There is no crosswind.
- D) Without knowing temperature at FL180 this question cannot be answered.

**65- Under anticyclone conditions in the northern hemisphere, with curved isobars the speed of the gradient wind is:**

- A) Less than the geostrophic wind.
- B) Greater than the geostrophic wind.
- C) The same as the thermal component.
- D) Proportional only to the Coriolis force.

**66- At the approach of a warm front (northern hemisphere) the wind direction changes from the surface up to the tropopause. The effect of this change is that the wind:**

- A) Veers in the friction layer and backs above the friction layer.
- B) Backs in the friction layer and veers above the friction layer.
- C) Veers in the friction layer and veers above the friction layer.
- D) Backs in the friction layer and backs above the friction layer.

**67- Whilst flying at FL180 on the northern hemisphere an aircraft experiences right drift. What effect, if any, will this have on the aircraft's true altitude?**

- A) Without knowing the pressure change this question cannot be answered.
- B) It increases.
- C) It remains constant.
- D) It decreases.

**68- In the northern hemisphere the gradient wind of a cyclonic pressure distribution is  $350^\circ/24$ , over the sea the surface wind would approximate:**

- A)  $340^\circ/20$
- B)  $030^\circ/20$
- C)  $340^\circ/28$
- D)  $030^\circ/28$

**69- The difference between geostrophic wind and gradient wind is caused by:**

- A) Curvature of isohypses.
- B) Friction.
- C) Horizontal temperature gradients.
- D) Slope of pressure surfaces.

**70- The geostrophic wind is less than the gradient wind around an anticyclone because the:**

- A) Centrifugal force opposes the pressure gradient.
- B) Centrifugal force is added to the pressure gradient.
- C) Effect of Coriolis is added to friction.
- D) Coriolis Effect opposes the centrifugal force.

**71- Which statement is true regarding mountain wave?**

- A) They are always indicated by the presence of a lenticular clouds.
- B) They are generally stationary over the mountain.
- C) They are sometimes marked by stationary lens-shaped clouds.
- D) They are found on the wind ward side of mountain.

**72- Suppose an airport has elevation of 4500 ft assuming a standard temperature dew point lapse rate. If the temperature at this airport is 70° F and dew point is 52° F the base of the cloud by lifting process would located approximately?**

- A) 8500 MSL.
- B) 4500 AGL.
- C) 4500 MSL.
- D) 8500 AGL.

**73- For a given temperature and pressure if humidity increase the density will be:**

- A) Remain unchanged.
- B) Increase.
- C) Decrease.
- D) First increase then decreases.

**74- In the international standard atmosphere, the temperature at mean sea level is:**

- A) 15° C
- B) 10° C
- C) 25° C
- D) 20° C

**75- Water vapor is:**

- A) Visible as cloud.
- B) Visible as cloud, fog and frost.
- C) An invisible gas.
- D) Invisible liquid.



**76- With increasing temperature, the capability of air to retain humidity will:**

- A) Increases.
- B) Remains constant.
- C) Decreases.
- D) First increase then decreases.

**77- With increasing temperature, the rate of saturation will be:**

- A) Increases.
- B) Remains constant.
- C) Decreases.
- D) First increase then decreases.

**78- Super cooled is the term applied to water drops which:**

- A) Have formed below the dew point temperature.
- B) Are existing as liquid below 0° C.
- C) Have formed below the wet bulb temperature.
- D) Invisible gas with temperature below 10° C

**79- The temperature to which air must be cooled at constant pressure to become saturated is:**

- A) Cloud base temperature.
- B) Dew point temperature.
- C) Wet bulb temperature.
- D) Super cool temperature.

**80- A temperature inversion indicates a state of the atmosphere, which is:**

- A) Absolutely stable.
- B) Absolutely unstable.
- C) Conditionally unstable.
- D) Conditionally stable.

**81- On clear night inland, the stability of the lowest layers of the atmosphere:**

- A) Will decrease.
- B) Will not change.
- C) Will increase.
- D) First increase then decreases

**82- The dry adiabatic lapse rate value is:**

- A) 1.5°C/1000 ft.
- B) 1.98°C/1000 ft.
- C) 3°C /1000 ft.
- D) 2.5°C/1000 ft.

**83- Clouds names are classified by:**

- A) Rain bearing.
- B) Type of stability.
- C) Composed only of water drops.
- D) Shape of cloud.

**84- Which one of the following cloud has lowest cloud base?**

- A) Altostratus.
- B) Nimbostratus.
- C) Stratus.
- D) Cirrus.

**85- Where you are likely to find the strongest winds close the ground?**

- A) At the center of a high-pressure system.
- B) At the center of a low-pressure system.
- C) In the transition zone between two air masses.
- D) Where there is little variation in pressure over a large area during the winter months.

**86- The effect of curved isobars on gradient wind speed correction is:**

- A) Greater at high latitudes.
- B) Low latitudes.
- C) Less at high latitudes.
- D) No effect.

**87- The gradient wind is:**

- A) Less than the geostrophic wind around a low.
- B) More than the geostrophic wind around a low.
- C) Less than the geostrophic wind around a high.
- D) None of the above.

**88- In an anticyclone in the northern hemisphere, with curved isobars, the speed of the gradient wind:**

- A) Is lower than the geostrophic wind.
- B) Equals the cyclostrophic wind.
- C) Depends on Coriolis force only.
- D) Is greater than the geostrophic wind.

**89- The wind speed at an isobaric surface in the northern hemisphere:**

- A) Increases with increased inclination of the isobaric surface.
- B) Is greatest when the isobaric surface is horizontal.
- C) Is not influenced by inclination of the isobaric surface.
- D) Decreases with increased inclination of the isobaric surface.

**90- How does the geostrophic wind speed change with latitude?**

- A) Increase with increasing latitude to a certain latitude.
- B) Decrease with increasing latitude to a certain latitude.
- C) Increase with decreasing latitude.
- D) Latitude does not affect wind force.

**91- When the inclination of isobar surfaces are equal, the geostrophic wind velocity depends upon:**

- A) Air density.
- B) Latitude.
- C) Temperature.
- D) Centrifugal force.

**92- Buys Ballot's law of winds states that in the northern hemisphere standing with your back to the wind, you have:**

- A) A low pressure ahead at an angle to your left, and a high pressure behind you at an angle to the right.
- B) A low pressure ahead at an angle to your right, and a high pressure behind you at an angle to the left.
- C) A high pressure ahead at an angle to your right, and a low pressure behind you at an angle to the left.
- D) A high pressure ahead at an angle to your left, and a low pressure behind you at an angle to the right.

**93- During periods of undisturbed radiation weather, overland, the:**

- A) Wind tends to back from early morning until early afternoon.
- B) Surface wind speed tends to be highest at night.
- C) Angle between isobars and surface wind direction tends to be lowest in the mid afternoon.
- D) Surface wind speed tends to be highest during the mid-afternoon.

**94- If altocumulus is seen ahead of the aircraft, this indicates:**

- A) Increasing stability.
- B) Increasing instability.
- C) Improving weather to probably cloudless skies.
- D) Cold front is approaching

**95- Thunderstorms are caused by:**

- A) Thunder and lightning.
- B) Anvil cumulonimbus.
- C) Instability, humidity, lifting action.
- D) Stable air lift by warm front

**96- Frontal thunderstorms are mainly associated with:**

- A) Warm front.
- B) Fast moving cold front.
- C) Ridges of high pressure.
- D) Area low pressure

**97- If a cumulonimbus has developed a large anvil:**

- A) It has reached the beginning of the most active (mature) stage.
- B) It is in the most active (mature) stage.
- C) It has reached the third or dissipating stage.
- D) It has reached the end of the most active (mature) stage.

**98- When flying through a turbulent air, increasing speed:**

- A) Will enable the storm to be penetrated safely in the shortest time.
- B) Will probably cause the aircraft to suffer a high speed stall.
- C) Will greatly increase the risk of structural failure.
- D) Will decrease stall speed.

**99- To minimize the effect of lightning striking an aircraft in flight, the pilot should:**

- A) Wear dark glasses and turn the cockpit lighting to maximum.
- B) Turn off all the radios and unnecessary electric.
- C) Engage the auto pilot and relax.
- D) Decent to lower altitude.

**100- For radiation fog to form, the requirements are:**

- A) Light wind up to 10 knots, high humidity and instability.
- B) Cloudless inland night, high humidity and wind 2 to 8 knots.
- C) Clear sky, calm to 2 knots wind and high humidity.
- D) Clear sky with turbulence.

**101- Advection fog forms:**

- A) Only over mountain.
- B) Only over sea.
- C) Over land.
- D) Only over valley.

**102- When turbulence causes changes in altitude and/or attitude but aircraft control remains positive that should be reported it as:**

- A) Light.
- B) Severe.
- C) Moderate.
- D) Heavy

**103- Which type of jet stream can be expected to cause the greater turbulence?**

- A) A straight jet stream associated with a low-pressure trough.
- B) A curving jet stream associated with a deep low-pressure trough.
- C) A jet stream occurring, during the summer at the lower altitude.
- D) Polar jet stream at mid latitude.

**104- A significant wind shear can be associated with:**

- A) A surface inversion with calm conditions.
- B) Low pressure area.
- C) Thunderstorms or squall line.
- D) Warm front.

**105- The minimum vertical wind shear value critical for probable moderate or greater turbulence is:**

- A) 5 knots per 1000 feet.
- B) 6 knots per 1000 feet.
- C) 8 knots per 1000 feet.
- D) 4 knots per 1000 feet.

**106- The thickness of stratosphere is approximately:**

- A) 20 miles.
- B) Above 18 miles.
- C) 19-22 miles.
- D) Bellow 22 miles.

**107- Most of weather phenomena may occur at the:**

- A) Troposphere.
- B) Tropopause.
- C) Stratosphere.
- D) All answers are correct.

**108- A thin layer of the atmosphere at the top of the troposphere is called?**

- A) Ionosphere.
- B) Tropopause.
- C) Stratosphere.
- D) Haze layer.

**109- An elongated area of low pressure is:**

- A) Low.
- B) Ridge.
- C) Trough.
- D) Col.

**110- When air is heated, its molecules -----, it becomes ----- and ----- than surrounding.**

- A) Packed more - denser - heavier.
- B) Packed more - less dense - lighter.
- C) Spread apart - denser - heavier.
- D) Spread apart - less dense - lighter.

**111- Connecting lines of equal pressure points is called:**

- A) Isocline.
- B) Isobar.
- C) Isotach.
- D) Isotherm.

**112- When isobars are ----- the pressure gradient is considered to be ----- and wind speed is ----**

- A) Widely apart - weak - low.
- B) Widely apart - strong - low.
- C) Close together - weak - strong.
- D) Close together - strong - low.

**113- A ----- gradient tends to produce ----- wind, while a ----- gradient result in ----- wind.**

- A) Strong - strong - weak - lighter.
- B) Strong - lighter - weak - strong.
- C) Strong - light - weak - no.
- D) Weak - light - strong - no.

**114- What are Trade Winds?**

- A) The wind zones towards the Inter Tropical Convergence Zone.
- B) The westerly wind zones.
- C) The polar easterly winds.
- D) Foehn winds in alpine valleys.

**115- In the northern hemisphere with an anti-cyclone pressure system the geostrophic wind at 2000 ft over the sea is 060°/15. At the same position the surface wind is most likely to be:**

- A) 075°/12
- B) 060°/18
- C) 060°/12
- D) 030°/08

**116- Possible mountain wave turbulence should be anticipated in cases where wind speeds of:**

- A) 20 kts or greater blow across a mountain ridge, and the air is unstable.
- B) 25 kts or greater blow across a mountain ridge, and the air is stable.
- C) 25 kts or greater blow down a mountain valley, and the air is unstable.
- D) 25 kts or greater blow parallel to a mountain peak, and the air is stable.

**117- What jet streams are likely to be crossed during a flight from Stockholm to Rio de Janeiro (23°S) at FL350 in July?**

- A) A polar front jet stream followed by a subtropical jet stream and later, a second polar front jet stream.
- B) A subtropical jet stream followed by a polar front jet stream.
- C) A polar front jet stream followed by one or two subtropical jet streams.
- D) One subtropical jet stream.

**118- What is the minimum speed for a wind to be classified as a jet stream?**

- A) 70 kts
- B) 50 kts
- C) 60 kts
- D) 100 kts

**119- In which zone of a jet stream is the strongest CAT to be expected?**

- A) About 12000 ft above the core.
- B) The warm air side of the core.
- C) Exactly in the center of the core.
- D) The cold air side of the core.

**120- When air moves from high pressure to low pressure, Coriolis force deflects this air to the ----  
--- in the -----.**

- A) Right - both hemisphere.
- B) Left - southern hemisphere.
- C) Right - both hemisphere.
- D) Right - northern hemisphere.

**121- Within about ----- of the ground, friction causes by the earth's surface ----- the moving air and -----:**

- A) 2500 ft - slow - divert winds from its path along the isobars.
- B) 2000 ft - increase - below winds along the isobars.
- C) 2000 ft - slow - divert winds from its path along the isobars.
- D) 10000 ft - slow - below winds along the isobars.

**122- The ----- air flow from the high pressure at 30°N to the ----- area deflect to the ----- and to the southern area deflect to the -----.**

- A) Low level - northern - right - left
- B) High level - northern - left - right
- C) Low level - northern - right - right also
- D) High level - low pressure - left - left also

**123- When cold dense air spills over mountain and flow down the slope, the descending wind is called:**

- A) Katabatic wind.
- B) Fall wind.
- C) Foehn wind.
- D) Gravity wind.

**124- When water vapor changes to liquid then ----- take place and its latent heat is -----**

- A) Condensation - released.
- B) Sublimation - absorbed.
- C) Evaporation - absorbed.
- D) Condensation - absorbed.

**125- If the temperature of a parcel of air ----- it can hold ----- water vapor than before and relative humidity will -----.**

- A) Rise - less - decrease.
- B) Drop - more - increase.
- C) Drop - less - decrease.
- D) Rise - more - decrease.

**126- Condensation and sublimation are the process that change ----- water vapor into states that are readily -----.**

- A) Invisible - seen.
- B) Invisible - drop from clouds.
- C) Visible - drop from clouds.
- D) Visible - seen.



**127- One of the following temperature dew point spread is favorite condition, which fog forms?**

- A) 2°F.
- B) 2°C.
- C) 4°F.
- D) B and C are correct.

**128- Thunderstorm formation requires following essential condition:**

- A) High moisture - Convective lifting - Cumuliform clouds.
- B) Unstable condition - Lifting force - High moisture.
- C) Unstable condition - Cumuliform clouds - High moisture.
- D) Lifting force- High moisture - CB clouds.

**129- The lifting action may be provided by several factors such as:**

- A) Orographic lifting - Frontal lifting - convective lifting.
- B) Orographic lifting - Radiation lifting - convective lifting.
- C) Orographic lifting - Rising terrain lifting - convective lifting.
- D) Rising terrain lifting - Frontal lifting - Daily heating lifting.

**130- When in a thunderstorm the updraft continues to increase up to speed of 6000 ft/min and severe turbulence and most violent weather occurs the thunderstorm is in:**

- A) The end of mature stage.
- B) Dissipating stage.
- C) Mature stage.
- D) Cold front thunderstorm.

**131- The layer between two air mass is known as:**

- A) Cold front.
- B) Front.
- C) Warm front.
- D) Stationary front.

**132- A pilot may encounter hail in flight at ----- and even when no hail is reaching the surface.**

- A) An especial altitude and within the storm.
- B) All altitude and within the storm.
- C) All altitude and within or outside the storm.
- D) An especial altitude and within or outside the storm.

**133- Some typical characteristic of cold type air mass is:**

- A) Unstable condition - Turbulence - Cumuliform clouds and showers precipitation.
- B) Unstable condition - No Turbulence - Stratiform clouds and showers precipitation.
- C) Stable condition - Stratiform clouds - Good visibility.
- D) Rough air - Stratiform clouds - showery and fog weather condition.

**134- What is approximate base of the cumulus clouds if the temperature at 2000 ft MSL is 70°F and dew point is 61°F?**

- A) 3000 ft AGL.
- B) 4000 ft MSL.
- C) 2000 ft MSL.
- D) 8000 ft AGL.

**135- Which weather condition is an example of a non-frontal instability band?**

- A) Squall line.
- B) Advection fog.
- C) Front genesis.
- D) Frontal TS.

**136- What is a feature of air movement in a high pressure area?**

- A) Rapid change in stability.
- B) Ascending from the surface high to lower pressure at higher altitude.
- C) Moving outward from the high at high altitudes and into the high at the surface.
- D) Descending to the surface and then outward.

**137- Which type of clouds are indicative of very strong turbulence?**

- A) Nimbostratus.
- B) Cirrocumulus.
- C) Standing lenticular.
- D) Altocumulus.

**138- Which statement is true concerning the in-flight hazard of hail?**

- A) Large hailstone are entirely composed of clear ice.
- B) Tropical and subtropical thunderstorm contain more hail than thunderstorm in northern hemisphere.
- C) Hail may be thrown outward from a storm cloud for several miles.
- D) Hail is usually produced by altocumulus clouds.

**139- Hail is an in-flight hazard is most likely to be associated with:**

- A) Cirrocumulus clouds.
- B) Cumulonimbus clouds.
- C) Stratocumulus clouds.
- D) Cumulus clouds.

**140- The most severe weather conditions such as heavy hail, destructive winds and tornadoes are generally associated with:**

- A) Fast moving warm front.
- B) Squall line and steady state thunderstorms.
- C) Slow moving cold front.
- D) Slow moving warm front.

**141- Which of the following is considered to be the most hazardous condition associated with thunderstorm?**

- A) Intense rain.
- B) Lighting.
- C) Icing.
- D) Wind shear and turbulence.

**142- Which statement is true regarding squall lines?**

- A) They are always associated with cold front.
- B) They are non-frontal and often contains sever steady state thunderstorm.
- C) They form slowly but move rapidly.
- D) They are associated with frontal systems only.

**143- Air mass thunderstorm most often result from:**

- A) Movement of a cold & moist air mass over warm ground with surface heating.
- B) Movement of a warm unstable air mass.
- C) Frontal lifting.
- D) Fast moving cold front.

**144- An instability line, which is narrow non frontal line or band of convective activities with fully developed thunderstorm is:**

- A) Cold front thunderstorm.
- B) Fast moving cold front thunderstorm.
- C) Squall.
- D) Air mass thunderstorm.

**145- All thunderstorm hazards reach their greatest intensity during:**

- A) Cumulus stage.
- B) Mature stage.
- C) Dissipating stage.
- D) Development stage.

**146- Which of the following is correct?**

- A) The atmosphere is composed of about %78 nitrogen, %20 oxygen, %1 ozone and %1 of other gases.
- B) The atmosphere is composed of about %78 nitrogen, %21 oxygen, and %1 of other gases.
- C) The atmosphere is composed of about %78 nitrogen, %20 oxygen, %0.1 water vapor and %9 of other gases.
- D) All answers are correct.

**147- The thickness of troposphere varies; it slopes upward from about ----- at the poles to ----- -- at the equator.**

- A) 20000 ft - 60000 ft
- B) 18000 ft - 54000 ft
- C) 20000 ft - 30000 ft
- D) 50000 ft - 60000 ft

**148- While crossing a jet stream at right angles in Western Europe (3000 ft below its core) and OAT is decreasing, what would be the prevailing wind?**

- A) A headwind.
- B) Crosswind from the right.
- C) Crosswind from the left.
- D) A tailwind.

**149- Which of the following types of jet streams can be observed all year round?**

- A) Equatorial jet stream / arctic jet stream.
- B) Equatorial jet stream / polar front jet stream.
- C) Arctic jet stream / subtropical jet stream.
- D) Subtropical jet stream / polar front jet stream.

**150- Under which of the following conditions is the most severe CAT likely to be experienced?**

- A) A jet stream, with great spacing between the isotherms.
- B) A curved jet stream near a deep trough.
- C) A westerly jet stream at low latitudes in the summer.
- D) A straight jet stream near a low pressure area.

**151- What is the average height of the jet core within a polar front jet stream?**

- A) 50000 ft
- B) 20000 ft
- C) 40000 ft
- D) 30000 ft

**152- Which area of a polar front jet stream in the northern hemisphere has the highest probability of turbulence?**

- A) Looking downstream, the area to the left of the core.
- B) Looking downstream, the area to the right of the core.
- C) In the core of the jet stream.
- D) Above the core in the boundary between warm and cold air.

**153- What is the most significant difference between an equatorial jet stream and all the other jet streams?**

- A) Horizontal dimension.
- B) Vertical dimension.
- C) Wind direction.
- D) Wind speed.

**154- What is the average height of the arctic jet stream core?**

- A) 30000 ft
- B) 20000 ft
- C) 40000 ft
- D) 50000 ft

**155- Which jet stream blows all year round, over the northern hemisphere?**

- A) The arctic jet stream.
- B) The polar night jet stream.
- C) The equatorial jet stream.
- D) The subtropical jet stream.

**156- Which jet stream is connected with a surface front system?**

- A) The easterly jet stream.
- B) The polar front jet stream.
- C) The subtropical jet stream.
- D) The equatorial jet stream.

**157- An aircraft is flying through the polar front jet stream from south to north, beneath the core. How would the OAT change, in the northern hemisphere, during this portion of the flight?**

- A) It first increases, then decreases.
- B) It increases.
- C) It decreases.
- D) It remains constant.

**158- During the winter months in mid-latitudes in the northern hemisphere, the polar front jet stream moves toward the:**

- A) South and speed decreases.
- B) North and speed decreases.
- C) South and speed increases.
- D) North and speed increases.

**159- What is the approximate ratio between height and width for a jet stream cross section?**

- A) 1/1
- B) 1/10
- C) 1/1000
- D) 1/100

**160- Convection occurs when ----- rises and is replaced by -----.**

- A) Warm air - cooler air
- B) Warm air - cool air
- C) Cool air - cooler air
- D) Cool air - warm air

**161- Connected equal pressure points with lines drawn on weather charts called:**

- A) Pressure.
- B) Isobars.
- C) Pressure gradient.
- D) A & B together are correct.

**162- When isobars widely apart:**

- A) The gradient is considered to be weak.
- B) The wind flow is strong.
- C) Air flow from the cool less dense air to warm less dense air in a slow speed.
- D) All of above are correct.

**163- What is the approximate base of the cumulus clouds if the temperature at 2000 feet MSL is 10°C. and the dew point is 1°C?**

- A) 3000 feet MSL.
- B) 4000 feet MSL.
- C) 6000 feet MSL.
- D) 5000 feet MSL.

**164- If clouds form as a result of very stable, moist air being forced to ascend a mountain slope, the clouds will be**

- A) Cirrus type with no vertical development or turbulence.
- B) Cumulus type with considerable vertical development and turbulence.
- C) Stratus type with little vertical development and little or no turbulence.
- D) Stratus type with vertical development and no turbulence.

**165- What determines the structure or type of clouds which will form as a result of air being forced to ascend?**

- A) The method by which the air is lifted.
- B) The stability of the air before lifting occurs.
- C) The relative humidity of the air after lifting occurs.
- D) The type of pressure area which causes turbulence.

**166- Which cloud types would indicate convective turbulence?**

- A) Cirrus clouds.
- B) Nimbostratus clouds.
- C) Towering cumulus clouds.
- D) Altostratus

**167- Advection fog has drifted over a coastal airport during the day. What may tend to dissipate or lift this fog into low stratus clouds?**

- A) Nighttime cooling.
- B) Surface radiation.
- C) Wind 15 knots or stronger.
- D) Wind 5 knot or stronger.

**168- A situation most conducive to the formation of advection fog is:**

- A) A light breeze push colder air over a water surface.
- B) An air mass moving inland from the coastline during the winter.
- C) A warm, moist air mass settling over a cool surface under no-wind conditions.
- D) A warm, moist air mass settling over a cool surface under calm conditions.

**169- In what ways do advection fog, radiation fog, and steam fog differ in their formation or location?**

- A) Radiation fog is restricted to land areas; advection fog is most common along coastal areas; steam fog forms over a water surface.
- B) Advection fog deepens as wind speed increases up to 20 knots; steam fog requires calm or very light wind; radiation fog forms when the ground or water cools the air by radiation.
- C) Steam fog forms from moist air moving over a colder surface; advection fog requires cold air over a warmer surface; radiation fog is produced by radiation cooling of the ground.
- D) Advection fog deepens as wind speed decreases up to 5 knots; steam fog requires light wind; radiation fog forms when the ground or water cools the air by radiation.

**170- Fog produced by frontal activity is a result of saturation due to :**

- A) Nocturnal cooling.
- B) Adiabatic cooling.
- C) Evaporation of precipitation.
- D) Terrestrial lifting.

**171- Which in-flight hazard is most commonly associated with warm fronts?**

- A) Advection fog.
- B) Radiation fog.
- C) Precipitation-induced fog.
- D) Steam fog.

**172- Which feature is associated with the tropopause?**

- A) Constant height above the Earth.
- B) Abrupt change in temperature lapse rate.
- C) Absolute upper limit of cloud formation.
- D) Abrupt change in pressure lapse rate.

**173- Moisture is added to air by:**

- A) Sublimation and condensation.
- B) Evaporation and condensation.
- C) Evaporation and sublimation.
- D) Condensation and melting.

**174- What is the reason of ice pellets if encountered at 8000 feet?**

- A) Freezing rain at higher altitude.
- B) You are approaching an area of thunderstorms.
- C) You will encounter hail if you continue your flight.
- D) You are approaching an area of cold front.



**175- From which measurement of the atmosphere can stability be determined?**

- A) Atmospheric pressure.
- B) The ambient lapse rate.
- C) The dry adiabatic lapse rate.
- D) The standard lapse rate.

**176- Which is true regarding actual air temperature and dew point temperature spread? The temperature spread**

- A) Decreases as the relative humidity decreases.
- B) Decreases as the relative humidity increases.
- C) Increases as the relative humidity increases.
- D) Increases as the relative humidity unchanged.

**177- Which conditions are favorable for the formation of a surface based temperature inversion?**

- A) Clear, cool nights with calm or light wind.
- B) Area of unstable air rapidly transferring heat from the surface.
- C) Broad areas of cumulus clouds with smooth, level bases at the same altitude.
- D) Clear, cool nights with strong wind.

**178- What minimum distance should exist between intense radar echoes before any attempt is made to fly between these thunderstorms?**

- A) 20 miles.
- B) 30 miles.
- C) 40 miles.
- D) 50 miles.

**179- The jet stream and associated clear air turbulence can sometimes be visually identified in flight by:**

- A) Dust or haze at flight level.
- B) Long streaks of cirrus clouds.
- C) A constant outside air temperature.
- D) Long streaks of CB clouds

**180- The strength and location of the jet stream is normally:**

- A) Weaker and farther north in the summer.
- B) Stronger and farther north in the winter.
- C) Stronger and farther north in the summer.
- D) Weaker and farther south in the summer

**181- In the Northern Hemisphere, the wind is deflected to the:**

- A) Right by Coriolis force.
- B) Right by surface friction.
- C) Left by Coriolis force.
- D) Left by net force.

**182- A high pressure area covers part of the Mediterranean Sea and coastal region during the summer. What surface wind direction is likely at an airport at the coast on a sunny afternoon?**

- A) Land to sea.
- B) Sea to land.
- C) Variable.
- D) Parallel to the coastline.

**183- What is the most frequent wind in valleys, caused by thermal effects?**

- A) Mountain wind by day.
- B) Mountain wind by night.
- C) Valley wind by day.
- D) Valley wind by night.

**184- At the top of standing waves, in mountainous regions, the cloud most likely to be encountered is:**

- A) Altocumulus lenticulars.
- B) Cirrostratus.
- C) Cirrus.
- D) Cumulus.

**185- Standing waves are likely when:**

- A) Wind speeds are uniform with height.
- B) The atmosphere is uniformly stable.
- C) The wind direction is at 45° to the ridge of the hills.
- D) None of the above.

**186- In addition to a stable layer of air over a substantial mountain range, the conditions most favorable to the development of standing waves are:**

- A) Significant moisture loss due to precipitation, rapid lowering of the tropopause in the area of the mountain range.
- B) Steep dry adiabatic lapse rate, wind speed increasing and changing direction rapidly with increase in height.
- C) Conditional instability, wind speed constant from a direction parallel to the mountain range.
- D) Wind speed excess of 20 kts at the surface and increasing with height, wind direction perpendicular to the general direction of the range.

**187- Which cloud type may indicate the presence of severe turbulence?**

- A) Altocumulus lenticulars.
- B) Stratocumulus.
- C) Cirrocumulus.
- D) Nimbostratus.

**188- What degree of turbulence, if any, is likely to be encountered while flying through a cold front in the summer over Central Europe at FL100?**

- A) Moderate turbulence in NS cloud.
- B) Severe turbulence in CB cloud.
- C) Light turbulence in CB cloud.
- D) Light turbulence in stratiform clouds.

**189- On a clear summer day, turbulence caused by solar heating is most pronounced:**

- A) Immediately after sunset.
- B) During the early afternoon.
- C) During early morning hours before sunrise.
- D) About midmorning.

**190- A wind speed of 350 kts within a jet stream core should be worldwide regarded as:**

- A) Possible but a very rare phenomenon.
- B) Not possible.
- C) A common occurrence.
- D) Not unusual in Polar Regions.

**191- Which of the following statements concerning jet streams is correct?**

- A) In the southern hemisphere only easterly jet streams occur.
- B) In the northern hemisphere both westerly and easterly jet streams occur.
- C) In the northern hemisphere only westerly jet streams occur.
- D) In the southern hemisphere no jet streams occur.

**192- In January, a mean sub-tropical jet appears at:**

- A) 30°S
- B) 30°N
- C) 60°S
- D) 50°N

**193- A jet stream is:**

- A) A band of strong winds only found near thunderstorms.
- B) A broad band of strong winds flattened and tubular in cross-section.
- C) A narrow band of strong winds only found near fronts.
- D) A narrow band of strong winds flattened and tubular in cross-section.

**194- The normal maximum speeds of the polar front jet are in the region of:**

- A) 150 kts in January /135 kts in July.
- B) 150 kts in July /135 kts in January.
- C) 150 kts in July / 50 kts in January.
- D) 135 kts in July /135 kts in January.

**195- At which height and at what time of the year can an aircraft be affected by the equatorial jet stream?**

- A) FL500 from June to August.
- B) FL500 from November to February.
- C) FL400 during the winter in the northern hemisphere.
- D) FL400 during the winter in the southern hemisphere.

**196- The easterly jet is a jet stream that occurs:**

- A) Only in the winter of the northern hemisphere at approx. 30000 ft.
- B) Only in the summer of the northern hemisphere at approx. 45000 ft.
- C) During the whole year in the southern hemisphere.
- D) During the whole year in the northern hemisphere.

**197- Where is the projection of the polar front jet stream on the surface most likely to be found in relation to the cold and warm fronts of a depression?**

- A) 300 to 450 NM behind the cold front and 50 to 200 NM ahead of the warm front.
- B) Up to 100 NM either side of the cold front and up to 200 NM either side of the warm front.
- C) Up to 200 NM either side of the cold front and up to 200 NM either side of the warm front.
- D) 50 to 200 NM behind the cold front and 300 to 450 NM ahead of the warm front.

**198- The equatorial easterly jet is a jet stream that occurs:**

- A) Only in the summer of the northern hemisphere at approx. 45000 ft.
- B) Only in the winter of the northern hemisphere at approx. 30000 ft.
- C) During the whole year in the southern hemisphere.
- D) During the whole year in the northern hemisphere.

**199- How would you describe a jet stream?**

- A) A zone of wind in the upper troposphere or lower stratosphere with wind forces at 60 knots minimum.
- B) The outflow airstream from a turbine engine.
- C) Any wind force above 64 knots.
- D) A zone of winds in connection with a squall line".

**200- Which phenomenon is often associated with a jet stream?**

- A) Icing.
- B) Clear Air Turbulence (CAT).
- C) Wind shear.
- D) Both icing and Clear Air Turbulence (CAT).

**201- Severe turbulence is associated with a jet stream:**

- A) At the low pressure side.
- B) At the high pressure side.
- C) In the core of the jet stream.
- D) Underneath the core of the jet stream.

**202- The approximate position of the polar front jet stream is:**

- A) Approx. 60°N.
- B) Approx. 30°N.
- C) Approx. 80°N.
- D) Over the north polar area.

**203- Which jet stream is more or less found continuously around the Earth?**

- A) The polar front jet stream.
- B) The arctic front jet stream.
- C) The subtropical jet stream.
- D) The equatorial jet stream.

**204- A parcel of unsaturated air is lifted to just below the condensation level and then returned to its original level. What is the final temperature of the parcel of air?**

- A) Lower than the starting temperature.
- B) Higher than the starting temperature.
- C) The same as the starting temperature.
- D) It depends upon the QFE.

**205- Which of the following statements is true?**

- A) Gale has an average speed of 33 kts or more.
- B) Gust is a squall which lasts for several minutes.
- C) The more stable the atmosphere, the more turbulence.
- D) The more stable the atmosphere, the less turbulence.

**206- Thermal turbulence is caused by:**

- A) Wing-tip vortices.
- B) Vertical movements of air due to convection.
- C) Movement of air over mountainous terrain.
- D) Movement of air over smooth ground surface.

**207- Fair weather cumulus often is an indication of:**

- A) A high risk of thunderstorms.
- B) Poor visibility at surface.
- C) Smooth flying conditions below the cloud level.
- D) Turbulence at and below them.

**208- The amount of water vapor which air can hold largely depends on:**

- A) Relative humidity.
- B) Air temperature.
- C) Stability of air.
- D) Dew point.

**209- The average slope of a warm front is approximately:**

- A) 1:150
- B) 1:250
- C) 1:500
- D) 1:80

**210- The dew point temperature:**

- A) Cannot be equal to the air temperature.
- B) Is always lower than the air temperature.
- C) Is always higher than the air temperature.
- D) Can be equal to the air temperature.

**211- Relative humidity:**

- A) Is higher in cool air than in warm air.
- B) Is higher in warm air than in cool air.
- C) Increases if the air is cooled whilst maintaining the vapor pressure constant.
- D) Decreases if the air is cooled whilst maintaining the vapor pressure constant.

**212- Relative humidity depends on:**

- A) Temperature of the air only.
- B) Pressure of the air only.
- C) Moisture content of the air only.
- D) Moisture content and temperature of the air.

**213- Which of the following statements is true of the dew point of an air mass?**

- A) It can be used to estimate the air mass's relative humidity even if the air temperature is unknown.
- B) It can be higher than the temperature of the air mass.
- C) It can be used together with the air pressure to estimate the air mass's relative humidity.
- D) It can only be equal to, or lower, than the temperature of the air mass.

**214- During the late afternoon an air temperature of +12°C and a dew point of +5°C were measured. What temperature change must occur during the night in order to induce saturation?**

- A) It must decrease to +6 °C.
- B) It must decrease by 5°C.
- C) It must decrease to +5°C.
- D) It must decrease to +7°C.

**215- Dew point is defined as:**

- A) The temperature below which the change of state in a given volume of air will result in the absorption of latent heat.
- B) The lowest temperature at which evaporation will occur for a given pressure.
- C) The lowest temperature to which air must be cooled in order to reduce the relative humidity.
- D) The temperature to which moist air must be cooled to become saturated at a given pressure.

**216- When a given mass of air descends, what effect will it have on relative humidity?**

- A) It increases up to 100%, then remains stable.
- B) It increases.
- C) It remains constant.
- D) It decreases.

**217- The difference between temperature and dew point is greater in:**

- A) Air with low temperature.
- B) Moist air.
- C) Air with high temperature and high moisture.
- D) Dry air.

**218- The difference between air temperature and dew point temperature is popularly called the "spread". As spread increases, relative humidity:**

- A) Increases.
- B) Decreases.
- C) Stays the same.
- D) First decreases and then increases.

**219- As a parcel of air cools, its ability to hold water vapor:**

- A) Decreases.
- B) Increases.
- C) Remains unaltered.
- D) Depends, whether the parcel is rising or no.

**220- Moist air is:**

- A) Denser than dry air.
- B) Warmer than dry air.
- C) Less dense than dry air.
- D) Colder than dry air.

**221- Where is the usual location of a thermal low?**

- A) Over the arctic region.
- B) Over the polar region.
- C) Over the surface of a dry, sunny region.
- D) Over the surface of a humid, cold region.

**222- The temperature at which a parcel of air becomes saturated if it cools is called:**

- A) Dew point temperature.
- B) Saturation temperature.
- C) Condensation temperature.
- D) Freezing temperature.

**223- The process by which water vapor is transformed directly into ice is known as:**

- A) Super cooling.
- B) Depositing.
- C) Super saturation.
- D) Radiation cooling.

**224- In which of the following changes of state is latent heat released?**

- A) Liquid to gas.
- B) Solid to liquid.
- C) Solid to gas.
- D) Gas to liquid.

**225- When water evaporates into unsaturated air:**

- A) Relative humidity is decreased.
- B) Heat is released.
- C) Relative humidity is not changed.
- D) Heat is absorbed.



**226- A super cooled droplet is:**

- A) A water droplet that is mainly frozen.
- B) A droplet still in liquid state at a temperature below freezing.
- C) A small particle of water at a temperature below  $-50^{\circ}\text{C}$ .
- D) A water droplet that has been frozen during its descent.

**227- Super cooled droplets can be encountered:**

- A) Only in winter at high altitude.
- B) In winter only in high clouds.
- C) Only in winter above 10000 ft.
- D) At any time of the year.

**228- Clouds, fog or dew will always be formed when:**

- A) Relative humidity reaches 98%.
- B) Water vapor is present.
- C) Water vapor condenses.
- D) Temperature and dew point are nearly equal.

**229- How are high level condensation trails formed that are to be found occasionally behind jet aircraft?**

- A) Only through unburnt fuel in the exhaust gases.
- B) Through a decrease in pressure, and the associated adiabatic drop in temperature at the wing tips while flying through relatively warm but humid air.
- C) Through water vapor released during fuel combustion.
- D) In conditions of low humidity, through the particles of soot contained in the exhaust gases.

**230- Evaporation is the change of:**

- A) Liquid water to water vapor.
- B) Water vapor to ice.
- C) Invisible water vapor to liquid water.
- D) Ice directly to water vapor.

**231- When water vapor condenses into water droplets, there is a:**

- A) Release of heat energy that increases density of the surrounding air.
- B) Sublimation.
- C) Release of heat energy that makes the surrounding air warmer.
- D) None.

**232- What is sublimation?**

- A) The change of state from ice to water.
- B) The change of state from water to water vapor.
- C) The change of state from water vapor to water.
- D) The change of state from ice to water vapor.

**233- What is freezing?**

- A) The change of state from ice to water.
- B) The change of state from water to water vapor.
- C) The change of state from water vapor to water.
- D) The change of state from water to ice.

**234- A layer can be:**

- A) Unstable for unsaturated air and conditionally unstable.
- B) Stable for saturated air and unstable for unsaturated air.
- C) Unstable for unsaturated air and neutral for saturated air.
- D) Stable for unsaturated air and unstable for saturated air.

**235- Absolute instability exists whenever the environmental lapse rate:**

- A) Exceeds the saturated adiabatic lapse rate.
- B) Exceeds the dry adiabatic lapse rate.
- C) Is less than the saturated adiabatic lapse rate.
- D) Is between the dry and saturated adiabatic lapse rate.

**236- An inversion is a layer of air which is:**

- A) Absolutely unstable.
- B) Absolutely stable.
- C) Conditionally unstable.
- D) Conditionally stable.

**237- What is the dry adiabatic lapse rate per 1000 ft?**

- A) 1.5°C
- B) 2.0°C
- C) 3.0°C
- D) 3.5°C

**238- If the surface temperature is  $15^{\circ}\text{C}$ , then the temperature at 10000 ft in a current of ascending unsaturated air is:**

- A)  $5^{\circ}\text{C}$
- B)  $0^{\circ}\text{C}$
- C)  $-15^{\circ}\text{C}$
- D)  $-5^{\circ}\text{C}$

**239- A sample of moist but unsaturated air may become saturated by:**

- A) Expanding it adiabatically.
- B) Raising the temperature.
- C) Lowering the pressure, keeping temperature constant.
- D) Compressing it adiabatically.

**240- The decrease in temperature, per 100 meters in an unsaturated rising parcel of air is:**

- A)  $0.65^{\circ}\text{C}$
- B)  $2^{\circ}\text{C}$
- C)  $1^{\circ}\text{C}$
- D)  $0.5^{\circ}\text{C}$

**241- The rate of cooling of ascending saturated air is less than the rate of cooling of ascending unsaturated air because:**

- A) Water vapor absorbs the incoming heat from the sun.
- B) Moist air is heavier than dry air.
- C) Water vapor does not cool as rapidly as dry air.
- D) Heat is released during the condensation process.

**242- If a saturated air mass descends downslope its temperature increases at:**

- A) The same rate as if the air mass were dry.
- B) A lower rate than in dry air, as evaporation absorbs heat.
- C) A lower rate than in dry air, as condensation gives out heat.
- D) A higher rate than in dry air, as it gives up latent evaporation heat.

**243- Which of the following statements concerning the lifting of a parcel of air is correct?**

- A) Unsaturated parcels cool less rapidly than saturated parcels.
- B) Unsaturated parcels cool more rapidly than saturated parcels.
- C) Unsaturated parcels cool at a rate of  $0.65^{\circ}\text{C}/100\text{ m}$ .
- D) Saturated parcels always cool at a rate of  $0.65^{\circ}\text{C}/100\text{ m}$ .

**244- Which one of the following precipitation types gives the most severe icing?**

- A) Snowfall.
- B) Mixed rain and snow.
- C) Freezing rain.
- D) Ice pellets.

**245- The environmental lapse rate in an actual atmosphere:**

- A) Has a fixed value of  $2^{\circ}\text{C}/1000\text{ ft}$ .
- B) Has a fixed value of  $1^{\circ}\text{C}/100\text{ m}$ .
- C) Has a fixed value of  $0.65^{\circ}\text{C}/100\text{ m}$ .
- D) Varies with time.

**246- Which of the following is a common result of subsidence?**

- A) Clear air turbulence at higher altitudes.
- B) CB clouds and thunderstorms over a large area.
- C) Wide spread NS and AS clouds and intense precipitation.
- D) An inversion over a large area with haze, mist.

**247- An air mass is called stable when:**

- A) The vertical motion of rising air tends to become weaker and disappears.
- B) The temperature in a given air mass decreases rapidly with height.
- C) The pressure in a given area is constant.
- D) The environmental lapse rate is high, with little vertical motion of air currents.

**248- A layer in which the temperature increases with height is:**

- A) Conditionally unstable.
- B) Absolutely unstable.
- C) Absolutely stable.
- D) Neutral.

**249- The height of the lifting condensation level is determined by:**

- A) Temperature and dew point at the surface.
- B) Temperature at surface and air pressure.
- C) Wind and dew point at the surface.
- D) Wet adiabatic lapse rate and dew point at the surface.

**250- In still air the temperature decreases at an average of  $1.2^{\circ}\text{C}$  per 100 m with increase in altitude. This temperature change is called:**

- A) Environmental lapse rate.
- B) Saturated adiabatic lapse rate.
- C) Dry adiabatic lapse rate.
- D) Normal lapse rate.

**251- An air mass is stable when:**

- A) Lifted air returns to its original level.
- B) Temperature in a given area drops off very rapidly with increasing altitude.
- C) Pressure is constant.
- D) The lapse rate is 1 °C per 100 m.

**252- For both saturated and unsaturated air instability will occur when the:**

- A) Environmental lapse rate is greater than both dry adiabatic lapse rate and saturated adiabatic lapse rate.
- B) Environmental lapse rate is greater than saturated adiabatic lapse rate but less than dry adiabatic lapse rate.
- C) Environmental lapse rate is less than both dry adiabatic lapse rate and saturated adiabatic lapse rate.
- D) Dry adiabatic lapse rate is less than saturated adiabatic lapse rate but greater than environmental lapse rate. When the ELR is greater than 3 °C/1000 ft the air is absolute stable

**253- In the lower levels of the atmosphere when the environmental lapse rate is greater than saturated adiabatic lapse rate but less than dry adiabatic lapse rate, the air mass is described as being:**

- A) Conditionally unstable.
- B) Stable.
- C) Unstable.
- D) Absolutely unstable.

**254- What process in an air mass leads to the creation of wide spread NS, AS and ST Cloud coverage?**

- A) Convection process.
- B) Sinking.
- C) Lifting radiation.
- D) Radiation.

**255- What type of cloud is being described? A generally grey cloud layer with fairly uniform base and uniform appearance, which may give drizzle or snow grains. When the sun is visible through the cloud, the outline is clearly discernible. Sometimes it appears in the form of ragged patches.**

- A) Stratus
- B) Altostratus
- C) Nimbostratus
- D) Cirrostratus

**256- Strongly developed cumulus clouds are an indication of:**

- A) The presence of a low level inversion.
- B) Instability in the atmosphere.
- C) The presence of warm air aloft.
- D) Poor surface visibility.

**257- The presence of altocumulus lenticulars is an indication of the:**

- A) Presence of valley winds.
- B) Risk of orographic thunderstorms.
- C) Development of thermal lows.
- D) Presence of mountain waves.

**258- Altostratus (AS) and nimbostratus (NS) are easily condensed. How do you distinguish between them?**

- A) The precipitation from AS, if any, is light and the cloud is thinner than for NS.
- B) Precipitation falls from AS but not from NS.
- C) Steady precipitation from AS.
- D) The sun can be seen through NS.

**259- The presence of altocumulus lenticulars is a sign of:**

- A) Severe instability.
- B) Anabatic winds.
- C) Katabatic winds.
- D) Lee waves.

**260- A cumulus congestus is:**

- A) A remnant of a CB.
- B) A cumulus that is of great vertical extent.
- C) A cumulus with little vertical development.
- D) A cumulus that only occurs in association with the ITCZ.

**261- What weather condition would you expect at a squall line?**

- A) Strong steady rain.
- B) Thunderstorms.
- C) Fog.
- D) Strong whirlwinds reaching up to higher levels.

**262- In an air mass with no clouds the surface temperature is 15°C and the temperature at 1000 m AGL is 13°C. This layer of air is:**

- A) Unstable.
- B) Stable.
- C) A layer of heavy turbulence.
- D) Conditionally unstable.

**263- A moist but unsaturated parcel of air becomes saturated by:**

- A) Lowering the parcel to a lower level.
- B) Lifting the parcel to a higher level.
- C) Moving the parcel to an area with lower pressure and equal temperature.
- D) Moving the parcel to an area with higher pressure and equal temperature.

**264- During an adiabatic process heat is:**

- A) Neither added nor lost.
- B) Added.
- C) Lost.
- D) Added but the result is an overall loss.

**265- The dry adiabatic lapse rate:**

- A) Has a constant fixed value.
- B) Is greater in summer than in winter.
- C) Is greater during the night than during the day.
- D) Has a variable value.

**266- What is the final temperature of unsaturated surface air at 12°C, which rises to 6000 ft?**

- A) +30 °C
- B) +18 °C
- C) -30 °C
- D) -6 °C

**267- An ELR of 2.9°C per 1000 ft, is by definition:**

- A) Stable.
- B) Conditionally stable.
- C) Unstable.
- D) Conditionally unstable.

**268- A layer is conditionally unstable if the air:**

- A) Becomes stable by lifting it.
- B) Is stable for saturated air and unstable for dry air.
- C) Is unstable for saturated air and stable for dry air.
- D) Is unstable for saturated air as well as for dry air.

**269- Absolute instability in the atmosphere will occur when the environmental lapse rate is:**

- A) Greater than both saturated adiabatic lapse rate and dry adiabatic lapse rate.
- B) Less than saturated adiabatic lapse rate.
- C) Less than both saturated adiabatic lapse rate and dry adiabatic lapse rate.
- D) Greater than saturated adiabatic lapse rate but less than dry adiabatic lapse rate.

**270- An unstable air mass is forced to ascend a mountain slope. What type of clouds can be expected?**

- A) Stratiform clouds with a temperature inversion.
- B) Stratiform clouds with considerable turbulence.
- C) Layer-like clouds with little vertical development.
- D) Clouds with considerable vertical development and associated turbulence.

**271- In the lower levels of the atmosphere when the environmental lapse rate is greater than saturated adiabatic lapse rate but less than dry adiabatic lapse rate, the air mass is described as being:**

- A) Conditionally unstable.
- B) Stable.
- C) Unstable.
- D) Absolutely unstable.

**272- The stability in a layer increases by advection of:**

- A) Cold air in the lower part.
- B) Warm air in the lower part.
- C) Dry air in the upper part.
- D) Moist air in the lower part.

**273- Which statement is correct for an absolutely unstable atmosphere?**

- A) Visibility is good between showers.
- B) The environmental lapse rate is less than  $1^{\circ}\text{C} / 1100\text{ m}$ .
- C) Clouds are mainly of the Stratiform type.
- D) The dry adiabatic lapse rate is more than  $1^{\circ}\text{C} / 1100\text{ m}$ .



**274- Unsaturated air moving downwards is heated at a rate of:**

- A) Dry adiabatic.
- B) Environmental lapse rate.
- C) Saturated adiabatic.
- D) Ambient lapse rate.

**275- The weather is clear and the temperature decreases uniformly and rapidly as you climb (approx. 3.2 °C per 1000 ft), you have an indication of:**

- A) Stable air.
- B) Unstable air.
- C) Saturation.
- D) Sublimation.

**276- Which term applies when the temperature of the air changes by compression or expansion with no heat added or removed?**

- A) Katabatic
- B) Advection
- C) Adiabatic
- D) Atmospheric

**277- From which of the following pieces of information can the stability of the atmosphere be derived?**

- A) Dry adiabatic lapse rate.
- B) Pressure at the surface.
- C) Surface temperature.
- D) Environmental lapse rate.

**278- Which thunderstorms are the more difficult to forecast and detect?**

- A) Squall line thunderstorms.
- B) Air mass thunderstorms.
- C) Frontal thunderstorms.
- D) Cumulus thunderstorms because they are smaller.

**279- Which statement is true for the lifting of an air parcel?**

- A) Unsaturated parcels cool more rapidly than saturated.
- B) Saturated parcels cool more rapidly than unsaturated.
- C) An air parcel always cools at the dry adiabatic lapse rate.
- D) A stable air mass must be present.

**280- Which of the following is a cause of stratus forming over flat land?**

- A) Radiation during the night from the Earth surface in moderate wind.
- B) Unstable air.
- C) Convection during the day.
- D) The release of latent heat.

**281- What process in an air mass leads to the creation of wide spread NS, AS and ST Cloud coverage?**

- A) Convection process.
- B) Sinking.
- C) Lifting.
- D) Radiation.

**282- Which of the following clouds are classified as medium level clouds in temperate regions?**

- A) CI, CC.
- B) SC, NS.
- C) AS, AC.
- D) CS, ST.

**283- Which of the following types of clouds are evidence of unstable air conditions?**

- A) ST, CS
- B) CU, CB.
- C) SC, NS.
- D) CI, SC.

**284- A cumulonimbus cloud at mid-latitudes in summer contains:**

- A) Only water droplets.
- B) Ice crystals, water droplets and super cooled water droplets.
- C) Only ice crystals.
- D) Ice crystals and water droplets but never super cooled water droplets.

**285- Which of the following cloud types is found at high levels?**

- A) SC
- B) CI
- C) AS
- D) CU

**286- Clouds, classified as being low level are considered to have bases from:**

- A) 500 to 1000 ft.
- B) 1000 to 2000 ft.
- C) The surface to 6500 ft.
- D) 100 to 200 ft.

**287- Which of the following types of cloud can extend over the low, medium and high cloud levels?**

- A) CB
- B) AC
- C) ST
- D) CI

**288- Which of the following clouds may extend into more than one layer?**

- A) Stratus
- B) Nimbostratus
- C) Altocumulus
- D) Cirrus

**289- A layer of stratus is most likely to be dispersed by:**

- A) Adiabatic cooling due to subsidence.
- B) Absorption of long waved solar radiation in the stratus layer.
- C) The release of latent heat due to precipitation.
- D) Insolation resulting in the lifting of the condensation level.

**290- About ten identical clouds are in the sky, well isolated from one another, dense, with well-defined contours developing vertically in a cauliflower shape. The side of these clouds lit by the sun is bright white. Their base, relatively dark, is essentially horizontal and at FL030, and their tops at FL150. These clouds are:**

- A) Altocumulus Castellanus.
- B) Broken cumulus humilis.
- C) Towering cumulus.
- D) Stratocumulus.

**291- After a clear night cumuliform clouds are formed in the morning. Why can the base of these clouds become higher during the day?**

- A) Because the difference between the temperature and the dew point temperature at the initial condensation level becomes smaller.
- B) The wind speed is increasing, because the cold air mass changes into a warm air mass.
- C) Because the stability increases.
- D) Because the surface temperature increases.

**292- Which of the following phenomena is least likely to lead the formation of a cumulonimbus with thunderstorm?**

- A) Convection.
- B) Ground radiation.
- C) Convergence.
- D) Orographic lift.

**293- What is the average vertical extent of radiation fog?**

- A) 2000 ft
- B) 500 ft
- C) 5000 ft
- D) 10000 ft

**294- Frontal fog is most likely to occur:**

- A) In winter in the early morning.
- B) In rear of a warm front.
- C) In summer in the early morning.
- D) In advance of a warm front.

**295- When does frontal fog also known as mixing fog occur?**

- A) When very humid warm air meets with dry cold air.
- B) When very humid warm air meets with very humid cold.
- C) When very humid cold air meets with dry warm air.
- D) When very dry cold air meets with very dry warm air.

**296- Freezing fog consists of:**

- A) Frozen water droplets.
- B) Super cooled water droplets.
- C) Frozen minute snow flakes.
- D) Ice crystals.

**297- Which of the following is most likely to lead to the formation of radiation fog?**

- A) Dry, warm air passing over warm ground.
- B) Heat loss from the ground on clear nights.
- C) The passage of fronts.
- D) Cold air passing over warm ground.

**298- Conditions favorable for the development of radiation fog (FG) are:**

- A) High relative humidity, no cloud.
- B) High relative humidity, little or no cloud
- C) High relative humidity, little or no cloud, a strong sea breeze
- D) High relative humidity, little or no cloud, light wind.

**299- Which of the following statements is true?**

- A) Radiation fog only forms on a clear night with no wind.
- B) Radiation fog only forms in valleys (the katabatic effect).
- C) Radiation fog only forms when the air is very dry and there is an inversion.
- D) Radiation fog cannot form over the sea.

**300- Advection fog:**

- A) Is formed by advection.
- B) Can form a persist with moderate or even strong wind.
- C) Is cleared by change of air mass or less commonly by an increase in wind strength.
- D) All answers are correct.

**301- Advection of very cold air over a warm sea current can cause:**

- A) Frontal fog.
- B) Advection fog.
- C) No fog at all.
- D) Steaming fog.

**302- As a result of diurnal variation radiation fog is lifted and a cloud cover is formed. Which statement is true?**

- A) Layers of altocumulus will develop caused by increasing wind speed.
- B) Low stratus will develop caused by radiation in combination with low geotropic wind speed
- C) Low stratus will develop caused by increasing wind speed.
- D) Stratus will develop caused by insulation.

**303- Frontal fog can be formed by:**

- A) Cooling at night.
- B) Condensation of air saturated by adiabatic cooling.
- C) Evaporation of moisture at the surface.
- D) Warming at day.

**304- Which statement is correct?**

- A) Fog can be super cooled and can also contain ice crystals.
- B) Mist and haze consist of water droplets.
- C) Fog and haze do not occur in the tropics.
- D) Mist and haze only differ by different values of visibility.

**305- What can be said about the formation of haze?**

- A) Dust particles are trapped below an inversion.
- B) The air is very cold and thus the relative humidity increases.
- C) A strong lifting action in the atmosphere is necessary.
- D) A frontal system is the cause.

**306- An autumn day with rain showers and terminated by evening clear sky will be followed in the next morning by:**

- A) Advection fog.
- B) Radiation fog.
- C) Orographic fog.
- D) Frontal fog.

**307- Fog which reaches only 2 meter above ground or 10 meters above the sea is called:**

- A) Smog.
- B) Mist.
- C) Drifting fog.
- D) Shallow fog.

**308- Freezing rain occurs when:**

- A) Snow falls into an above-freezing layer of air.
- B) Ice pellets melt.
- C) Water vapour first turns into water droplets.
- D) Rain falls into a layer of air with a temperature below 0°C.

**309- The widest precipitation zone occurs usually:**

- A) Ahead of a warm front.
- B) Ahead of a cold front.
- C) In rear of a cold front.
- D) In rear of a warm front

**310- Which of the following cloud is classified as low level cloud?**

- A) ST
- B) CS
- C) AS
- D) CC

**311- Which types of clouds are typical evidence of stable air conditions?**

- A) ST, AS.
- B) CU, CB.
- C) NS, CU.
- D) CB, CC.

**312- Convective clouds are formed:**

- A) In stable atmosphere.
- B) In unstable atmosphere.
- C) In summer during the day only.
- D) In mid-latitudes only.

**313- What is the main composition of clouds classified as high level clouds?**

- A) Super cooled water droplets.
- B) Ice crystals.
- C) Water droplets.
- D) Water vapor.

**314- What are the characteristics of cumuliform clouds?**

- A) Large water droplets, stability, no turbulence, showers and mainly rime ice.
- B) Small water droplets, stability, no turbulence and extensive areas of rain.
- C) Large water droplets, instability, turbulence, showers and mainly clear ice.
- D) Small water droplets, instability, turbulence, extensive areas of rain and rime ice.

**315- Cumuliform clouds are formed as a result of unstable air mass being lifted, most typically by convection. The flying conditions in cumuliform clouds typically include:**

- A) Icing in the clouds
- B) Precipitation in the form of showers (large water droplets)
- C) Turbulence inside the cloud and frequently also below the cloud base
- D) All answers are correct

**316- In cumuliform clouds with extensive vertical development (TCU, CB) we can expect: severe turbulence and icing:**

- A) Electrical discharges (thunderstorms)
- B) Gusting surface winds
- C) Up and down drafts in and around the cloud
- D) All answers are correct

**317- Cumulus clouds are an indication for:**

- A) Stability.
- B) Up and down draughts.
- C) The approach of a cold front.
- D) The approach of a warm front.

**318- The presence of altocumulus Castellanos indicates:**

- A) Stability in the higher troposphere.
- B) Strong convection at low height.
- C) Instability in the middle troposphere.
- D) Subsidence in a large part of the troposphere.

**319- Which of the following cloud types can project up into the stratosphere?**

- A) Cumulonimbus.
- B) Cirrostratus.
- C) Altocumulus.
- D) Altostratus.

**320- Lenticular clouds in mountainous areas indicate:**

- A) Unstable air.
- B) Turbulence.
- C) An inversion.
- D) Light variable winds.

**321- The presence of lenticular cloud is an indication of:**

- A) Jet streams.
- B) Mountain waves.
- C) Stratospheric inversions.
- D) Areas of high level clear air turbulence.

**322- Stratiform clouds indicate stable air. Flight generally will be:**

- A) Rough with good visibility.
- B) Smooth with low ceiling and visibility.
- C) Smooth with good visibility.
- D) Smooth with moderate turbulence and good visibility

**323- The family of medium clouds include altostratus, altocumulus and nimbostratus. In moderate latitudes their height of base ranges from:**

- A) 3000 to 5000 feet.
- B) 2000 to 10000 feet.
- C) 2000 to 12000 feet.
- D) 6500 to 23000 feet.

**324- State the four families of clouds:**

- A) High, medium and low clouds.
- B) High and medium clouds, and clouds with extensive vertical development.
- C) Heap clouds, stratified clouds, layered clouds and nimbus clouds.
- D) High, medium and low clouds, and clouds with extensive vertical development.



**325- Given a surface temperature of +10 °C, and a dew point of +5 °C, at what height might you expect cumulus clouds to form?**

- A) 2000 ft
- B) 4000 ft
- C) 1000 ft
- D) 3000 ft

**326- If a stable air mass is forced to rise, what type of cloud is most likely?**

- A) CU
- B) NS
- C) TCU
- D) CB

**327- What will be the classification of high level clouds and where will their bases be situated?**

- A) Above 14000 ft, Nimbus.
- B) Above 16500 ft, Cumuliform.
- C) Above 16500 ft, Cirriform.
- D) Above 7000 ft, Cumuliform.

**328- What is the primary factor that determines the structure or type of clouds which will form as a result of air being forced to ascend?**

- A) The stability of the air before lifting occurs.
- B) The method by which air is lifted.
- C) The relative humidity of the air after lifting occurs.
- D) The atmospheric pressure lapse rate.

**329- What conditions can you generally expect with fair weather cumulus clouds?**

- A) Turbulence at and below the cloud level.
- B) Smooth flight below the cloud level.
- C) Continuous rain.
- D) Turbulence in and above the clouds up to approximately FL250.

**330- Which precipitation type generally has the greatest impact on visibility?**

- A) Heavy rain.
- B) Drizzle.
- C) Hail.
- D) Snow.

**331- What is drizzle?**

- A) Small water droplets of 0.2 to 0.5 mm in diameter.
- B) Water droplets of more than 0.5 mm in diameter.
- C) Precipitation which forms mostly in CB and CU clouds.
- D) Typical precipitation, when NS clouds are present.

**332- Which precipitation type normally indicates freezing rain at some altitude above the ground?**

- A) Snow.
- B) Hail.
- C) Ice pellets.
- D) Ice crystals.

**333- When is heavy precipitation unlikely?**

- A) In summer, with SC and AC clouds.
- B) In summer, with CB and CU clouds.
- C) In spring and autumn, with NS and CB clouds.
- D) In winter, with CB clouds.

**334- In which air mass are extremely low temperatures encountered?**

- A) Arctic maritime air.
- B) Polar maritime air.
- C) Tropical continental air.
- D) Polar continental air.

**335- Which of these phenomena usually forms in the transition zone between two air masses?**

- A) An unstable low pressure.
- B) Radiation fog.
- C) A frontal low pressure.
- D) A ridge of high pressure.

**336- Air masses which are being cooled from below are often characterized by:**

- A) Fog, poor visibility and layered clouds.
- B) Strong winds, cumulus clouds, good visibility.
- C) Uniform temperature, good visibility.
- D) Continuous rain and freezing temperatures.

**337- Which of the following is typical for the passage of a cold front in the summer?**

- A) Rapid increase in temperature once the front has
- B) Mainly layered clouds.
- C) Rapid drop in pressure once the front has passed.
- D) Mainly towering clouds.

**338- Where is the coldest air to be found, in an occlusion with Cold front characteristics?**

- A) Ahead of the front.
- B) Behind the front.
- C) At the surface position of the front.
- D) At the junction of the occlusion.

**339- What types of cloud will you meet flying towards a warm front?**

- A) Extensive areas of fog. At some 100 km from the front NS begin.
- B) At some 800 km CS, later AS, and at some 300 km NS until the front.
- C) At some 500 km AS, later CS and at some 80 km before the front CB.
- D) At some 500 km from the front, groups of CB, later at some 250 km thickening AS.

**340- During a cross-country flight at FL050, you observe the following sequence of clouds: nimbostratus, altostratus, cirrostratus, cirrus. Which of the following are you most likely to encounter?**

- A) Strong, gusty winds.
- B) Decreasing temperatures.
- C) A strong downdraught.
- D) Increasing temperatures.

**341- In a polar front depression, an occlusion is called a warm which occlusion when the cold air**

- A) Behind is less cold than the cold air in front, with the warm air at a high altitude
- B) In front of the surface position of front is only at a high altitude
- C) Behind is colder than the cold air in front
- D) Behind is colder than the cold air in front with the warm air being at a high altitude

**342- What will be the effect on the reading of an altimeter of an aircraft parked on the ground as an active cold front is approach and then passing?**

- A) It will first increase then decrease
- B) It will remain unchanged
- C) It will first decrease then increase
- D) Will fluctuate up and down by about  $\pm 50$  feet

**343- The average slope of a cold front is in the order of:**

- A) 1:150.
- B) 1:250.
- C) 1:500.
- D) 1:80.

**344- Which one of the following alternatives indicates how an occluded front is generated?**

- A) Warm air supersedes cold air.
- B) Cold air wedges under warm air.
- C) A cold front overtakes a warm front and the warm air between the fronts is lifted.
- D) A cold front is halted and becomes almost stationary.

**345- When flying through a cold front from the warm air side in the summer the following flying weather may be expected:**

- A) Towering clouds with showery precipitation.
- B) Horizontally extended clouds with drizzle.
- C) Horizontally extended clouds with even tops and bases.
- D) Towering clouds without turbulence.

**346- When a cold front has passed over a meteorological station it will result in:**

- A) A steady fall in pressure and a backing of the surface wind.
- B) A steady rise in pressure and a veering of the surface wind.
- C) A steady fall in pressure and a veering of the surface wind.
- D) A steady rise in pressure and a backing of the surface wind.

**347- Which of the following are low level clouds?**

- A) AS, AC.
- B) ST, SC.
- C) CI, ST.
- D) NS, CI.

**348- Which of the following are high level cloud? State the most complete answer:**

- A) AS, AC.
- B) ST, NS.
- C) CI, CC.
- D) NS, CI.

**349- Flying conditions associated with cumulonimbus (CB) at summer time are:**

- A) Hazy weather combined with drizzle and turbulence.
- B) Good visibility, intervals of fine weather and little turbulence.
- C) Bad visibility, continuous rain and little turbulence.
- D) Bad visibility in showers and pronounced turbulence.

**350- The type of cloud formed when warming from below:**

- A) Stratus type.
- B) Cumulus type.
- C) Stratocumulus type.
- D) Nimbostratus type.

**351- Which of the following conditions is most likely to lead to the formation of advection fog?**

- A) Moist cold air moving over a warm surface.
- B) Moist warm air moving over a cold surface.
- C) Dry warm air moving over a cold surface.
- D) Dry cold air moving over a warm surface.

**352- Which of the following circumstances most favor the development of radiation fog?**

- A) Warm moist air at the windward side of a mountain.
- B) Moist air over land during clear night with little wind.
- C) Maritime tropical air flowing over cold sea.
- D) Advection of very cold air over much warmer sea.

**353- The range of wind speed in which radiation fog is most likely to form is:**

- A) Above 15 kts.
- B) Between 10 and 15 kts.
- C) Between 5 and 10 kts.
- D) Below 5 kts.

**354- Which of the following statements is true concerning advection fog?**

- A) It forms slowly and disappears rapidly.
- B) It forms at night or the early morning.
- C) It forms when unstable air is cooled adiabatically.
- D) It can be formed suddenly by day or night.

**355- The morning following a clear, calm night when the temperature has dropped to the dew point, is likely to produce:**

- A) A cold front.
- B) Radiation fog.
- C) Advection fog.
- D) Good clear weather.

**356- When the temperature and dew point are less than one degree apart the weather conditions are most likely to be:**

- A) Unlimited visibility.
- B) Clear and cool.
- C) High scattered clouds.
- D) Fog or low cloud.

**357- Which of the following is most likely to lead to the dissipation of radiation fog?**

- A) A buildup of a high pressure area resulting in adiabatic warming associated with a sinking air mass.
- B) A marked decrease in wind velocity close to the ground.
- C) Ground cooling caused by radiation during the night.
- D) A marked increase in wind velocity near the ground.

**358- Which type of fog is likely to form when air having temperature of 15°C and dew point of 12 °C blows at 10 knots over a sea surface having temperatures of 5°C?**

- A) Radiation fog.
- B) Advection fog.
- C) Steam fog.
- D) Frontal fog.

**359- Which of the following weather conditions favor the formation of radiation fog?**

- A) Light wind, little or no cloud, moist air.
- B) Light wind, extensive cloud, dry air.
- C) Light wind, extensive cloud, moist air.
- D) Strong wind, little or no cloud, moist air.

**360- Radiation fog can be dispersed by:**

- A) Insolation.
- B) Strong winds.
- C) Replacement of moist air by drier air.
- D) All answers are correct.

**361- Radiation fog most frequently occurs in:**

- A) Low pressure systems over sea.
- B) High pressure systems over land.
- C) High pressure systems over sea.
- D) Low pressure systems over land.

**362- The formation of morning fog before sunrise is possible if:**

- A) Air temperature and dew point are equal or close to one another.
- B) The wind is strong.
- C) The sky is overcast.
- D) The turbulence in the lower layers is moderate.

**363- Which type of fog cannot be formed over water?**

- A) Advection fog.
- B) Radiation fog.
- C) Arctic smoke.
- D) Frontal fog.

**364- The danger of experiencing fog is greatest when:**

- A) Dew point temperature is high.
- B) Dew point temperature is low.
- C) There is little dew point spread.
- D) There is great dew point spread

**365- What enhances the growth rate of precipitation?**

- A) Adjective action.
- B) Upward currents.
- C) Cyclonic movement.
- D) Temperature inversions.

**366- Fall streaks or Virga are:**

- A) Water or ice particles falling out of a cloud that evaporate before reaching the ground.
- B) Strong down draughts in the polar jet stream, associated with jet streaks.
- C) Gusts associated with a well-developed Bora.
- D) Strong katabatic winds in mountainous areas and accompanied by heavy precipitation.

**367- In the typical weather pattern behind a cold front the visibility outside precipitation is:**

- A) Low and the precipitation is showers.
- B) Good and the precipitation is steady rain.
- C) Good and the precipitation is showers.
- D) Low and the precipitation is steady rain.

**368- The passage of a warm front can be associated with areas of fog. The types of fog just in advance and just after the passage are respectively:**

- A) Arctic smoke and frontal fog.
- B) Advection fog and radiation fog.
- C) Frontal fog and advection fog.
- D) Advection fog and steaming fog.

**369- What surface weather is associated with a stationary high pressure region over land in the winter?**

- A) Thunderstorms.
- B) A tendency for fog and low ST.
- C) NS with continuous rain.
- D) The possibility of snow showers.

**370- What is the correct term for the descending air flow in a large high pressure area?**

- A) Convection.
- B) Convergence.
- C) Advection.
- D) Subsidence.

**371- When flying at 5000 feet in the northern hemisphere over plains (flat country) with an anticyclone on the left and a depression on the right the wind will be:**

- A) From the right.
- B) From the left
- C) A headwind.
- D) A tailwind.

**372- Freezing precipitation occurs:**

- A) Only in the precipitate on of a warm front.
- B) Only in the precipitation of a cold front.
- C) Mainly in the form of freezing rain or freezing drizzle.
- D) Mainly in the form of freezing hail or freezing snow.

**373- The presence of ice pellets at the surface is evidence that:**

- A) Freezing rain occurs at a higher altitude.
- B) A cold front has passed.
- C) There are thunderstorms in the area.
- D) A warm front has passed.

**374- What type of cloud can produce hail showers?**

- A) CS
- B) NS
- C) CB
- D) AC

**375- What type of clouds are associated with snow showers?**

- A) Nimbostratus.
- B) Cumulus and altostratus.
- C) Altostratus and stratus.
- D) Cumulonimbus.

**376- Large hailstones:**

- A) Only occur in thunderstorms of mid-latitudes.
- B) Are typically associated with severe thunderstorms.
- C) Are entirely composed of clear ice.
- D) Only occur in frontal thunderstorms.



**377- Precipitation in the form of showers occurs mainly from:**

- A) Clouds containing only ice crystals.
- B) Stratified clouds.
- C) Cirrus clouds.
- D) Convective clouds.

**378- What type of clouds are associated with rain showers?**

- A) Nimbostratus.
- B) Towering cumulus and altostratus.
- C) Altostratus and stratus.
- D) Towering cumulus and cumulonimbus.

**379- Which one of the following types of cloud is most likely to produce heavy precipitation?**

- A) SC
- B) CS
- C) NS
- D) ST

**380- Which of the following cloud types is least likely to produce precipitation?**

- A) CI
- B) AS
- C) CB
- D) NS

**381- In which of the following situations can freezing rain be encountered?**

- A) Ahead of a warm front in the winter.
- B) Ahead of a cold front in the winter.
- C) Behind a warm front in the summer
- D) Ahead of a cold front in the summer.

**382- Super cooled droplets can occur in:**

- A) Clouds, fog and precipitation.
- B) Clouds but not in precipitation.
- C) Precipitation but not in clouds
- D) Clouds but not in fog

**383- Which of the following types of cloud is most likely to be associated with prolonged and continuous moderate rain?**

- A) NS
- B) CU
- C) ST
- D) CI

**384- What type of cloud is pertinent for showers?**

- A) CB
- B) NS
- C) CI
- D) AS

**385- An unstable air mass will normally be characterized by:**

- A) Stratiform cloud.
- B) Cumuliform cloud and good visibility except in precipitation.
- C) Continuous light rain from medium level layer cloud.
- D) Poor visibility due to haze at the lower levels.

**386- An air mass acquires its characteristics by:**

- A) Rising of the warm air above the underlying cold air.
- B) Convection.
- C) Stagnation of the air for a long period of time over areas having particular characteristics.
- D) Air circulation around centers of permanent action.

**387- What are the most common characteristics of a cold air mass moving over a warm surface?**

- A) Cumuliform clouds, turbulence, and good visibility.
- B) Cumuliform clouds, turbulence, and poor visibility.
- C) Stratiform clouds, smooth air, and poor visibility.
- D) Stratiform clouds, turbulence, and good visibility.

**388- What are the most common characteristics of a warm air mass, moving over a cold surface?**

- A) Cumuliform clouds, turbulence, and good visibility.
- B) Cumuliform clouds, turbulence, and poor visibility.
- C) Stratiform clouds, smooth air, and poor visibility.
- D) Stratiform clouds, turbulence, and good visibility.

**389- The first clouds are thin, wispy cirrus, followed by sheets of cirrus and cirrostratus, and altostratus. The sun is obscured as the altostratus thickens and drizzle or rain begins to fall. The cloud base is lowering as nimbostratus arrives. These phenomenon is due to**

- A) Warm front.
- B) Cold front.
- C) Trade wind front.
- D) Sea-breeze front.

**390- An occlusion takes place when:**

- A) A cold front catches up with a warm front.
- B) Warm air displaces cold air.
- C) Cold air displaces warm air.
- D) The front no longer moves.

**391- Subsidence is:**

- A) Vertically upwards motion of air.
- B) Horizontal motion of air.
- C) Vertically downwards motion of air.
- D) The same as convection.

**392- Areas of sinking air are generally cloudless because as air sinks it:**

- A) Reaches warmer layers.
- B) Is heated by compression.
- C) Is heated by expansion.
- D) Loses water vapor.

**393- Define a "HIGH";**

- A) An area with higher pressure than that of the horizontal environments.
- B) A high pressure ridge.
- C) An area of divergence.
- D) None of the above.

**394- A trough of low pressure on a surface synoptic chart is an area of:**

- A) Divergence and subsidence.
- B) Convergence and widespread ascent.
- C) Divergence and widespread ascent.
- D) Convergence and Subsidence.

**395- Which statement is true regarding squall lines?**

- A) They are always associated with cold front.
- B) They are non-frontal and often contains severe steady state thunderstorm.
- C) They form slowly but move rapidly.
- D) They are associated with frontal systems only.

**396- A "trough" is a:**

- A) Type of a low pressure area.
- B) Type of a high pressure area.
- C) Tropical thunderstorm.
- D) Tropical wind.

**397- An area on a synoptic chart appearing as a "V-shaped" extension of a low pressure area is called a:**

- A) Ridge
- B) Col
- C) Trough
- D) Occlusion

**398- The downdrafts and rain starts and rain reach the ground when a thunderstorm cell is in ---- stage and the cell has reached a height 25000 ft/min or more.**

- A) Mature
- B) Thermal
- C) Cumulus
- D) Dissipating

**399- A strong, dry and warm katabatic wind, produced by prior enforced ascent of air over hills or mountains is known as a:**

- A) Bora
- B) Harmattan
- C) Mistral
- D) Foehn

**400- A Foehn wind occurs on the:**

- A) Leeward side of a mountain range and is caused by the condensation level being lower on the leeward side than on the windward side.
- B) Windward side of a mountain range and is caused by surface heating.
- C) Windward side of a mountain range and is caused by surface cooling and reverse air flow.
- D) Leeward side of a mountain range and is caused by significant moisture loss by precipitation from cloud.

**401- What type of air movement is associated with the center line of a trough?**

- A) Divergence with lifting.
- B) Divergence with descending air.
- C) Convergence with lifting.
- D) Convergence with descending air.

**402- Which is true of a typical non frontal thermal depression?**

- A) It forms over the ocean in summer.
- B) It forms over land in summer.
- C) It forms both over the ocean and land in winter.
- D) It forms over land in winter.

**403- What is meant by an area of divergence?**

- A) An area where air masses are moving in.
- B) An area where air masses are moving out.
- C) A frontal zone.
- D) A high pressure area.

**404- The formation of a thermal low pressure is by:**

- A) Advection of warm air.
- B) Advection of cold air.
- C) A dynamic effect.
- D) A temperature rises in an area in relation to the environment.

**405- What type of clouds, visible even at a long distance, could indicate the presence of a tropical revolving storm?**

- A) NS spread over a large area.
- B) Frequent SC.
- C) Excessive accumulation of CU.
- D) Dense CI.

**406- During which seasons are hurricanes most likely to appear in the northern hemisphere?**

- A) All seasons.
- B) Winter.
- C) Winter and spring.
- D) Summer and autumn.

**407- Where is the most dangerous zone in a tropical revolving storm?**

- A) Anywhere in the eye.
- B) In the wall of clouds around the eye.
- C) In the center of the eye.
- D) About 600 km away from the eye.

**408- What is the reason for seasonal changes in climate?**

- A) Because the earth spin axis is inclined to the plane of its orbit round the sun.
- B) Because the distance between the earth and the sun varies over a year.
- C) Because the earth's orbital speed round the sun varies according to the time of the year.
- D) Because of the difference between the tropical year and the calendar year.

**409- Which one of the following statements regarding the inter-tropical convergence zone (ITCZ) is correct?**

- A) The ITCZ does not change its position during the course of the year.
- B) Thunderstorms seldom occur within the area of the ITCZ.
- C) The ITCZ is always associated with a strong jet stream.
- D) Frequent and widespread thunderstorms are to be expected within the area of the ITCZ.

**410- Which of the following statements concerning the inter-tropical convergence zone is true:**

- A) There are frequent occurrences of CB.
- B) It lies totally in the northern hemisphere in July and totally in the southern hemisphere in January.
- C) It does not change its position over the oceans during the year.
- D) It is an area of low pressure and low relative humidity.

**411- Which wind systems converge on the ITCZ when it lies at the equator?**

- A) SE trade winds and NE trade winds.
- B) SW monsoon and NW monsoon.
- C) SW monsoon and NW trade winds.
- D) NW monsoon and SW trade winds.

**412- In which month does the humid monsoon in India start?**

- A) In October.
- B) In June.
- C) In December.
- D) In March.

**413- From which direction for the trade winds blow in the southern hemisphere?**

- A) N
- B) NE
- C) SW
- D) SE

**414- Define the Chinook:**

- A) Warm and dry air descending at the leeward side of the Rocky Mountains.
- B) Cold and dry air descending at the leeward side of the Appalachian Mountains.
- C) A dust and sand laden northeasterly wind in Northwest Africa.
- D) Warm and dry air ascending on the west side of the Rocky Mountains.

**415- Large super cooled water drops, which freeze on impact on an airplane, form:**

- A) Rime ice.
- B) Clear ice.
- C) Hoar frost.
- D) Cloudy ice.

**416- While descending through a cloud cover at high level, a small amount of a white and rough powder like contamination is detected along the leading edge of the wing. This contamination is called:**

- A) Clear ice.
- B) Rime ice.
- C) Mixed ice.
- D) Frost.

**417- In which of the following conditions is moderate to severe airframe icing most likely to be encountered?**

- A) Within cloud of any type.
- B) Below the freezing level in clear air.
- C) In clear air above the freezing level.
- D) In nimbostratus cloud.

**418- Clear ice is dangerous because it:**

- A) Spreads out and contains many air particles.
- B) Is translucent and only forms at the leading edges.
- C) Is not translucent and forms at the leading edges.
- D) Is heavy and is difficult to remove from the aircraft surfaces.

**419- The most dangerous form of airframe icing is:**

- A) Rime ice.
- B) Hoar frost.
- C) Dry ice.
- D) Clear ice.

**420- A thin coating of Hoar frost on the airfoil surface:**

- A) Does not affect takeoff performance.
- B) Has significant negative effects on the lift of the wing.
- C) Affects the aspect ratio of the wing.
- D) Only affects stability.

**421- Which conditions result in the formation of hoar frost?**

- A) The temperature of the collecting surface is at or below freezing and small droplets of moisture are falling.
- B) When dew forms and the temperature is below freezing.
- C) Temperature of the collecting surface is below the dew point of surrounding air and the dew point is colder than freezing.
- D) None.

**422- Why is frost considered hazardous to flight?**

- A) The increased weight requires a greater takeoff distance.
- B) Frost causes early airflow separation resulting in a loss of lift.
- C) Frost decreases control effectiveness.
- D) All answers are correct.

**423- The possibility of significant icing at altitude, should be expected when on ground you observe:**

- A) Ice pellets.
- B) Hail.
- C) Snow.
- D) Ice droplet.

**424- How does moderate turbulence affect an aircraft?**

- A) Large, abrupt changes in altitude or attitude occur but the aircraft may only be out of control momentarily.
- B) Rapid and somewhat rhythmic bumpiness is experienced without appreciable changes in altitude or attitude.
- C) Changes in altitude or attitude occur but the aircraft remains in positive control at all times.
- D) Continued flight in this environment will result in structural damage. With reference to ICAO scale of Intensity of turbulence.

**425- The mechanical turbulence will increase when:**

- A) Flying from land to sea.
- B) Temperature falls.
- C) Pressure rises.
- D) The wind speed increases.

**426- Hazardous wind shear is encountered near the ground:**

- A) During periods when the wind velocity is stronger than 35 knots.
- B) During periods when the wind velocity is stronger than 35 knots and near mountain valleys.
- C) During periods of strong temperature inversion and near thunderstorms.
- D) Near mountain valleys and on the windward side of hills and mountains.

**427- What is a microburst?**

- A) A small low pressure system where the wind circulates with very high speeds.
- B) A concentrated down draught with high speeds and a higher temperature than the surrounding air.
- C) An extremely strong wind gust in a tropical revolving storm.
- D) A concentrated downdraught with high speeds and a lower temperature than the surrounding air.



**428- What are squall lines?**

- A) Unusual intensive cold fronts.
- B) Bands of intensive thunderstorms.
- C) The surface weather associated with upper air troughs.
- D) The paths of tropical revolving storms.

**429- During which stage of thunderstorm development are rotor winds characterized by roll clouds most likely to occur?**

- A) Dissipating stage.
- B) Cumulus stage.
- C) Mature stage.
- D) Cumulus stage and mature stage.

**430- In addition to a lifting action, what are two other conditions necessary for thunderstorm formation?**

- A) Stable conditions and high moisture content.
- B) Unstable conditions and high moisture content.
- C) Stable conditions and low atmospheric pressure.
- D) Unstable conditions and low atmospheric pressure.

**431- During the life cycle of a thunderstorm, which stage is characterized predominantly by downdraughts?**

- A) Dissipating stage.
- B) Initial stage.
- C) Mature stage.
- D) Anvil stage.

**432- Thunderstorms reach their greatest intensity during the:**

- A) Dissipating stage.
- B) The initial stage.
- C) Mature stage.
- D) Period in which precipitation is not falling.

**433- A microburst:**

- A) Always occurs in thunderstorms.
- B) Has a life time of more than 30 minutes.
- C) Has a diameter of up to 4 km.
- D) Occurs only in tropical areas.

**434- Which thunderstorms generally produce the most severe conditions, such as heavy hail and destructive winds?**

- A) Warm front thunderstorms.
- B) Squall line thunderstorms.
- C) Nocturnal air mass thunderstorms.
- D) Daytime air mass thunderstorms.

**435- A thunderstorm has the following stages in its life cycle:**

- A) Initial, mature or building and declining.
- B) Building, mature, declining and dissipating.
- C) Initial, declining and dissipating.
- D) Cumulus, mature and dissipating.

**436- The initial stage of a thunderstorm last for approximately:**

- A) 20 min.
- B) 30 min.
- C) 20 - 30 min.
- D) 40 min.

**437- The mature stage of a thunderstorm lasts for approximately:**

- A) 5 -15 min
- B) 30 - 60 min
- C) 20 - 30 min
- D) 45 min

**438- Which of the following statements is true with regard to a mature thunderstorm?**

- A) Both up-currents and down-currents appear concurrently.
- B) The cloud top assumes anvil shape.
- C) Water droplets, hail and snow are all present.
- D) The top of the cloud is negatively charged and the base is positively charged.

**439- The final stage of a thunderstorm is reached when:**

- A) No further electrical charge is developed.
- B) The lower portion of the cloud dissipates.
- C) A well-developed anvil can be seen.
- D) All answers are correct.

**440- What is a signal of the beginning of the mature stage of a thunderstorm?**

- A) The appearance of an anvil top.
- B) Growth rate of the CB cloud is maximum.
- C) The start of precipitation.
- D) CB cloud stops growing vertically

**441- What is the location of a squall line?**

- A) Ahead of a cold front.
- B) Ahead of a warm front.
- C) Between cold and warm front.
- D) On the rear side of a frontal system.

**442- Which type of clouds are associated with "Microburst"?**

- A) Stratus (ST).
- B) Altocumulus (AC).
- C) Cumulonimbus (CB).
- D) Cumulus (CU).

**443- Which of the following best describes the inter-tropical convergence zone?**

- A) The zone where the Harmattan meets the northeasterly trade winds over Africa.
- B) The zone where the trade winds of the northern hemisphere meet those of the southern hemisphere.
- C) The zone where cold fronts form in the tropics.
- D) The zone where the west winds meet the subtropical high pressure belt.

**444- What is the name of the low level winds between the subtropical high pressure belt and the ITCZ?**

- A) Monsoon.
- B) Trade winds.
- C) Easterly wave.
- D) Low level jet stream.

**445- How do you recognize a cold air pool?**

- A) A cold air pool may only be recognized on the surface chart as a low pressure area.
- B) As a high pressure area aloft (e.g. on the 500 hPa chart).
- C) As a low pressure area aloft (e.g. on the 500 hPa chart).
- D) A cold air pool may only be recognized on the surface chart as a high pressure area.

**446- What is encountered during the summer over land in the center of a cold air pool?**

- A) Noting (CAVOK)
- B) Strong westerly winds
- C) Fine weather CU
- D) Showers and thunderstorms

**447- The polar front is the boundary between:**

- A) Maritime polar air and continental polar air.
- B) Arctic air and polar air.
- C) Arctic air and tropical air.
- D) Polar air and tropical air.

**448- What will be the effect on the reading of an altimeter of an aircraft parked on the ground shortly before an active cold front passes over the airport?**

- A) It will be decreasing.
- B) It will remain unchanged.
- C) It will be increasing.
- D) It will fluctuate up and down by about  $\pm 50$  feet.

**449- What type of precipitation would you expect at an active unstable cold front?**

- A) Showers associated with thunderstorms.
- B) Freezing rain.
- C) Light to moderate continues rain.
- D) Drizzle.

**450- You have been flying for some time in dense layered cloud. The outside air temperature is  $-25^{\circ}\text{C}$  which of the following statements is true?**

- A) If you do not have weather radar on board there is no need to worry as CB is unlikely to form in such cloud.
- B) Severe airframe icing is quite likely under these conditions.
- C) Severe air frame icing is unlikely under these conditions.
- D) In a dense layered cloud icing is unlikely also at an outside air temperature of  $-30^{\circ}\text{C}$ .

**451- Which one of the following statements concerning the formation of aircraft icing is most correct?**

- A) Risk for icing increases when cloud temperature decreases well below minus  $12^{\circ}\text{C}$ .
- B) Greatest risk of icing conditions is experienced in cirrus clouds.
- C) A cloud consisting of both super cooled cloud droplets and ice crystals produces aircraft icing.
- D) Probability of icing increases when dry snow starts to fall from a cloud.

**452- Hoar frost is most likely to form when?**

- A) Flying inside convective clouds.
- B) Taking off from an airfield with a significant ground inversion.
- C) Flying inside Stratiform clouds.
- D) Flying in super cooled drizzle.

**453- Which of the following factors have the greatest effect on the formation of the various types of ice on an aircraft?**

- A) Relative humidity inside the cloud.
- B) Aircraft speed and size of cloud droplets.
- C) Aircraft speed and curvature of the airfoil.
- D) Cloud temperature and droplet size.

**454- Freezing fog exists if fog droplets:**

- A) Are frozen.
- B) Are super cooled.
- C) Are freezing very rapidly.
- D) Freeze when temperature falls below zero.

**455- Which of the following cloud types are most likely to produce light to moderate icing when they are not subject to orographic lifting and consist of super cooled cloud droplets:**

- A) Stratocumulus and cirrostratus.
- B) Altocumulus and altostratus.
- C) Stratus and cumulonimbus.
- D) Altostratus and cirrocumulus.

**456- How does a pilot react to heavy freezing rain at 2000 ft AGL when he is unable to de-ice, nor land?**

- A) He turns back before the aircraft loses maneuverability.
- B) He descends to the warm air layer below.
- C) He ascends to the cold air layer above.
- D) He continues to fly at the same altitude.

**457- Which of the following statements is true regarding moderate to severe airframe icing?**

- A) It may occur in the uppermost levels of a cumulonimbus capillatus formation.
- B) It always occurs in altostratus cloud.
- C) It may occur in nimbostratus cloud.
- D) It will occur in clear-sky conditions.

**458- In which conditions would you most likely encounter clear icing and how would it normally appear?**

- A) Cumuliform clouds small water droplets temperatures between  $-20^{\circ}\text{C}$  and  $25^{\circ}\text{C}$  appears transparent and tends to take the shape of the surface on which it freezes
- B) Stratiform clouds small water droplets temperatures between  $-10^{\circ}\text{C}$  and  $-20^{\circ}\text{C}$ . Appears granular and tends to accumulate forward into the air stream.
- C) Cumuliform clouds large water droplets temperatures between  $0^{\circ}\text{C}$  and  $-15^{\circ}\text{C}$  appear smooth and tends to spread back over an aircraft wing.
- D) Stratiform clouds large water droplets temperatures will below freezing appears opaque and builds forward from leading surface in to a sharp edge.

**459- What intensity and type of aircraft icing is likely to occur at FL100 in a thunderstorm with the freezing level at 7000 ft?**

- A) Moderate to severe icing due to clear ice.
- B) Light icing due to rime ice.
- C) Moderate to severe icing due to rime ice.
- D) Light icing due to clear ice.

**460- In which cloud type does moderate to severe airframe icing most probably occur?**

- A) NS
- B) ST
- C) CS
- D) AC

**461- What is normally the most effective measure to reduce or avoid the clear air turbulence effects?**

- A) Decrease of speed.
- B) Change of course.
- C) Increase of speed.
- D) Change of flight level.

**462- A zone of strong convection currents is encountered during a flight. In spite of moderate gust you decide to continue the flight. What are your precautionary measures?**

- A) Increase the speed / try to descend below the zone of convective currents.
- B) Increase the speed / try to climb above the zone of convective currents if aircraft performance parameters allow.
- C) Decrease the speed / try to descend below the zone of convective currents.
- D) Decrease the speed / try to climb above the zone of convective currents if aircraft performance parameters allow.

**463- The degree of clear air turbulence experienced by an aircraft is proportional to the?**

- A) Intensity of the solar radiation.
- B) Height of the aircraft.
- C) Stability of the air.
- D) Intensity of vertical and horizontal wind shear.

**464- All pilots encountering clear air turbulence are requested to report it. You experience CAT which causes passengers and crew to feel definite strain against their seat belt or shoulders straps. Unsecured objects are dislodged food service and walking are difficult this intensity of CAT should be reported as:**

- A) Severe.
- B) Extreme.
- C) Moderate.
- D) Light.

**465- Conditions favorable for low-level frictional turbulence are:**

- A) Strong wind, rough terrain, steep lapse rate.
- B) Strong wind, rough terrain, stable lapse rate.
- C) Light wind, rough terrain, stable lapse rate.
- D) Strong wind, smooth terrain, stable elapse rate.

**466- In which zone of a polar front jet stream is the strongest clear air turbulence to be expected?**

- A) Exactly in the center of the core.
- B) On the tropical air side of the core.
- C) On the polar air side of the core.
- D) About 12000 ft above the core.

**467- When cat (CLEAR AIR TURBULENCE) conditions are anticipated the following procedure should be used as soon as turbulent air penetration speed is established:**

- A) The airspeed indicator should be used as primary flight instrument.
- B) The attitude indicator should be used as secondary flight instrument.
- C) Maintain wings level and control pitch attitude smoothly.
- D) Prepare the use of large control inputs to fight the excessive G-force that may occur.

**468- Clear air turbulence (CAT) should be anticipated when:**

- A) Immediately after the passage of a thunderstorm.
- B) A sharp trough area aloft is present with wind speed considerable higher than that of jet stream winds.
- C) A sharp trough area aloft is present even though the wind speed may be considerably less than that of jet stream winds.
- D) Whenever a high pressure is present close to a thunderstorm area.

**469- What is the effect of a strong low level inversion?**

- A) It results in good visual conditions.
- B) It promotes extensive vertical movement of air.
- C) It prevents vertical wind shear.
- D) It promotes vertical wind shear.

**470- An important characteristic of wind shear is that:**

- A) It is encountered most frequently near mountain waves during winter months.
- B) It is an atmospheric contention that is associated exclusively with zones of convergence.
- C) It only occurs with jet streams.
- D) It is an atmospheric condition that maybe associated with a low level temperature inversion a jet stream or a frontal zone.

**471- In a microburst you may experience strong wind shear:**

- A) 4 km
- B) 8 km
- C) 10km
- D) 15 km

**472- Which thunderstorms move forward the fastest?**

- A) Thunderstorms formed by lifting processes.
- B) Frontal thunderstorm.
- C) Thermal thunderstorm.
- D) Orographic thunderstorms.

**473- At which altitude at temperate latitudes may hail be expected in connection with a CB?**

- A) From the ground up to a maximum of FL450.
- B) From the ground up to about FL200.
- C) From the ground up to about FL100.
- D) From the base of the clouds up to FL200.

**474- Which of the following meteorological phenomenon indicates upper level instability which may lead to thunderstorm development?**

- A) Red cirrus
- B) Continuous downdraughts
- C) Light showery precipitation
- D) Continuous up draughts



**475- Which of the following conditions are necessary for thunderstorms to form:**

- A) Low surface temperature and high moisture content.
- B) High moisture content and a trigger action.
- C) Instability at night  $0^{\circ}$  isotherm.
- D) Low upper temperatures and a high.

**476- Which types of thunderstorm can be the most difficult to avoid:**

- A) Mature thunderstorms because they spread over such a wide area.
- B) Frontal thunder storms.
- C) Air mass thunderstorms.
- D) Low-level thunderstorms.

**477- Convective weather phenomena include:**

- A) Heavy showers, lightning strikes, hail, mist, squalls light rain over a range area.
- B) Thunderstorms, tornadoes, hail, haze, wind gusts, advection fog, lightning strikes.
- C) Thunderstorms, hail, tornadoes, wind gusts, heavy showers, lightning strikes.
- D) Hail, lightning, strikes, wind lulls, squalls, stratocumulus, low level wind maximum.

**478- Thunderstorms are often preceded by:**

- A) Altostratus clouds
- B) Nimbostratus clouds
- C) Altocumulus castellanos clouds
- D) Altocumulus lenticulars clouds

**479- Which of the following sets of conditions are most favorable to the development of thunderstorms?**

- A) Extensive isothermal layer, ice particles and water droplets must exist just below the freezing level and orographic lift in.
- B) Environmental lapse rate greater than saturated adiabatic lapse rate through a great vertical extent high relative humidity and an initial lifting process.
- C) Environmental lapse rate less than saturated adiabatic lapse rate with dew point below  $0^{\circ}\text{C}$  and considerable surface heating.
- D) Environmental lapse rate less than dry adiabatic lapse rate with freezing level below the cloud base high relative humidity and strong surface winds.

**480- Which of the following situations favors the formation of heavy thunderstorms?**

- A) A cold front approaching a mountain range in the evening.
- B) The passage of a warm front in the morning.
- C) A cold front on the leeward side of a mountain range.
- D) A warm sector moving over a snow –covered ground.

**481- Which of the following statements about lightning's and lightning strikes is correct?**

- A) The aircraft is temporarily part of the lightning trajectory.
- B) Spherical lightning often penetrate into aircraft.
- C) Lightning strikes always cause heavy damage.
- D) Compasses and electronics are always affected.

**482- Which one of the following can provide the initial lifting leading to air mass thunder storms?**

- A) Advection of cold air over a warm sea.
- B) Mountain waves.
- C) Advection of warm air over a cold sea.
- D) Low level wind shear.

**483- Which statement is correct for microburst?**

- A) They only develop below convective clouds with heavy rain.
- B) The diameter or the affected area on the surface does not exceed 4 km.
- C) They occur in the tropics only.
- D) Their downdraughts are warmer than the surroundings.

**484- With the development of a thunderstorm at what stage will there be only up draughts of air?**

- A) Anvil stage.
- B) Mature stage.
- C) Initial stage.
- D) Dissipating stage.

**485- What conditions (amongst others) have to be met for the development of CBs and thunderstorms?**

- A) Moist air must be present.
- B) Warm air has to move over a cold surface.
- C) There have to be significant pressure differences over a small area.
- D) A front has to be present.

**486- Where can wind shear associated with a thunderstorm be found (choose the most complete answer)?**

- A) In front of the thunderstorm cell (anvil side).
- B) Ahead of the roll clouds or gust front.
- C) In front of the thunderstorm cell and directly under the cell.
- D) On all sides of the thunderstorm cell and directly under the cell.

**487- Concerning the radar reflectivity in relation to a thunderstorm the followings is true?**

- A) Reflectivity decreases with severity and frequency of turbulence.
- B) Reflectivity increases with severity and frequency of turbulence.
- C) Reflectivity is a function of the number and size of water droplets in a given unit of volume.
- D) Both B and C are correct.

**488- Which of the following conditions are most favorable to the formation of mountain waves?**

- A) Unstable air at mountain top altitude and a wind at least 20 knot blowing across the mountain ridge.
- B) Either stable or unstable air at mountain top or a wind of at least 30 knots blowing parallel to the mountain ridge.
- C) Most unstable air at mountain top and wind of less than 5 knots blowing across the mountain ridge.
- D) Stable air at mountain top altitude and a wind at least 20 knots blowing across the mountain ridge.

**489- With reference to rotor circulation?**

- A) It can occur at levels up to 80000 ft.
- B) It is a low level phenomenon.
- C) It is found at approximately the tropopause level.
- D) It is another name for the rotor zones associated with mountain waves.

**490- Mountain waves should be expected?**

- A) When instability is high.
- B) On the downwind side of the mountain chain.
- C) Directly over the mountain chain.
- D) On the upwind side of the mountain chain.

**491- The conditions most favorable to formations of mountain waves are?**

- A) Wind direction parallel to the mountain range – wind speed increasing with height – extensive isothermal layer between mountain crests and the tropopause.
- B) Wind direction parallel to the general alignment of the mountain range wind speed increasing with height – intense surface heating.
- C) Wind speed above 20 kts and wind direction at right angles to mountains – wind speed increasing with height.
- D) Wind directing approximately at right angles to the mountain range – wind speed 30 kts and steadily increasing with height – an inversion just above the crest level with less stable air above and below.

**492- What is likely when mountain waves are observed?**

- A) Strong wind and turbulence in the mountains.
- B) Unstable air.
- C) Rain on the leeward side of the mountains.
- D) Convection clouds.

**493- Below a low level inversion visibility is often:**

- A) Moderate or poor due to heavy snow showers.
- B) Very good at night.
- C) Very good in the early morning.
- D) Moderate or poor because there is no vertical exchange.

**494- In unstable air, surface visibility is most likely to be restricted by:**

- A) Low stratus.
- B) Haze.
- C) Drizzle.
- D) Showers of rain or snow.

**495- The solid particles which reduce visibility in the atmosphere are:**

- A) Atmospheric pollution, dust, ozone and moisture.
- B) Atmospheric pollution, volcanic fumes, dust and sand.
- C) Atmospheric pollution, dust, sand and spray.
- D) Atmospheric pollution, dust, sand and volcanic ash.

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	D	26	A	51	C	76	A
2	A	27	B	52	D	77	A
3	C	28	D	53	B	78	B
4	D	29	A	54	D	79	B
5	A	30	B	55	D	80	A
6	B	31	D	56	C	81	C
7	B	32	A	57	D	82	C
8	C	33	B	58	A	83	B
9	A	34	C	59	B	84	C
10	D	35	C	60	B	85	C
11	A	36	D	61	D	86	C
12	C	37	C	62	B	87	A
13	A	38	A	63	B	88	D
14	A	39	A	64	C	89	A
15	D	40	C	65	B	90	C
16	D	41	C	66	C	91	B
17	B	42	A	67	D	92	A
18	D	43	A	68	A	93	D
19	B	44	B	69	A	94	B
20	C	45	C	70	B	95	C
21	A	46	B	71	A	96	B
22	B	47	A	72	A	97	C
23	D	48	C	73	C	98	C
24	D	49	D	74	A	99	B
25	D	50	D	75	C	100	C

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	C	126	A	151	D	176	B
102	C	127	D	152	A	177	A
103	B	128	B	153	C	178	C
104	C	129	A	154	B	179	B
105	B	130	C	155	D	180	A
106	C	131	B	156	B	181	A
107	A	132	C	157	C	182	B
108	B	133	A	158	C	183	C
109	C	134	B	159	D	184	A
110	D	135	A	160	B	185	D
111	B	136	D	161	B	186	D
112	A	137	C	162	A	187	A
113	A	138	C	163	C	188	B
114	A	139	B	164	C	189	B
115	D	140	B	165	B	190	A
116	B	141	D	166	C	191	B
117	C	142	B	167	C	192	B
118	C	143	A	168	B	193	D
119	D	144	C	169	A	194	A
120	D	145	B	170	C	195	A
121	C	146	B	171	C	196	B
122	A	147	A	172	B	197	D
123	A	148	C	173	C	198	A
124	A	149	D	174	A	199	A
125	D	150	B	175	B	200	B

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
201	A	226	B	251	A	276	C
202	A	227	D	252	A	277	D
203	C	228	C	253	A	278	B
204	C	229	C	254	C	279	A
205	D	230	A	255	A	280	A
206	B	231	C	256	B	281	C
207	D	232	D	257	D	282	C
208	B	233	D	258	A	283	B
209	A	234	D	259	D	284	B
210	D	235	B	260	B	285	B
211	C	236	B	261	B	286	C
212	D	237	C	262	B	287	A
213	D	238	C	263	B	288	B
214	C	239	A	264	A	289	D
215	D	240	C	265	A	290	C
216	D	241	D	266	D	291	D
217	D	242	B	267	D	292	B
218	B	243	B	268	C	293	B
219	A	244	C	269	A	294	D
220	C	245	D	270	D	295	B
221	C	246	D	271	A	296	B
222	A	247	A	272	A	297	B
223	B	248	C	273	A	298	D
224	D	249	A	274	A	299	D
225	D	250	A	275	B	300	D

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
301	D	326	B	351	B	376	B
302	C	327	C	352	B	377	D
303	C	328	A	353	D	378	D
304	A	329	A	354	D	379	C
305	A	330	D	355	B	380	A
306	B	331	A	356	D	381	A
307	D	332	C	357	D	382	A
308	D	333	A	358	B	383	A
309	A	334	D	359	A	384	A
310	A	335	C	360	D	385	B
311	A	336	A	361	B	386	C
312	B	337	D	362	A	387	A
313	B	338	B	363	B	388	C
314	C	339	B	364	C	389	A
315	D	340	B	365	B	390	A
316	D	341	A	366	A	391	C
317	B	342	A	367	C	392	B
318	C	343	D	368	C	393	A
319	A	344	C	369	B	394	B
320	B	345	A	370	D	395	B
321	B	346	B	371	C	396	A
322	B	347	B	372	C	397	C
323	D	348	C	373	A	398	A
324	D	349	D	374	C	399	D
325	A	350	B	375	D	400	D



QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
401	C	426	C	451	C	476	B
402	B	427	D	452	B	477	C
403	B	428	B	453	D	478	C
404	D	429	C	454	B	479	B
405	D	430	B	455	B	480	A
406	D	431	A	456	A	481	A
407	B	432	C	457	C	482	A
408	A	433	C	458	C	483	B
409	D	434	B	459	A	484	C
410	A	435	D	460	A	485	A
411	A	436	A	461	D	486	D
412	B	437	C	462	D	487	D
413	D	438	A	463	D	488	D
414	A	439	C	464	C	489	B
415	B	440	C	465	A	490	B
416	B	441	A	466	C	491	C
417	D	442	C	467	C	492	A
418	D	443	B	468	C	493	D
419	D	444	B	469	D	494	D
420	B	445	C	470	D	495	D
421	C	446	D	471	A		
422	D	447	D	472	B		
423	A	448	C	473	A		
424	C	449	A	474	D		
425	D	450	C	475	B		



# RADIO NAVIGATION



**1- Frequency is defined as the:**

- A) Number of complete cycles recurring in one unit of time.
- B) Distance between a crest and a crest.
- C) Number of complete cycles recurring in ten units of time.
- D) Distance from the axis to the peak value.

**2- The speed of radio waves is:**

- A) 300 km per second
- B) 300 million meters per second
- C) 162 NM per second
- D) 162 million NM per second

**3- If the wavelength of a radio wave is 3.75 meters, the frequency is:**

- A) 80 kHz
- B) 8 MHz
- C) 80 MHz
- D) 800 kHz

**4- The wavelength corresponding to a frequency of 125.000 MHz is:**

- A) 2.4 m
- B) 24 m
- C) 24 cm
- D) 24 mm

**5- The frequency band containing the frequency corresponding to 29.1 cm is:**

- A) HF
- B) VHF
- C) SHF
- D) UHF

**6- SELCAL is an equipment that:**

- A) Is coupled with TCAS II and is to do with traffic advisory warning systems.
- B) Automatically transmits data signals.
- C) Automatically receives incoming signals.
- D) Functions as a frequency modulator.

**7- Which of the following lists information required to input a way point or Phantom Station into a basic VOR/DME-based Area Navigation System?**

- A) Magnetic track and distance from the aircraft to the way point or Phantom Station.
- B) Magnetic track and distance to a VOR/DME from the way point or Phantom Station.
- C) Radials from a minimum of two VORs to the way point or Phantom Station.
- D) Radial and distance from a VOR/DME to the way point or Phantom Station.

**8- Which of the following is one of the functions of the computer in a basic RNAV system?**

- A) It checks the ground station accuracy using a built-in test program.
- B) It transfers the information given by a VOR/DME station into tracking and distance indications to any chosen Phantom Station/waypoint.
- C) It automatically selects the two strongest transmitters for the Area-Nav Mode and continues working by memory in case one of the two necessary stations goes off the air.
- D) It calculates cross track information for NDB approaches.

**9- On a 5 dot HSI in the RNAV approach mode (APR RNAV) what does one dot indicate?**

- A) 0.25 NM
- B) 0.5 NM
- C) 1.0 NM
- D) 2.0 NM

**10- Erratic indications may be experienced when flying towards a basic VOR/DME-based Area Navigation System Phantom Station:**

- A) Because, under adverse conditions (relative bearing to the Phantom Station other than  $180^\circ/360^\circ$ ).
- B) It takes the computer more time to calculate the necessary information.
- C) When operating at low altitudes close to the limit of reception range from the reference station.
- D) When in the cone of silence overhead the Phantom Station when the Phantom Station is out of range.

**11- RNAV routes are:**

- A) Usually specified by waypoints co-incident with point source aids such as VOR, DME or NDB facilities.
- B) Specified by waypoints defined as a position in latitude and longitude based on the WGS-84 system.
- C) Selected according to TCAS inputs.
- D) None of the above.

**12- Basic RNAV requires a track-keeping accuracy of:**

- A)  $\pm 1^\circ$  or better for 95% of the flight time.
- B)  $\pm 5^\circ$  or better for 95% of the flight time.
- C)  $\pm 1$  NM or better for 95% of the flight time.
- D)  $\pm 5$  NM or better for 95% of the flight time.

**13- Precision RNAV (P-RNAV) requires a track-keeping accuracy of:**

- A)  $\pm 1^\circ$  or better for 95% of the flight time.
- B)  $\pm 5^\circ$  or better for 95% of the flight time.
- C)  $\pm 1$  NM or better for 95% of the flight time.
- D)  $\pm 5$  NM or better for 95% of the flight time.

**14- With VOR/DME basic area navigation, the displacement of the CDI needle represents:**

- A) Angular displacement from the course line (e.g. 5 dots = 5° off track)
- B) Angular displacement from the course line (e.g. 5 dots = 10° off track)
- C) Distance off track (e.g. 5 dots = 5 NM off track)
- D) Distance off track (e.g. 5 dots = 10 NM off track)

**15- The range to a required waypoint presented by RNAV system is:**

- A) Plan range or slant range depending on RNAV settings
- B) Plan range
- C) Slant range
- D) Neither plan range nor slant range

**16- VORTAC-based RNAV systems allow you more lateral freedom, Because:**

- A) The data base identifies surrounding airports you to track directly to or from navigation facilities.
- B) The signals radiate from satellites in space.
- C) You do not have to tune and identify the station.
- D) You do not have to track directly to or from navigations facilities.

**17- When you are using a VORTAC-based RNAV system, the needle deflections on the VOR indicator show course deviation in terms of:**

- A) Degrees.
- B) Radials.
- C) Statute miles.
- D) Nautical miles.

**18- Which of the following is true in respect of using ILS back-beam approach procedure?**

- A) When using a CDI you must set the OBS to the back-beam beam localizer course.
- B) When using a CDI in the overshoot sector you must disobey the needles.
- C) When using a HSI you must set the course arrow to the localizer front-beam course.
- D) When using a HSI the glide path must be set before approach.

**19- The frequency band of the ILS glide path is:**

- A) UHF
- B) VHF
- C) SHF
- D) VLF

**20- In which frequency band does an ILS localizer transmit?**

- A) VHF
- B) UHF
- C) SHF
- D) EHF

**21- Which of the following correctly describes the Instrument Landing System (ILS) localizer radiation pattern?**

- A) Two overlapping lobes on the same UHF carrier frequency.
- B) Two overlapping lobes on the same VHF carrier frequency.
- C) A pencil beam comprising a series of smaller beams each carrying a different modulation.
- D) Two overlapping lobes on different radio carrier frequencies but with the same modulation.

**22- ILS marker beacons do not interfere with each other because:**

- A) They operate on different modulations.
- B) They operate at different frequencies.
- C) They transmit in narrow vertical beams.
- D) They transmit low power signals, which cannot be detected by the aeroplane's receiver.

**23- The principle of operation of the ILS localizer transmitter is that it transmits two overlapping lobes on:**

- A) Different frequencies with different phases.
- B) The same frequency with different phases.
- C) The same frequency with different amplitude modulations.
- D) Different frequencies with different amplitude modulations.

**24- The glide path transmitter operates on:**

- A) 36 VHF frequencies, paired with localizer frequencies.
- B) The frequencies 90 and 150 MHz.
- C) On frequencies found by multiplying the localizer frequency by 3.
- D) 40 frequencies from 329.15 MHz to 335.00 MHz.

**25- What is measured in order to establish aircraft position in relation to the localizer beam on an ILS?**

- A) The difference in phase between the 90 Hz modulation and the 150 Hz modulation.
- B) The difference in depth between the 90 Hz modulation and the 150 Hz modulation.
- C) The bearing to the localizer antenna found by means of a loop antenna.
- D) The difference in time between the 90 Hz modulation and the 150 Hz modulation.

**26- An aircraft is flying downwind outside the coverage of the ILS. The CDI indications will be:**

- A) Unreliable in azimuth and elevation.
- B) Reliable in azimuth, unreliable in elevation.
- C) No indications will be shown.
- D) Reliable in azimuth and elevation.

**27- Consider the following statements on ILS back-beam approach:**

- A) Using a standard ILS indicator, a back beam approach must be flown with heading adjustments made away from the localizer needle.
- B) Only when a published procedure is at hand, a back beam approach may be flown.
- C) Using an HSI the course selector should be set to the inbound track of the localizer front beam, it orders to get normal sensing.
- D) All statements are correct.

**28- ILS back beams may be received:**

- A) When flying outside the area of coverage.
- B) Never.
- C) When approaching the ILS from behind the glide path aerial.
- D) When approaching the ILS from behind the localizer aerial.

**29- Which of the following elements of an ILS transmit in the VHF band?**

- A) Localizer only.
- B) Marker beacons only.
- C) Glide-path and marker beacons.
- D) Localizer and marker beacons.

**30- ILS markers are identified in the aeroplane by color light and audio signal. The identification of the outer marker is:**

- A) High-pitched dashes, amber light.
- B) Low-pitched dots and dashes, amber light.
- C) High pitched dots and dashes, blue light.
- D) Low-pitched dashes, blue light.

**31- There are four types of marker beacons, all transmitting on the same carrier frequency:**

- A) Airway marker (fan marker), outer marker, middle marker, intersection marker.
- B) Intersection marker, outer marker, middle marker, inner marker.
- C) Airway marker (fan marker), outer marker, middle marker, inner marker.
- D) Boundary marker, outer marker, middle marker, inner marker.



**32- Which range facility associated with the ILS may be identified by a two-letter identification group?**

- A) Locator.
- B) Inner marker.
- C) Outer marker.
- D) Glide path.

**33- Consider the following statements on ILS:**

- A) An ILS-approach may be flown only if all of the following components are operational: localizer, glide path and marker beacons/DME.
- B) If the localizer is out of service, an ILS approach with increased decision height (DH) may be carried out.
- C) ILS is the primary precision approach facility for civil aviation.
- D) When the pilot is reaching the decision height (DH) he may only continue the approach if both localizer and glide path indications are within one dot from the center positions.

**34- The minima for a CAT I ILS are:**

- A) Height: 100 ft, RVR: 550 m.
- B) Height: 100 ft, RVR: 700 m.
- C) Height: 200 ft, RVR: 550 m.
- D) Height: 200 ft, RVR: 700 m.

**35- The minima for a CAT II ILS are:**

- A) Height: 100 ft, RVR: 300 m.
- B) Height: 100 ft, RVR: 400 m.
- C) Height: 50 ft, RVR: 300 m.
- D) Height: 50 ft, RVR: 400 m.

**36- The errors of an ILS localizer beam are due to:**

- A) Emission side-lobes.
- B) Ground reflections.
- C) Spurious signals from objects near the runway.
- D) Interference from other systems operating on the same frequency.

**37- Which of the following is correct regarding false beams on a glide path?**

- A) False beams will only be found more than 10° to the left or to the right of the localizer center line.
- B) False beams will only be found above the correct glide path.
- C) False beams are only present when flying a back beam ILS approach.
- D) False beams will only be found below the correct glide path.

**38- ILS CAT II equipment will permit instrument approaches down to:**

- A) DH 100 ft, RVR 150 m.
- B) DH 100 ft, RVR 300 m.
- C) DH 50 ft, RVR 200 m.
- D) DH 150 ft, RVR 400 m.

**39- A HSI compass rose is stuck on 200°. When the aircraft is lined up on the centerline of the ILS localizer for runway 25, the localizer needle will be:**

- A) Left of the center.
- B) Centered.
- C) Right of the center.
- D) Centered with the fail flag showing.

**40- The sensitive area of an ILS is the area aircraft may not enter when:**

- A) ILS operations are in progress.
- B) Category I ILS operations are in progress.
- C) Category II/III ILS operations are in progress.
- D) The ILS is undergoing calibration.

**41- An ILS localizer can give reverse sense indications on the approach side and outside the protected coverage:**

- A) Beyond 25 NM.
- B) Beyond 35° azimuths either side of the approach.
- C) Beyond 10° azimuths either side of the approach.
- D) At any time.

**42- The middle marker is identified by:**

- A) Audible alternate dots and dashes with tone 1300 Hz and an amber light.
- B) Audible alternate dots and dashes with tone 400 Hz and an amber light.
- C) Audible alternate dots and dashes with tone 400 Hz and a white light.
- D) Audible alternate dots and dashes with tone 1300 Hz and a white light.

**43- Which of the following statements is true in respect of an ILS?**

- A) If the glide path is not operating, the ILS will be switched off.
- B) An ILS cannot be used if either of the outer or middle markers is switched off.
- C) The glide path frequency is paired with the marker frequency.
- D) The glide path transmits on UHF.

**44- The ILS glide path coverage in elevation is accurate to:**

- A) An angle 1.35° to an angle of 5.25° above the horizontal for a 3° glide path.
- B) An angle 1.35° to an angle of 5.25° above the horizontal for a 3.25° glide path.
- C) An angle 0.45° to an angle of 1.75° above the horizontal for a 3° glide path.
- D) An angle 0.45° to an angle of 1.75° above the horizontal for a 3.25° glide path.

**45- The visual and aural indications of the ILS outer marker are:**

- A) A blue light and 2 dashes per second of a 1300 Hz modulated tone.
- B) An amber light and alternate dots and dashes of a 1300 Hz modulated tone.
- C) A white light and 6 dots per second of a 30 Hz modulated tone.
- D) A blue light and 2 dashes per second of 400 Hz modulated tone.

**46- What is the color sequence of lights when passing over an Outer, Middle and Inner Marker beacon when flying an ILS approach?**

- A) White - Amber - Blue.
- B) Amber - White - Green.
- C) Blue - Amber - White.
- D) Blue - Green - White.

**47- The middle marker of an ILS has an aural and visual identification of:**

- A) Alternating dots and dashes with an amber light.
- B) Alternating dots and dashes with a blue light.
- C) Continuous dashes with an amber light.
- D) Continuous dashes with a blue light.

**48- Which of the following statements is true?**

- A) A localizer back beam should only be used for approaches if there is a published procedure.
- B) All localizers have back beams. They provide guidance in the event of a missed approach.
- C) Localizer back beams are never checked for accuracy.
- D) A localizer back beam will always provide reversed steering signals.

**49- The reason why pre-takeoff holding areas are sometimes further from the active runway when ILS Category II and III landing procedures are in progress than during good weather operations is:**

- A) Heavy precipitation may disturb guidance signals.
- B) Aircraft maneuvering near the runway may disturb guidance signals.
- C) To increase distance from the runway during offset approach operations.
- D) To increase aircraft separation in very reduced visibility conditions.

**50- The ILS glide path transmitter is located:**

- A) No more than 600 meters from the localizer transmitter.
- B) About 150 meters upwind from the threshold and about 300 meters from the center line of the runway.
- C) About 400 meters upwind from the threshold and about 150 meters from the center line of the runway.
- D) As close to the runway threshold as possible without causing an obstruction to aircraft.

**51- Flying an ILS approach, the middle marker is positioned so as to be passed:**

- A) At about 200 ft AAL.
- B) About 1500 m from the threshold.
- C) At about 350 ft AAL.
- D) At about 100 ft above DH.

**52- A CAT III ILS glide path transmitter facility provides reliable guidance information down to:**

- A) The surface of the runway.
- B) A maximum height of 200 ft above the runway.
- C) A maximum height of 100 ft above the runway.
- D) A maximum height of 50 ft above the runway.

**53- What are the modulation frequencies of the two overlapping lobes that are used on an ILS approach?**

- A) 75 kHz, 135 kHz.
- B) 90 Hz, 150 Hz.
- C) 328 MHz, 335 MHz.
- D) 63 MHz, 123 MHz.

**54- The rate of descent required to maintain a 3.25° glide slope at a groundspeed of 140 kts is approximately:**

- A) 850 ft/min.
- B) 800 ft/min.
- C) 670 ft/min.
- D) 700 ft/min.

**55- The rate of descent required to maintain a 3.25° glide slope at a ground speed of 110 kts is approximately:**

- A) 850 ft/min.
- B) 770 ft/min.
- C) 630 ft/min.
- D) 700 ft/min.

**56- What frequency is assigned to all ILS marker beacons?**

- A) One chosen from between 108.000 – 112.000 MHz at odd tenths.
- B) 75 MHz.
- C) 90 Hz.
- D) 150 Hz.

**57- On what carrier frequency does the inner marker transmit?**

- A) Same frequency as the localizer.
- B) 75 MHz.
- C) Same frequency as the glide path.
- D) 3000 Hz.

**58- What approximate rate of descent is required in order to maintain a 3° glide path at a ground speed of 120 kts?**

- A) 550 ft/min.
- B) 630 ft/min.
- C) 800 ft/min.
- D) 950 ft/min.

**59- Flying a 3° glide path ILS approach, at a ground speed of 100 kts, the "rule of thumb" gives a required rate of descent of:**

- A) 530 ft/min.
- B) 600 ft/min.
- C) 450 ft/min.
- D) 400 ft/min.

**60- The rate of descent for a 3° glide slope at a ground speed of 140 kts is approximately:**

- A) 350 ft/min
- B) 600 ft/min
- C) 740 ft/min
- D) 850 ft/min

**61- One disadvantage of the GPS is that it is adversely affected by electrical disturbances such as thunderstorms and precipitation static.**

- A) True.
- B) False.

**62- Full scale deflection of the localizer needle indicates that the aircraft is approximately:**

- A) 10° offset from the localizer center line.
- B) 5° offset from the localizer center line.
- C) 1.25° offset from the localizer center line.
- D) 2.5° offset from the localizer center line.

**63- Assuming a five dot display on either side of the ILS localizer cockpit display, what is the angular displacement of the aircraft from the localizer center line when the CDI is deflected 2 dots to the right?**

- A) 1° to the right.
- B) 2° to the left.
- C) 2° to the right.
- D) 1° to the left.

**64- The ILS localizer transmits VHF frequencies between:**

- A) 108.00 and 117.95 MHz.
- B) 112.00 and 117.95 MHz.
- C) 108.00 and 111.95 MHz.
- D) 118.00 and 136.95 MHz.

**65- At a distance of 18 NM from the localizer transmitter, the horizontal extent of the localizer coverage is:**

- A)  $\pm 10$  NM wide.
- B) 10 NM wide.
- C)  $\pm 10^\circ$  from the runway extended center line.
- D)  $\pm 2.5^\circ$ .

**66- Assuming a five dot display on either side of the CDI on the ILS localizer cockpit display, what does each dot represent approximately?**

- A) 2.5°
- B) 1.5°
- C) 0.5°
- D) 2.0°

**67- Full deflection on a glide slope indicator indicates that the aircraft is:**

- A) 2.5° above or below the correct glide path.
- B) 0.7° above or below the correct glide path.
- C) 0.5° above or below the correct glide path.
- D) 1.25° above or below the correct glide path.

**68- An aircraft tracking to intercept the Instrument Landing System (ILS) localizer inbound on the approach side, outside the published ILS coverage angle:**

- A) Will receive signals without identification coding.
- B) Will not normally receive signals.
- C) May receive false course indications.
- D) Can expect signals to give correct indications.

**69- On a localizer the modulations are at 150 Hz and 90 Hz, which of the following statements is correct?**

- A) The 90 Hz modulation predominates to the right of the center line.
- B) The 150 Hz modulation predominates to the right of the center line.
- C) If the 150 Hz modulations predominates, the needle on the CDI moves to the right of center.
- D) When both modulations are received, the aeroplane will be on the center line.

**70- The aircraft is approaching to Varamin NDB on heading 330°, Varamin holding is standard and inbound course is 001°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either direct or parallel

**71- The aircraft is approaching to Varamin NDB on heading 135°, Varamin holding is standard and inbound course is 001°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either direct or offset

**72- The aircraft is approaching to Varamin NDB on heading 185°, Varamin holding is standard and inbound course is 001°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either parallel or offset

**73- The aircraft is approaching to Varamin NDB on heading 230°, Varamin holding is standard and inbound course is 001°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either direct or parallel

**74- The aircraft is approaching to RUS VOR on heading 234°, RUS holding is non-standard and inbound course is 047°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either parallel or offset

**75- The aircraft is approaching to RUS VOR on heading 045°, RUS holding is non-standard and inbound course is 047°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either direct or offset

**76- The aircraft is approaching to RUS VOR on heading 225°, RUS holding is non-standard and inbound course is 047°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either parallel or offset

**77- You are flying on radial 120°, 30NM inbound VOR/DME station, ATC requests you to join non-published standard holding pattern at 20NM with inbound course 300°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either direct or offset

**78- You are flying on radial 350°, 25NM inbound VOR/DME station. ATC requests you to join non-published standard holding pattern at 18NM with inbound course 350°, what is holding entry?**

- A) Direct
- B) Parallel
- C) Offset
- D) Either parallel or offset



**79- An aeroplane's RMI shows a NDB bearing 070°, wind is calm, the aeroplane is to join a right hand holding pattern at the NDB, the inbound leg of which is 330°, the aeroplane should:**

- A) Fly to the NDB and join the pattern.
- B) Fly to the NDB then fly outbound on 150° for 1 minute, then turn left to point directly at the NDB joining the pattern overhead.
- C) Fly to the NDB then fly a teardrop with an outbound heading of 120° for 1 minute and a rate one turn to join inbound.
- D) Either B or C above at pilot's discretion.

**80- Transmissions from the VOR facilities may be adversely affected by:**

- A) Static interference.
- B) Uneven propagation over irregular ground surfaces.
- C) Night effect.
- D) Quadrantal error.

**81- The frequency band of the VOR is:**

- A) VHF
- B) UHF
- C) HF
- D) LF and MF

**82- What are the indications to show that you are receiving a Doppler VOR?**

- A) The identification will always end with a D.
- B) There is no difference from the conventional VOR indications.
- C) The Doppler VOR identification begins with a D.
- D) The ident is spoken like Aberdeen Doppler VOR.

**83- When the term "Radial" is used in reference to the VOR it means:**

- A) The magnetic bearing of the VOR station.
- B) The magnetic bearing from the VOR station.
- C) The magnetic bearing of the aircraft to the station.
- D) The true bearing from the VOR station.

**84- The information carried by a signal emitted from a VOR is:**

- A) The direction from the aircraft to the VOR and the identification of the VOR.
- B) The accurate timing signal and the station identifier.
- C) The magnetic north reference signal and the identification signal for the correct direction to the aircraft.
- D) In the magnetic direction the signal left the VOR antenna, and the identification of the station.

**85- When a maximum range and altitude is published for a VOR:**

- A) The signal from the VOR will be too weak to provide information when you are outside this airspace.
- B) The terrain will cause bends and/or scalloping on the VOR signal and make it inaccurate outside standards in the airspace outside the published airspace.
- C) The reception from this VOR is guaranteed free from harmful interference from other VORs when you are within this airspace.
- D) You are guaranteed to receive no interference to the VOR signal from other radio transmissions as long as you are within the air space published.

**86- If VOR bearing information is used beyond the published protection range, errors could be caused by:**

- A) Sky wave interference from distant transmitters on the same frequency.
- B) Interference from other transmitters.
- C) Noise from precipitation static exceeding the signal strength of the transmitter.
- D) Sky wave interference from the same transmitter.

**87- The related accuracy of VOR is valid:**

- A) At all times.
- B) By day only.
- C) By night only.
- D) At all times except dawn and dusk.

**88- If you correctly tuned in a VOR situated to your east, your RMI should read ..... and your OBS would read .....**

- A) 000, 000 with needle central and TO indicated
- B) 090, 090 with needle central and FROM indicated
- C) 000, 000 with needle central and FROM indicated
- D) 090, 090 with needle central and TO indicated

**89- An aeroplane flies over position A which is due North of a VOR station sited at position B, the magnetic variation at A is  $18^{\circ}\text{W}$ , and at B is  $10^{\circ}\text{W}$ , what radial from B is the aircraft on?**

- A)  $350^{\circ}$
- B)  $360^{\circ}$
- C)  $010^{\circ}$
- D)  $342^{\circ}$

**90- If a VOR station and a DME station, having different locations, are selected to provide a fix:**

- A) Two different IDs will have to be checked.
- B) Two positions being ambiguous will be presented.
- C) Two navigation radio sets with separate frequency control are required in the aircraft.
- D) All answers are correct.

**91- An aircraft wishes to track towards a VOR along the radial 274°, if variation is 10° W what should be set on the OBS?**

- A) 274°
- B) 264°
- C) 094°
- D) 084°

**92- When the warning flag on a VOR indicator appears, it may indicate:**

- A) That no signal is received.
- B) That the received signal is too weak to be processed in the receiver.
- C) That the quality of the received signal is so poor that a stable establishment of phase difference between the reference and the variable signal is not possible.
- D) All answers are correct.

**93- The TO/FROM indicator of a VOR:**

- A) Tells whether you are now flying towards or from the VOR.
- B) Tells whether a track equal to the selected bearing will bring you to or away from the VOR.
- C) Tells whether the deviation indicator shows that you should maneuver the aircraft towards or from the CDI needle.
- D) Tells whether you should turn the aircraft towards or away from the CDI indication.

**94- A Course Deviation Indicator (CDI) shows full deflection to the left when within range of a serviceable VOR What angular deviation are you from the selected radial?**

- A) 10° or more.
- B) Less than 10°.
- C) 5° or more.
- D) 2.5° or more.

**95- You are on compass heading of 090° on the 255° radial from a VOR, you set the course 190° on your OBS, the deviation bar will show:**

- A) Full scale deflection right with a FROM indication.
- B) Full scale deflection left with a FROM indication.
- C) Full scale deflection left with a TO indication.
- D) Full scale deflection right with a TO indication.

**96- An aircraft is on a VOR radial of 235°, heading 003° (M), and with the OBS set to 060°, the correct indications are:**

- A) TO, 1/2 scale deflection to the left.
- B) FROM, 1/2 scale deflection to the left.
- C) TO, 1/2 scale deflection to the right.
- D) FROM, 1/2 scale deflection to the right.

**97- An aeroplane is on radial 070° of a VOR, HDG is 270°, If the OBS is set to 260°, the CDI will show:**

- A) Fly left, TO.
- B) Fly right, TO.
- C) Fly left, FROM.
- D) Fly right, FROM.

**98- In order to plot a bearing from a VOR station, a pilot needs to know the magnetic variation:**

- A) At the VOR.
- B) At the aircraft location.
- C) At the half-way point between the aircraft and the station.
- D) At both the VOR and aircraft.

**99- A VOT is:**

- A) A VOR test.
- B) A terminal VOR.
- C) A trial VOR.
- D) A tracking VOR.

**100- Your aircraft is heading 075°M, the OBS is set to 025°, the VOR indications are TO with the needle showing right deflection, relative to the station, you are situated in a quadrant defined by the radials:**

- A) 115° and 205°.
- B) 295° and 025°.
- C) 250° and 115°.
- D) 205° and 295°.

**101- An aircraft is required to approach a VOR via the radial 104°, which of the following settings should be made on the VOR/ILS deviation indicator?**

- A) 284° with the FROM flag showing.
- B) 284° with the TO flag showing.
- C) 104° with the TO flag showing.
- D) 104° with the FROM flag showing.

**102- Given:**

**OBS for a VOR is selected to 090°.**

**From/To indicator indicates TO.**

**CDI needle is deflected halfway to the right.**

**On what radial is the aircraft?**

- A) 085°
- B) 275°
- C) 265°
- D) 095°

**103- An aircraft on heading of  $180^{\circ}$  (M) is on a radial of  $270^{\circ}$  (M) from a VOR, the bearing you should select on the OBS to centralize the VOR/ILS, left/right deviation needle and to proceed to the VOR is:**

- A)  $360^{\circ}$
- B)  $270^{\circ}$
- C)  $090^{\circ}$
- D)  $180^{\circ}$

**104- An aircraft is on a VOR radial of  $280^{\circ}$ , heading  $260^{\circ}$  (M), and with the OBS set to  $310^{\circ}$  what is the intercept heading? (Intercept angle= $45^{\circ}$ )**

- A)  $235^{\circ}$
- B)  $355^{\circ}$
- C)  $265^{\circ}$
- D)  $305^{\circ}$

**105- An aircraft is on a VOR radial of  $355^{\circ}$ , heading  $355^{\circ}$  (M), and with the OBS set to  $015^{\circ}$ , what is the intercept heading? (Intercept angle= $40^{\circ}$ )**

- A)  $035^{\circ}$
- B)  $335^{\circ}$
- C)  $055^{\circ}$
- D)  $315^{\circ}$

**106- An aircraft is on a VOR radial of  $150^{\circ}$ , heading  $360^{\circ}$  (M), and with the OBS set to  $350^{\circ}$ , what is the intercept heading? (Intercept angle= $45^{\circ}$ )**

- A)  $285^{\circ}$
- B)  $215^{\circ}$
- C)  $305^{\circ}$
- D)  $315^{\circ}$

**107- An aircraft is on a VOR radial of  $005^{\circ}$ , heading  $175^{\circ}$  (M), and with the OBS set to  $170^{\circ}$ , what is the intercept heading? (Intercept angle= $45^{\circ}$ )**

- A)  $125^{\circ}$
- B)  $215^{\circ}$
- C)  $230^{\circ}$
- D)  $220^{\circ}$

**108- An aircraft is on a VOR radial of  $120^{\circ}$ , heading  $030^{\circ}$  (M), and with the OBS set to  $290^{\circ}$ , what is the intercept heading? (Intercept angle= $40^{\circ}$ )**

- A)  $330^{\circ}$
- B)  $300^{\circ}$
- C)  $150^{\circ}$
- D)  $350^{\circ}$

**109- An aircraft bears 036° (T) from a VOR station, it's heading is 330° (T) and the variation at the VOR station and aircraft is 8°E, what OBS setting would make the CDI needle central with TO showing?**

- A) 028°
- B) 208°
- C) 232°
- D) 052°

**110- OBS course is set to 123° with a TO indication, the CDI is indicating 4 dots right on a standard 5 dot indicator, on what radial is the position of your aircraft?**

- A) 295°
- B) 131°
- C) 311°
- D) 115°

**111- An aircraft is on heading of 100° (M) from a VOR, to make the VOR/ILS deviation indicator needle centralize with the TO flag showing, the following bearing should be selected on the OBS:**

- A) 100°
- B) 110°
- C) 290°
- D) 280°

**112- Which of the following is a valid frequency (MHz) for a VOR?**

- A) 107.75
- B) 109.90
- C) 118.35
- D) 112.20

**113- What is the approved frequency band assigned to VOR?**

- A) 108.000 – 117.975 MHz which is LF.
- B) 108.000 – 117.975 MHz which is MF.
- C) 108.000 – 117.975 MHz which is HF.
- D) 108.000 – 117.975 MHz which is VHF.

**114- An aircraft is tracking inbound to a VOR beacon on the radial 105°, the setting the pilot should put on the OBS and the CDI indications are:**

- A) 285° TO
- B) 105° TO
- C) 285° FROM
- D) 105° FROM

**115- An aircraft is flying a heading of 090° along the Equator, tracking direct to a VOR, if the variation at the aircraft is 10°E and 15°E at the VOR, on which radial is the aircraft situated?**

- A) 090°
- B) 105°
- C) 255°
- D) 285°

**116- A VOR indicates 275° TO with the needle showing 2.5 dots fly right, the aircraft is 20 NM from the beacon on a heading of 330° (M), the radial that the aircraft is on and the correct way to turn after intercepting the required track to fly to the facility is:**

- A) 092°, right.
- B) 100°, left.
- C) 272°, right.
- D) 280°, left.

**117- Aircraft is maintaining magnetic heading of 268°, the needle of a Course Deviation Indicator is showing 3 dots right on a 5 dot scale, with 268° set and FROM showing, what radial is the aircraft on?**

- A) 082°
- B) 094°
- C) 262°
- D) 274°

**118- An aircraft on a heading of 280° (M) is on a radial 090° (M) from a VOR, the course you should select on the OMNI bearing selector (OBS) to centralize the VOR/ILS deviation needle with a TO indication is:**

- A) 100°
- B) 090°
- C) 270°
- D) 280°

**119- An aircraft on a heading of 270° (M) has 093° set on the OBS and TO indicated on the VOR L/R deviation indicator, the needle shows two dots fly left, the aircraft is on the:**

- A) Radial 277°
- B) Radial 089°
- C) Radial 097°
- D) Radial 269°

**120- A VOR indication of 240° FROM is given. Variation at the aircraft position is 9°W and at the VOR is 7°W. True heading in no wind to reach the station is:**

- A) 231° (T)
- B) 051° (T)
- C) 053° (T)
- D) 233° (T)

**121- What is the theoretical maximum range that an aircraft at FL360 will obtain from a VOR beacon situated at 900 feet above mean sea level?**

- A) 274 NM
- B) 255 NM
- C) 112 NM
- D) 224 NM

**122- The OBS on a deviation indicator is set to 330° and gives a 3 dots fly right demand with FROM indicated. What is the QDM of the aircraft to the station?**

- A) 144°
- B) 324°
- C) 336°
- D) 156°

**123- What is the theoretical maximum range that an aircraft at FL420 will obtain from a VOR beacon situated at 400 feet above mean sea level?**

- A) 225 NM
- B) 256 NM
- C) 281 NM
- D) 257 NM

**124- Concerning Conventional and Doppler VORs (DVOR), which of the following is correct?**

- A) There is no way of knowing from the instrumentation display which type is being used.
- B) The DVOR will always have a "D" in the ident.
- C) The DVOR has a higher pitch ident than the standard VOR.
- D) The conventional VOR has less site error.

**125- An aircraft is attempting to home to VOR on the 064° radial. The CDI shows 4 dots fly right with TO indication, at the same time the co-located DME shows range of 45 NM. Where is the aircraft in relation to the required track?**

- A) 6 NM right of track
- B) 3 NM right of track.
- C) 6 NM left of track.
- D) 3 NM left of track.



**126- (Refer to figure I-26) An aircraft is tracking away from a VOR on the 150° radial with 10° right drift. An NDB lies to the South of the VOR. Which of the RMIs illustrated in figure shows the aircraft when it is obtaining a relative bearing of 100° from the NDB?**

- A) a
- B) b
- C) c
- D) d

**127- An aircraft, heading 150°, is 100 NM north of a VOR, the pilot intends to home to the VOR on the 030° radial. The pilot should set ..... on the OBS and on reaching the 030° radial should turn ..... onto a heading of ....., assuming zero wind.**

- A) 210°, left, 030°
- B) 030°, right, 210°
- C) 210°, right, 210°
- D) 150°, left, 210°

**128- An aircraft is attempting to home to a VOR beacon. The pilot has set 329° on the OBS of the deviation indicator. If the aircraft is situated on the 152° radial, then the deviation indicator will show:**

- A) One and a half dots fly right.
- B) One and a half dots fly left.
- C) Three dots fly right.
- D) Three dots fly left.

**129- (Refer to figure I-27) Both the VOR and the ADF in an aircraft are correctly tuned and identified. The indications from both are shown on the RMI illustrated. Use the following information given on the RMI indicates?**

- A) That the aircraft is heading 033°(M), is on the 310° radial from the VOR, and bears 050°(M) from the NDB.
- B) That the aircraft is heading 330°(M), is on the 310° radial from the VOR, and bears 050° from the NDB.
- C) That the aircraft is heading 330°(M), is on the 130° radial from the VOR, and bears 050°(M) from the NDB.
- D) That the aircraft is heading 330°(M), is on the 130° radial from the VOR, and bears 230°(M) from the NDB.

**130- The global positioning system (GPS) provides horizontal accuracy for civil user of approximately:**

- A) 100 feet.
- B) 328 feet.
- C) 300 meters.
- D) 328 meters.

**131- Where does the DME indicator have the greatest error between the ground distance and displayed distance to the VORTAC?**

- A) High altitudes close to the VORTAC.
- B) Low altitudes close to the VORTAC.
- C) Low altitudes far from the VORTAC.
- D) High altitudes far from the VORTAC.

**132- What DME indication should a pilot observe when directly over a VORTAC site at 24000 feet?**

- A) 24 DME miles.
- B) 4 DME miles.
- C) 24000 feet.
- D) 6 DME miles.

**133- To track inbound on the 215° radial of a VOR station, the recommended procedure is to set the OBS to:**

- A) 215° and make heading corrections toward the CDI needle.
- B) 215° and make heading corrections away from the CDI needle.
- C) 035° and make heading corrections toward the CDI needle.
- D) 035° and make heading corrections away from the CDI needle.

**134- If an airborne checkpoint is used to check the VOR system for VFR operations, the maximum bearing error permissible is:**

- A) Plus or minus 6°
- B) Plus 6° or minus 4°
- C) Plus or minus 4°
- D) Zero

**135- When the course deviation indicator (CDI) needle is centered during a receiver check using a VOR test signal (VOT), the OBS and the TO/FROM indicator should read:**

- A) 180° FROM, only if the pilot is due north of the VOT.
- B) 0° TO or 180° FROM, regardless of the pilot's position from the VOT.
- C) 0° FROM or 180° TO, regardless of the pilot's position from the VOT.
- D) 0° FROM or 180° TO, only if the pilot is due north of the VOT.

**136- When correcting toward the CDI in a reverse sensing situation, you will:**

- A) Parallel the radial, deflected away from the course you want to follow.
- B) Fly closer to the radial, this situation is known as reverse sensing.
- C) Fly further away from the radial.
- D) Stay the same distance from the radial.

**137- A VORTAC facility provides you with:**

- A) Course guidance only.
- B) Distance information only.
- C) Nautical mile distance information only.
- D) Course guidance and distance information.

**138- The most accurate DME groundspeed readings occur when traveling:**

- A) Directly to the station only.
- B) Directly from the station only.
- C) Directly to or from the station.
- D) At a 90° angle to the station.

**139- When you are tuning a VOR/DME or VORTAC facility, the absence of the single-coded identification every 30 seconds indicates:**

- A) The DME is not operational.
- B) The VOR is not operational.
- C) The system is working correctly.
- D) Your receiver is not operational.

**140- A DME beacon having a transmit frequency of 962 MHz would have a receive frequency of:**

- A) 1030 MHz
- B) 902 MHz
- C) 1025 MHz
- D) 962 MHz

**141- Which of the following system provides distance information?**

- A) DME
- B) VOR
- C) ADF
- D) VDF

**142- Distance Measuring Equipment (DME) operates in the:**

- A) UHF band and is a primary radar system.
- B) VHF band and uses the principle of phase comparison.
- C) UHF band and is a secondary radar system.
- D) SHF band and uses frequency modulation techniques.

**143- Which one of the statements below is correct regarding the DME?**

- A) Two lines of position obtained from two different DME's give an unambiguous fix.
- B) The DME operating frequencies are in the UHF frequency band.
- C) The indicated distance is the ground distance measured from the aircraft's projected position on the ground to the DME ground installation.
- D) The DME ground station is always co-located with a VOR station.

**144- Which of the following will give the most accurate calculation of aircraft ground speed?**

- A) A VOR station sited on the flight route.
- B) A VDF station sited across the flight route.
- C) A DME station sited on the flight route.
- D) An ADF sited on the flight route.

**145- What is the approved frequency band assigned to DME?**

- A) 960 - 1215 MHz which is VHF.
- B) 960 - 1215 MHz which is UHF.
- C) 960 - 1215 MHz which is SHF.
- D) 960 - 1215 MHz which is EHF.

**146- A typical DME frequency is:**

- A) 1000 MHz
- B) 1300 MHz
- C) 1000 kHz
- D) 113.55 MHz

**147- The most accurate measurement of speed by DME for an aircraft at 30000 ft will be when the aircraft is:**

- A) Tracking towards the beacon at 10 NM.
- B) Overhead the beacon.
- C) Tracking away from the beacon at 100 NM.
- D) Passing abeam the beacon at 50 NM.

**148- Of what use, if any, is a military TACAN station to civil aviation?**

- A) It can provide a DME distance and magnetic bearing.
- B) It is of no use to civil aviation.
- C) It can provide DME distance.
- D) It can provide a magnetic bearing.

**149- The indicated range from a DME station is:**

- A) Slant range.
- B) Ground range.
- C) Zero when passing overhead the station.
- D) Ground range only if the beacon is co-located with VOR.

**150- The operating principle of a DME is the measurement of the:**

- A) Time between the transmission and reception of radio pulses.
- B) Frequency change between the emitted wave and reflected wave.
- C) Frequency of the reflected wave.
- D) Phase difference between emitted wave and reflected wave.

**151- A VOR and DME are collocate, you want to identify the DME by listening to the Morse ident, having heard the same Morse indent 4 times in 30 seconds the:**

- A) VOR and DME Morse idents were the same and broadcast with the same pitch.
- B) DME Morse ident was not transmitted; the distance information is sufficient proof of correct operation.
- C) DME Morse ident is the one with the lower pitch that was broadcast several times.
- D) DME Morse ident is the one with the higher pitch that was broadcast only once.

**152- A DME is located at MSL. An aircraft passing vertically above the station at flight level FL360. At that time, the DME reading will be:**

- A) FLAG/OFF, the aircraft is within the cone of silence.
- B) Fluctuating and not significant.
- C) 6 NM
- D) 0 NM

**153- When considering the use of NDB, night effect has its greatest effect during:**

- A) Autumn and winter.
- B) When using inland beacons.
- C) When using a horizontally polarized signal.
- D) At dawn and dusk.

**154- A cumulonimbus cloud in the vicinity of an aeroplane can cause certain navigation systems to give false indications. This is particularly true of the:**

- A) ADF
- B) VOR
- C) Weather radar
- D) DME

**155- The frequency band chosen for NDB is:**

- A) Upper MF and lower LF
- B) VLF
- C) Upper LF and lower MF
- D) LF

**156- NDBs transmit mainly in the:**

- A) VHF band.
- B) UHF band.
- C) HF band.
- D) MF band.

**157- Which of the following is the ICAO allocated frequency band for ADF receivers?**

- A) 255 - 455 kHz.
- B) 190 - 1750 kHz.
- C) 300 - 3000 kHz.
- D) 200 - 2000 kHz.

**158- The basic information given by the ADF is:**

- A) The relative bearing from the aircraft to the NDB.
- B) The magnetic bearing from the aircraft to the NDB.
- C) The true great circle track from the NDB to the aircraft.
- D) The magnetic direction of the loop aerial with reference to the sense aerial.

**159- An aircraft is intending to track from NDB 'A' to NDB 'B' on a track of 050° (T), heading 060° (T). If the RBI shows the relative bearing of 'A' to be 180° and the relative bearing of 'B' to be 330° then the aircraft is:**

- A) Left of track and nearer 'A'.
- B) Left of track and nearer 'B'.
- C) Right of track and nearer 'A'.
- D) Right of track and nearer 'B'.

**160- Flying in the vicinity of CB clouds and using ADF:**

- A) The ANT position of the function switch should be used when listening for NDB identification.
- B) Strong static emitted from the CB may cause the ADF needle to deflect towards the CB.
- C) The static emitted from the CB will fade soon after you have passed it.
- D) All answers are correct.

**161- Which of the following may cause inaccuracies in ADF bearings?**

- A) Static interference, height effect, lack of failure warning.
- B) Station interference, mountain effect, selective availability.
- C) Coastal refraction, slant range, night effect.
- D) Lack of failure warning, station interference, static interference.

**162- What action must be taken to receive a bearing from an ADF:**

- A) BFO on.
- B) Select the loop position.
- C) Both the loop and sense aerials must receive the signal.
- D) Select the ANT position.

**163- The 95% accuracy for ADF bearings of an NDB by day is:**

- A)  $\pm 2^\circ$
- B)  $\pm 5^\circ$
- C)  $\pm 10^\circ$
- D)  $\pm 3^\circ$

**164- When identifying an NDB (NON A1A) it is necessary to:**

- A) Turn the BFO on.
- B) Turn the BFO off.
- C) Turn the ANT on.
- D) Turn the ANT off.

**165- Using an ADF indicator of the manually rotatable card type:**

- A) Relative bearing is normally indicated under the pointer needle.
- B) The aircraft heading may be marked on the indicator with a manually controlled "bug".
- C) May be combined with a VOR indicator.
- D) The card should be rotated so that the aircraft heading is at the top of the indicator.

**166- The BFO selector on an ADF receiver is used to:**

- A) Find the loop NULL position.
- B) Stop loop rotation.
- C) Hear the IDENT and must always be switched ON.
- D) Hear the IDENT of some NDB stations radiating a continuous wave signal.

**167- Which of the following disturbances is most likely to cause the greatest inaccuracy in ADF bearings?**

- A) Coastal refraction.
- B) Sky waves.
- C) Night effect.
- D) Thunderstorms nearby.

**168- Aircraft is flying over the sea. The maximum errors when using ADF will occur in which of the following situations:**

**(i) Position of the NDB?**

**(ii) Angle of cut at the coast?**

- A) (i) On the coast, (ii)  $90^\circ$
- B) (i) Well inland, (ii)  $90^\circ$
- C) (i) On the coast, (ii)  $15^\circ$
- D) (i) Well inland, (ii)  $20^\circ$

**169- If an NDB has a published range of 30 NM, its accuracy is:**

- A) Guaranteed to that range.
- B) Only guaranteed at night to that range.
- C) Only guaranteed by day to that range.
- D) Is not protected in any way.

**170- Errors caused by the effect of coastal refraction on bearings at lower altitudes are maximum when the NDB is:**

- A) Near the coast and the bearing crosses the coast at right angles.
- B) Inland and the bearing crosses the coast at an acute angle.
- C) Inland and the bearing crosses the coast at right angles.
- D) Near the coast and the bearing crosses the coast at an acute angle.

**171- A failed RMI rose is locked on  $090^\circ$  and the ADF pointer indicates  $225^\circ$ . The relative bearing to the station is:**

- A)  $135^\circ$ .
- B) Impossible to read, due to failure RMI.
- C)  $315^\circ$ .
- D)  $225^\circ$ .



**172- Given:**

**Actual QDM: 320°**

**Actual HDG: 050°**

**Required QDM: 340°**

**What should be the first turn to intercept the required QDM?**

- A) 350°
- B) 005°
- C) 290°
- D) 340°

**173- Given:**

**Actual QDM: 210°**

**Actual HDG: 060°**

**Required QDM: 260°**

**What should be the first turn to intercept the required QDM?**

- A) Left HDG 170°.
- B) Right HDG 215°.
- C) Right HDG 170°.
- D) Right HDG 260°.

**174- A VOR and an ADF are co-located, you cross the VOR radial of 240° on a magnetic heading of 360°. At the same time, you should read an ADF bearing of:**

- A) 060°
- B) 240°
- C) 300°
- D) 120°

**175- You are on a magnetic heading of 055° and your ADF indicates a relative bearing of 325°, the QDM is:**

- A) 235°
- B) 200°
- C) 055°
- D) 020°

**176- On the QDR of 075° (in the vicinity of the station) with a magnetic heading of 295°, the relative bearing on the ADF indicator is:**

- A) 140°
- B) 040°
- C) 220°
- D) 320°

**177- An aircraft is HOMING to a radio beacon whilst maintaining a relative bearing of zero. If the magnetic heading decreases, the aircraft is experiencing:**

- A) Left drift.
- B) Right drift.
- C) A wind from the west.
- D) Zero drift.

**178- Using an NDB it is possible to experience which of the following errors or limitations?**

- A) Coastal refraction, timing error and night effect.
- B) Night effect, station interference and latitude error.
- C) Night effect, station interference and lack of a failure warning system.
- D) Coastal refraction, timing error and lack of a failure warning system.

**179- Which of the following is true about the ADF?**

- A) Its accuracy is the same by day and by night.
- B) It does not have a signal failure warning.
- C) It should not be used at night because of sky waves.
- D) Sky waves do not affect the bearing accuracy provided they come from the correct NDB.

**180- Homing toward NDB:**

- A) Will call for an assessment of the drift.
- B) Is most effective in strong winds.
- C) Will in most situations result in frequent heading changes when approaching the NDB.
- D) Will result in passing the NDB along the planned track.

**181- Which of the following is correct regarding the range of an NDB?**

- A) The range is limited to the line of sight.
- B) Aircraft height is not limiting for the reception of signals from the NDB.
- C) The range of an NDB will most likely increase at day time compared to night time.
- D) The transmitter power of the NDB station has no effect on the range.

**182- The indications of a VOR in an aircraft tracking towards a VOR are 075°(M) with "TO" indication and the CDI needle centered, a co-located NDB shows 012° relative bearing, what are the drift and heading in °(M)?**

- A) 12°right; 087°.
- B) 12° left; 063°.
- C) 12° right; 063°.
- D) 12° left; 087°.

**183- Which is true about homing when using ADF during crosswind conditions?**

- A) Homing to a radio station results in a curved path that leads a curved path to the station.
- B) Is a practical navigation method for flying both to and from a radio station.
- C) Homing to a radio station requires that the ADF have an automatically or manually rotatable azimuth.
- D) All answers are correct

**184- The magnetic heading is 315° and the ADF shows a relative bearing of 140°, the magnetic bearing FROM the radio beacon would be:**

- A) 095°
- B) 140°
- C) 175°
- D) 275°

**185- The magnetic heading is 350° and the relative bearing to a radio beacon is 240°, what would be the magnetic bearing TO that radio beacon?**

- A) 050°
- B) 230°
- C) 240°
- D) 295°

**186- An aircraft is maintaining a magnetic heading of 265° and the ADF shows a relative bearing of 065°, this indicates that the aircraft is crossing the:**

- A) 065° magnetic bearing FROM the radio-beacon.
- B) 150° magnetic bearing FROM the radio-beacon.
- C) 265° magnetic bearing FROM the radio-beacon.
- D) 330° magnetic bearing FROM the radio-beacon.

**187- (Refer to Figure I-29) To intercept a magnetic bearing of 240° FROM at a 030° angle (while outbound), the airplane should be turned:**

- A) Left 065°
- B) Left 125°
- C) Right 270°
- D) Left 240°

**188- (Refer to Figure I-29) If the airplane continues to fly on the heading as shown, what magnetic bearing FROM the station would be intercepted at a 035° angle outbound?**

- A) 035°
- B) 070°
- C) 165°
- D) 215°

**189- (Refer to Figure I-30) If the airplane continues to fly on the magnetic heading as illustrated, what magnetic bearing FROM the station would be intercepted at a 035° angle?**

- A) 090°
- B) 062°
- C) 270°
- D) 305°

**190- (Refer to Figure I-30) If the airplane continues to fly on the magnetic heading as illustrated, what magnetic bearing FROM the station would be intercepted at a 030° angle?**

- A) 090°
- B) 130°
- C) 270°
- D) 310°

**191- (Refer to Figure I-31) Which ADF indication represents the aircraft tracking TO the station with a right crosswind?**

- A) 1
- B) 2
- C) 3
- D) 4

**192- (Refer to Figure I-31-1) Determine the magnetic bearing TO the station:**

- A) 030°
- B) 150°
- C) 210°
- D) 330°

**193- (Refer to Figure I-31-2) What is the magnetic bearing TO the station:**

- A) 010°
- B) 135°
- C) 190°
- D) 315°

**194- (Refer to Figure I-31-2) Determine the approximate heading to intercept the 180° bearing TO the station:**

- A) 040°
- B) 160°
- C) 180°
- D) 220°

**195- (Refer to Figure I-32-1) The relative bearing TO the station is:**

- A) 045°
- B) 180°
- C) 135°
- D) 315°

**196- (Refer to Figure I-32-2) The relative bearing TO the station is:**

- A) 090°
- B) 180°
- C) 270°
- D) 360°

**197- (Refer to Figure I-32-3) On a magnetic heading of 320°, the magnetic bearing TO the station is:**

- A) 005°
- B) 045°
- C) 140°
- D) 225°

**198- (Refer to Figure I-32-6) If the magnetic bearing TO the station is 240°, the magnetic heading is:**

- A) 015°
- B) 045°
- C) 195°
- D) 225°

**199- (Refer to Figure I-32-8) If the magnetic bearing TO the station is 135°, the magnetic heading is:**

- A) 135°
- B) 270°
- C) 315°
- D) 360°

**200- ADF equipment is capable of receiving signals from:**

- A) Any FM radio station.
- B) Only AM radio station.
- C) Specially equipped VOR or VORTAC station.
- D) NDBs and commercial broadcast stations.

**201- (Refer to Figure I-33) An aircraft is tracking away from an NDB on a track of 023°(T). If the drift is 8° left and variation 10° west, which of the RMIs illustrated below shows the correct indications?**

- A) a
- B) b
- C) c
- D) d

**202- The BFO facility on ADF equipment should be used as follows when an NDB having NON A1A type emission is to be used:**

- A) BFO on for tuning and identification but may be turned off for monitoring.
- B) BFO on for tuning but can be turned off for monitoring and identification purpose.
- C) BFO off during tuning, identification and monitoring because this type of emission is not modulated.
- D) BFO should be switched on for tuning, ident and monitoring.

**203- An aircraft on a heading of 235°(M), and RMI shows of 090° with respect to an NDB. Any quadrantal error which is affecting the accuracy of this bearing is likely to be:**

- A) A maximum value.
- B) A very small value.
- C) Zero, since quadrantal error affects only the RBI.
- D) Zero, since quadrantal error affects only the VOR.

**204- The heading read on a standard RMI is:**

- A) The magnetic track.
- B) The relative heading.
- C) The magnetic heading.
- D) The true heading.

**205- Of the bearing indicators available for use on ADF, the most sophisticated one is:**

- A) The Relative Bearing Indicator.
- B) The Radio Magnetic Indicator.
- C) The Deviation Indicator.
- D) The Manually Rotatable Card.

**206- An RMI indicates aircraft heading and bearing. To convert the RMI bearings of NDBs and VORs to true bearings the correct combination for the application of magnetic variation is:**

- A) NDB: aircraft position; VOR: aircraft position.
- B) NDB: beacon position; VOR: beacon position.
- C) NDB: beacon position; VOR: aircraft position.
- D) NDB: aircraft position; VOR: beacon position.

**207- On which of the following displays are you able to get a direct read-out (no calculation is necessary from the pilot) of the magnetic bearing from the aircraft to the NDB?**

- A) Fixed card ADF and RMI.
- B) Moving card ADF and RMI.
- C) Moving and fixed card ADF.
- D) Fixed card ADF only.

**208- The RMI shows the bearing of a NDB as 020°. The heading of the aeroplane is 020°(M). In order to intercept an outbound course of 330° (from the NDB) at an angle of 40°, the aeroplane's heading should be altered to:**

- A) 010°
- B) 330°
- C) 300°
- D) 040°

**209- When using an RMI as an indicator for the VOR receiver:**

- A) You will read the drift as the angle between the OBS bug and the tip of the VOR needle.
- B) You will read the number of the received radial under the tail of the VOR needle.
- C) The TO/FROM indication on the RMI will indicate which way to turn the aircraft in order to fly towards the VOR station being received.
- D) You will read the number of the received radial under the tip of the VOR needle.

**210- An aircraft is inbound to VOR X on the 073° radial and experiences a drift of 12°L. A position report is required when crossing the 133° radial from VOR Y. If the aircraft is on track, the RMI indications at the reporting point will be:**

- A) Heading: 085°, X Pointer: 073°, Y Pointer: 133°.
- B) Heading: 085°, X Pointer: 253°, Y Pointer: 133°.
- C) Heading: 265°, X Pointer: 073°, Y Pointer: 313°.
- D) Heading: 265°, X Pointer: 253°, Y Pointer: 313°.

**211- The RMI is oriented toward:**

- A) True north.
- B) Magnetic north.
- C) Grid north.
- D) The nose of the aircraft.

**212- An aircraft is on the 120° radial from a VOR station. Course 340° is selected on the HSI (Horizontal Situation Indicator). If the magnetic heading is 070°, the deviation bar relative to the aeroplane model, will be:**

- A) Behind.
- B) In front.
- C) Right.
- D) Left.

**213- Given:**

**Aircraft heading 160° (M).**

**Aircraft is on radial 240° from a VOR.**

**Selected course on HSI is 250°.**

**The HSI indications are deviation bar:**

- A) Ahead of the aeroplane symbol with the FROM flag showing.
- B) Ahead of the aeroplane symbol with the TO flag showing.
- C) Behind the aeroplane symbol with the FROM flag showing.
- D) Behind the aeroplane symbol with the TO flag showing.

**214- Given:**

**Aircraft heading 280° (M).**

**Aircraft is on radial 030° from a VOR.**

**Selected course on HSI is 010°.**

**The HSI indications are deviation bar:**

- A) Ahead of the aeroplane symbol with the FROM flag showing.
- B) Ahead of the aeroplane symbol with the TO flag showing.
- C) Behind the aeroplane symbol with the FROM flag showing.
- D) Behind the aeroplane symbol with the TO flag showing.

**215- Aircraft is proceeding to a VOR station. The EHSI is showing 5° "fly right" with a TO indication.**

**The aircraft heading is 280° (M) and the required track is 270° (M). The radial is:**

- A) 275°
- B) 265°
- C) 085°
- D) 095°

**216- How many satellites make up the Global Positioning System (GPS)?**

- A) 20
- B) 22
- C) 25
- D) 24



**217- GPS consists of:**

- A) The space segment, the user segment and the ground segment.
- B) A ground segment, the receiver segment and five monitoring stations.
- C) A master control station, a back-up control station and antennas.
- D) A master control station, a back-up control station and the INMARSAT geostationary satellites.

**218- The ground segment of GPS consists of:**

- A) Master control station, a back-up control station and five monitoring stations.
- B) A ground segment, the INMARSAT geostationary satellites and five monitoring stations.
- C) A master control station, three ground antennas and five monitoring stations.
- D) A master control station, a back-up control station and the processors.

**219- What is the minimum number of Global Positioning System (GPS) satellites that are observable by a user anywhere on earth?**

- A) 6
- B) 5
- C) 4
- D) 3

**220- How many Global Positioning System (GPS) satellites are required to make a three dimensional position (latitude, longitude, and altitude) and time solution?**

- A) 6
- B) 5
- C) 4
- D) 3

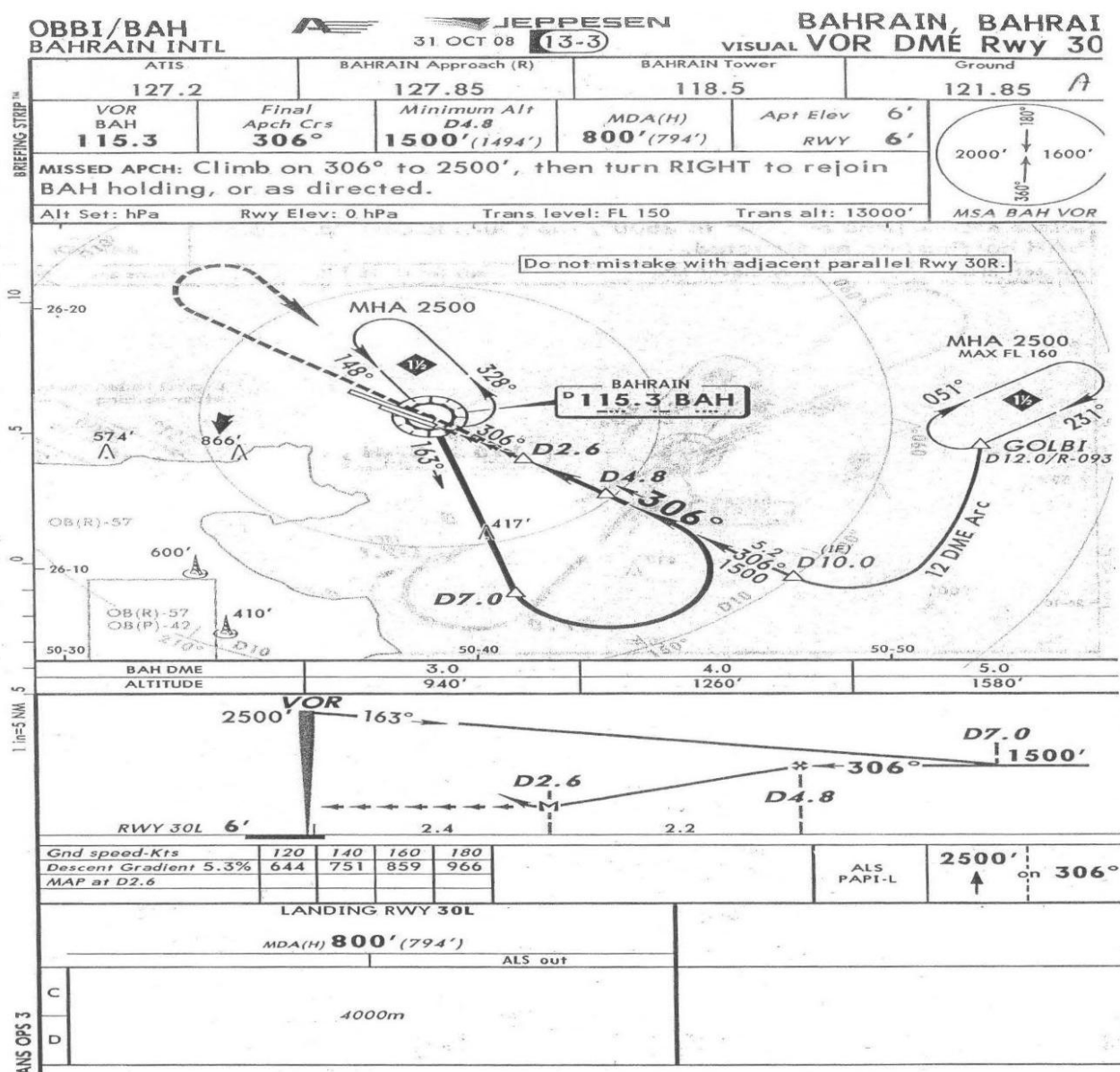
QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
1	A	26	A	51	A	76	D
2	B	27	D	52	A	77	A
3	C	28	D	53	B	78	D
4	A	29	D	54	B	79	A
5	D	30	D	55	C	80	B
6	C	31	C	56	B	81	A
7	D	32	A	57	B	82	B
8	B	33	C	58	B	83	B
9	A	34	C	59	A	84	D
10	C	35	A	60	C	85	C
11	B	36	B	61	B	86	B
12	D	37	B	62	D	87	A
13	C	38	B	63	D	88	D
14	C	39	B	64	C	89	C
15	A	40	C	65	C	90	D
16	D	41	D	66	C	91	C
17	D	42	A	67	B	92	D
18	C	43	D	68	C	93	B
19	A	44	A	69	B	94	A
20	A	45	D	70	A	95	B
21	B	46	C	71	C	96	A
22	C	47	A	72	D	97	A
23	C	48	A	73	B	98	A
24	D	49	B	74	C	99	A
25	B	50	C	75	A	100	D

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
101	B	126	A	151	D	176	D
102	B	127	C	152	C	177	B
103	C	128	A	153	D	178	C
104	B	129	D	154	A	179	B
105	C	130	B	155	C	180	C
106	C	131	A	156	D	181	B
107	B	132	B	157	B	182	C
108	A	133	C	158	A	183	A
109	B	134	A	159	D	184	D
110	C	135	C	160	D	185	B
111	D	136	C	161	D	186	B
112	D	137	D	162	C	187	B
113	D	138	C	163	B	188	B
114	A	139	A	164	A	189	D
115	C	140	C	165	D	190	D
116	B	141	A	166	D	191	D
117	C	142	C	167	D	192	C
118	C	143	B	168	D	193	C
119	D	144	C	169	C	194	D
120	C	145	B	170	B	195	D
121	A	146	A	171	A	196	A
122	A	147	C	172	C	197	C
123	C	148	C	173	C	198	C
124	A	149	A	174	A	199	D
125	C	150	A	175	D	200	D

QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER	QUESTION	ANSWER
201	D	206	D	211	B	216	D
202	D	207	B	212	A	217	A
203	A	208	A	213	C	218	C
204	C	209	B	214	A	219	B
205	B	210	D	215	D	220	C



# FIGURES



OIZC

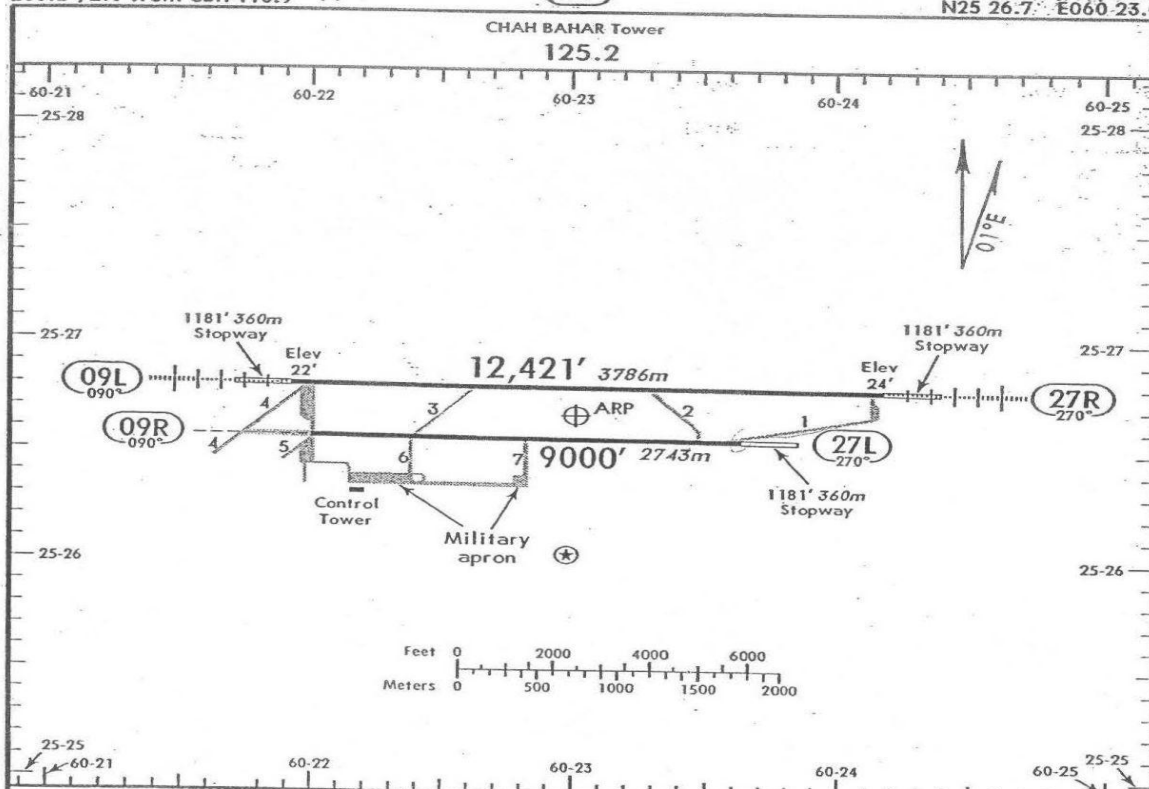
Apt Elev 24'  
266.2°/2.0' from CBH-116-9

REPRESENT

31 MAR 00: (13-1)

CHAH BAHAR, IRAN

KONARAK AB  
N25 26.7' E060 23.0



ADDITIONAL RUNWAY INFORMATION

RWY		USABLE LENGTHS			
		LANDING BEYOND		TAKE-OFF	WIDTH
		Threshold	Glide Slope		
09L	HIRL HIALS				150' 46m
09R	RL ALS (configuration unknown)				150' 46m
27L					

TAKE-OFF  
AIR CARRIER  
All Rwy's

A  
B  
C

400m





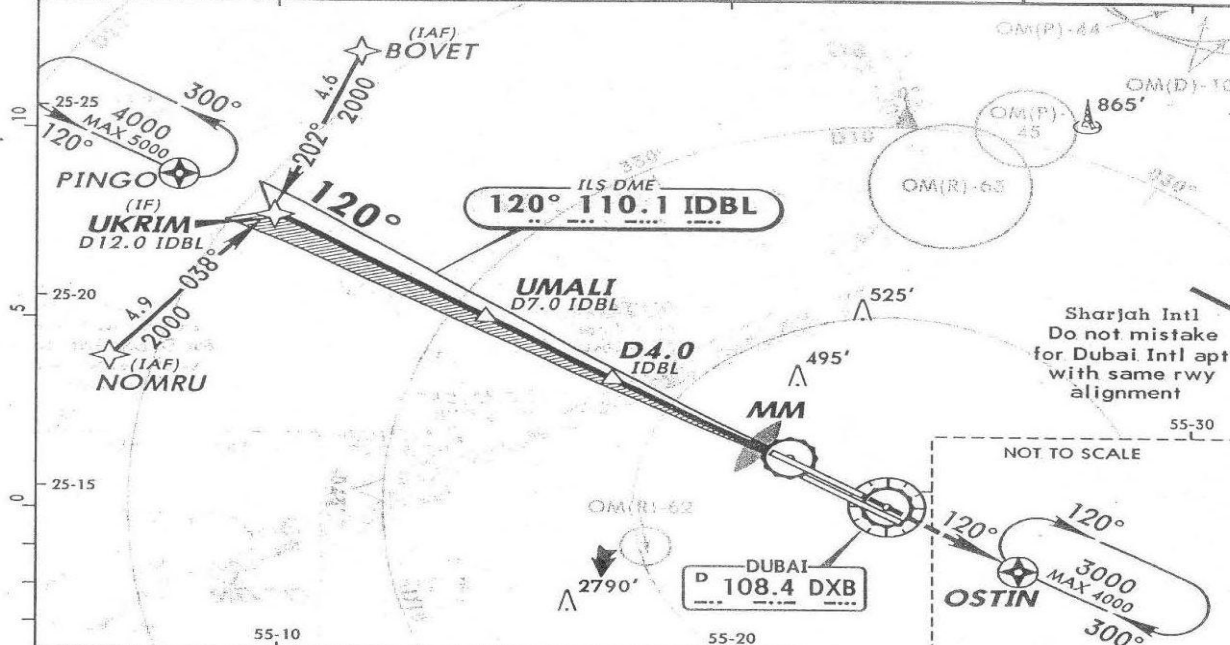


OMDB/DXB  
DUBAI INTL

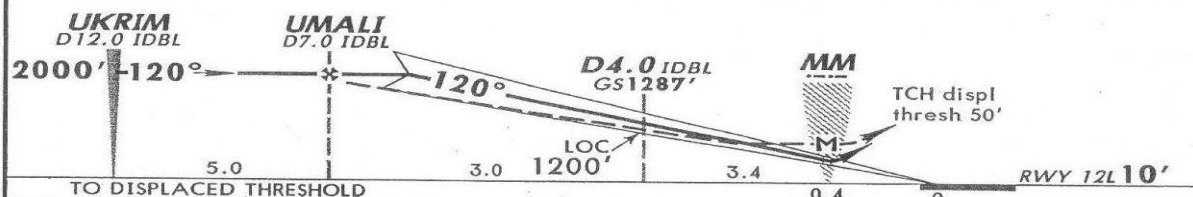
JEPPESEN  
10 APR 09 (11-1)

DUBAI, UAE  
ILS Rwy 12L

D-ATIS 131.7	DUBAI Arrivals (APP/R) 124.9	DUBAI Director (APP/R) 127.9	DUBAI Tower 118.75 119.55	Ground 118.35
LOC IDBL 110.1	Final Apch Crs 120°	GS D4.0 IDBL 1287' (1277')	CAT IIIA ILS DH 50'	CAT I & II ILS Refer to Minimums
MISSED APCH: Climb to 3000' direct to OSTIN and hold.				Apt Elev 59' RWY 10'
Alt Set: MB Rwy Elev: 0 MB Trans level: FL 150				Trans alt: 13000'
1. RNAV/RNP5 required. 2. ILS DME reads zero at TDZ.				MSA DXB VOR



LOC (GS out)	IDBL DME ALTITUDE	6.0	5.0	4.0	3.0	2.0	1.0
		1860'	1550'	1240'	930'	620'	310'



TO DISPLACED THRESHOLD	120	140	160	180
Gnd speed-Kts	120	140	160	180
ILS GS	3.00°	647	755	862
LOC Descent Gradient	4.7%	571	666	762
MAP at MM				

STRAIGHT-IN LANDING RWY 12L					LOC (GS out)		CIRCLE-TO-LAND	
CAT IIIA DH 50'	CAT II RA 100' DA(H) 110' (100')	ILS I DA(H) 210' (200')	CAT I DA(H) 210' (200')	ALS out	MDA(H) 590' (580')	MM out	ALS out	
RVR 200m	RVR 350m	RVR 550m VIS 800m	RVR 720m VIS 800m	1200m	RVR 1500m VIS 1600m	NOT AUTH	2400m	NOT AUTHORIZED
					2000m		2800m	

CAT III: Min RVR 50m

OMDB/DXB  
DUBAI INTL



JEPPESSEN

6 JUN 08 (12:1)

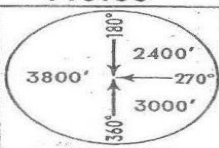
DUBAI, UAE

RNAV (GNSS) Rwy 12L

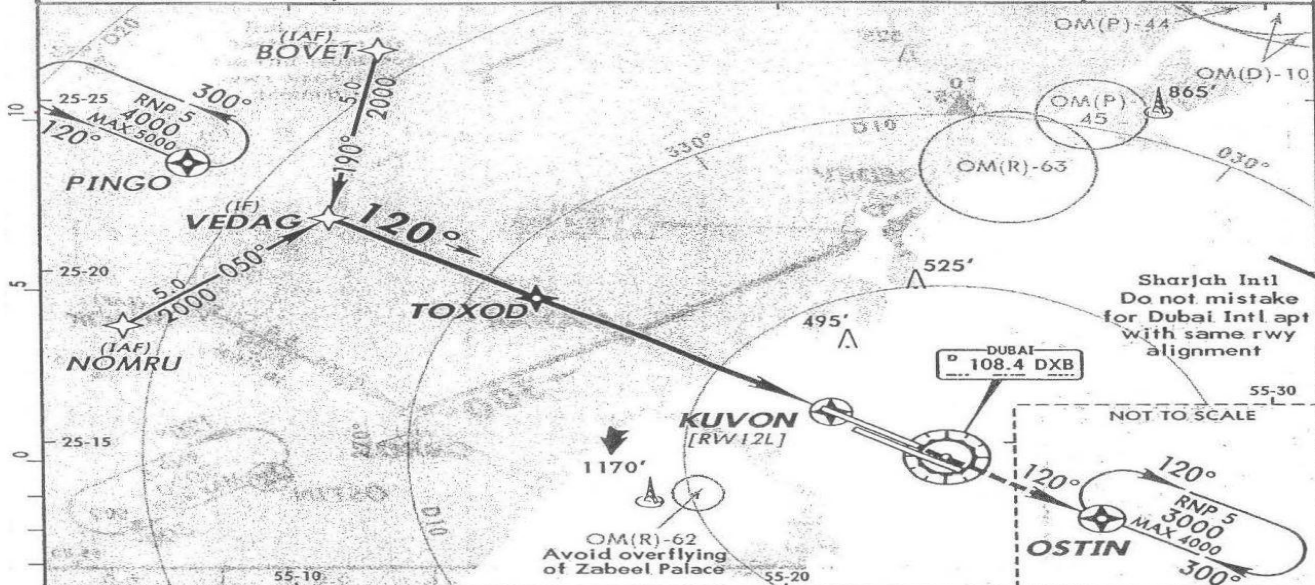
D-ATIS 131.7	DUBAI Arrivals (APP/R) 124.9	DUBAI Director (APP/R) 127.9	DUBAI Tower 118.75	Ground 118.35
RNAV	Final Apch Crs 120°	Minimum Alt TOXOD 2000' (1990')	MDA(H) 590' (580')	Apt Elev 62' RWY 10'

MISSED APCH: Climb to 3000' direct to OSTIN and hold.

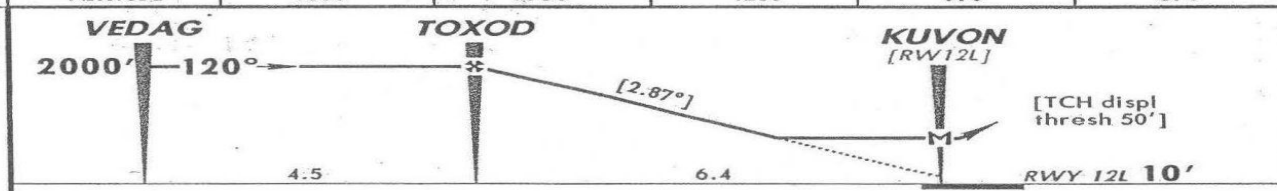
Alt Set: MB Rwy Elev: 0 MB Trans level: FL 150 Trans alt: 13000'



MSA ARP



DIST to KUVON	6.0	5.0	4.0	3.0	2.0
ALTITUDE	1880'	1580'	1280'	970'	670'



Gnd speed-Kts	120	140	160	180
Descent angle [2.87°]	609	711	812	914
MAP at KUVON				

HIALS-II  
REIL  
PAPI  
PAPI

3000'

↑

→D→

OSTIN

HTALS-II REIL PAPI	3000'	D	OSTIN
-----------------------	-------	---	-------

STRAIGHT-IN LANDING RWY 12L		CIRCLE-TO-LAND	
MDA(H) 590' (580')		ALS out	
C	RVR 1500m VIS 1600m	2400m	NOT AUTHORIZED
D	2000m	2800m	

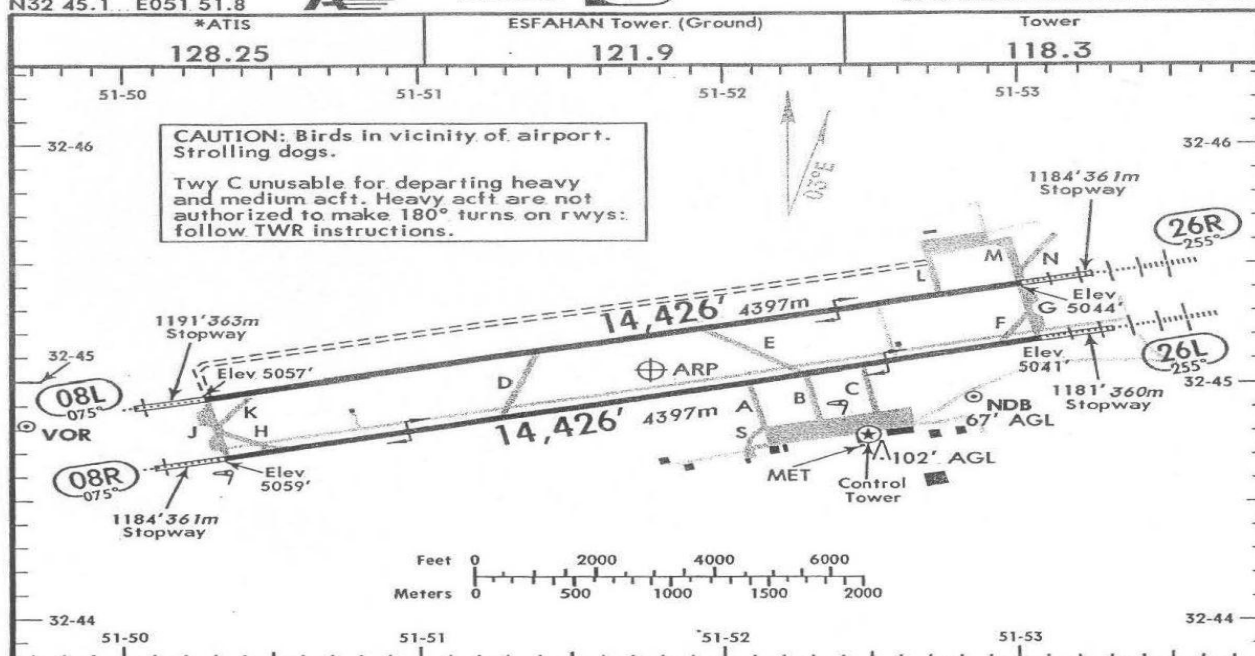


OIFM/IFN  
Apt Elev 5059'  
N32 45.1 E051 51.8



JEPPESSEN  
7 DEC 07 (11-1)

ESFAHAN, IRAN  
SHAHID BEHESHTI INTL



ADDITIONAL RUNWAY INFORMATION

RWY		USABLE LENGTHS		TAKE-OFF	WIDTH
		— LANDING BEYOND —			
		Threshold	Glide Slope		
08L	HIRL(60m) ALS HST-1 PAPI-L(angle 3.00°)				148'
26R	HIRL(60m) HIALS HST PAPI-L(angle 2.65°)		13,211' 4027m		45m
08R	HIRL(60m) ALS PAPI-L(angle 3.00°)				148'
26L	HIRL(60m) HIALS PAPI-L(angle 3.02°)				45m

① Rwy. 08R/26L primarily used as taxiway.

TAKE-OFF  
AIR CARRIER (JAA)  
All Rwys

	RL & RCLM	NIL (DAY only)
C		
D	400m	500m

CHANGES: None.

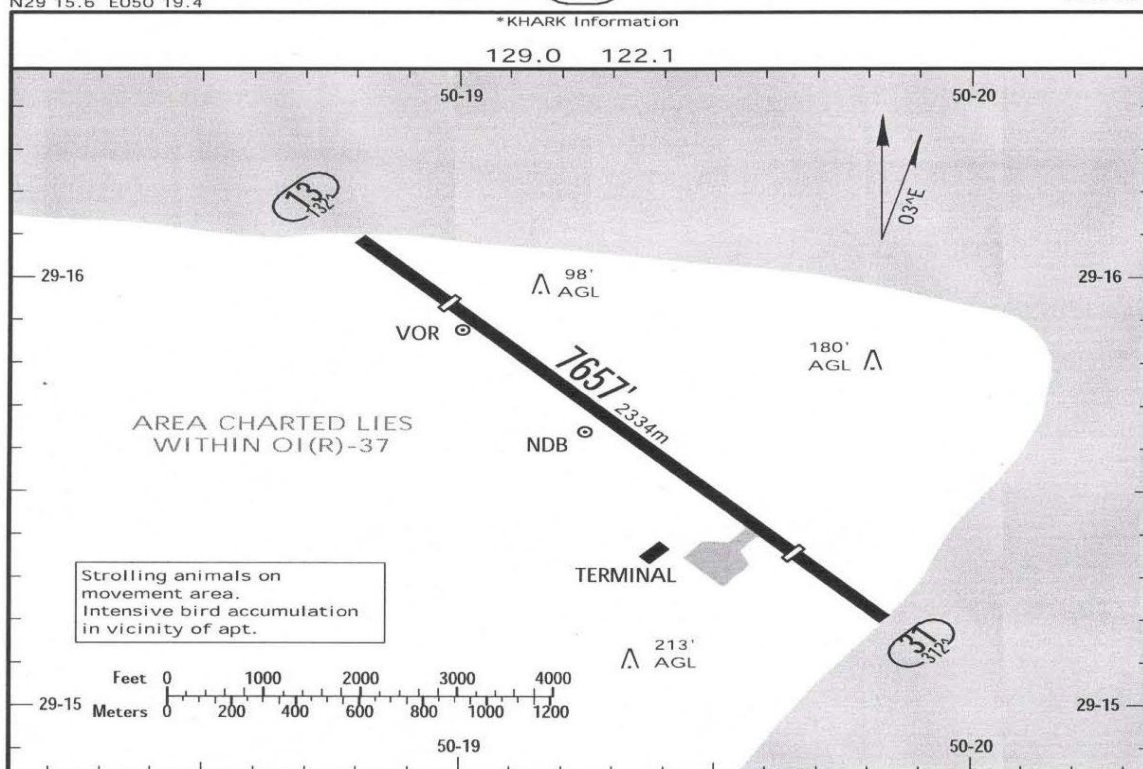
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**OIBQ/KHK**  
Apt Elev 29'  
N29 15.6 E050 19.4

**JEPPESEN**  
9 SEP 11 (10-9)

**KHARK ISLAND, IRAN**  
KHARK



ADDITIONAL RUNWAY INFORMATION						
RWY			USABLE LENGTHS		TAKE-OFF	WIDTH
			Threshold	Landing Beyond Glide Slope		
13 31	HIRL (60m)	PAPI-L (angle 3.0°)	6345' 1934m		6332' 1930m	148' 45m
			6332' 1930m		6345' 1934m	

TAKE-OFF		
AIR CARRIER (JAA)		
All Rwys		
	RL & RCLM	NIL (DAY only)
A		
B	400m	500m
C		
D	NOT APPLICABLE	

CHANGES: Runway designator, Lights, Minimums.

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OISS/SYZ



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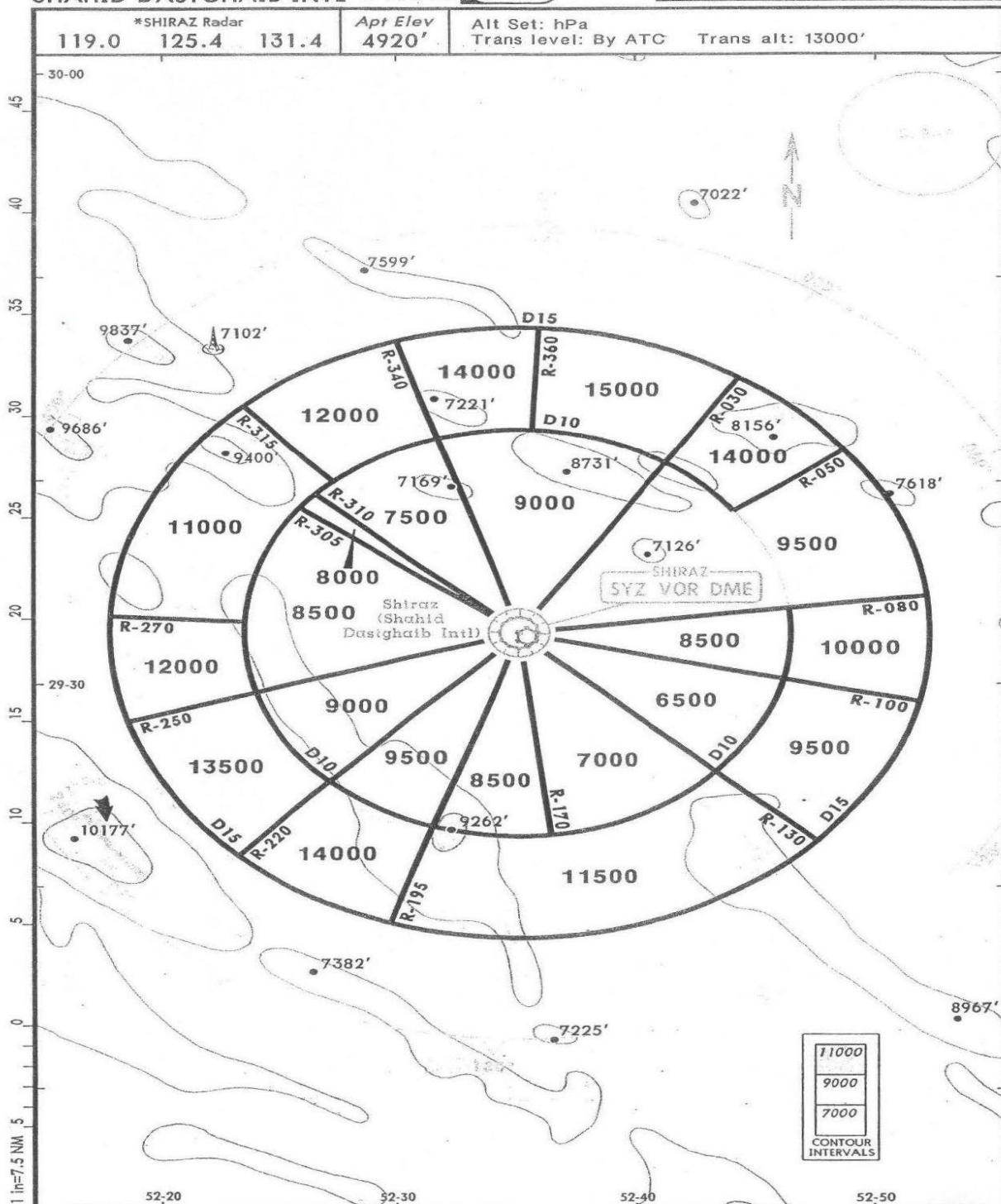
SHIRAZ, IRAN

SHAHID DASTGHAIB INTL

11 APR 08

(10-1R)

RADAR MINIMUM ALTITUDES



OISS/SYZ

SHAHID DASTGHAIB INTL

21 APR 06

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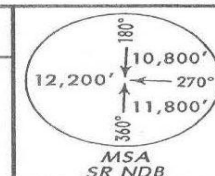
10-3E

SHIRAZ, IRAN

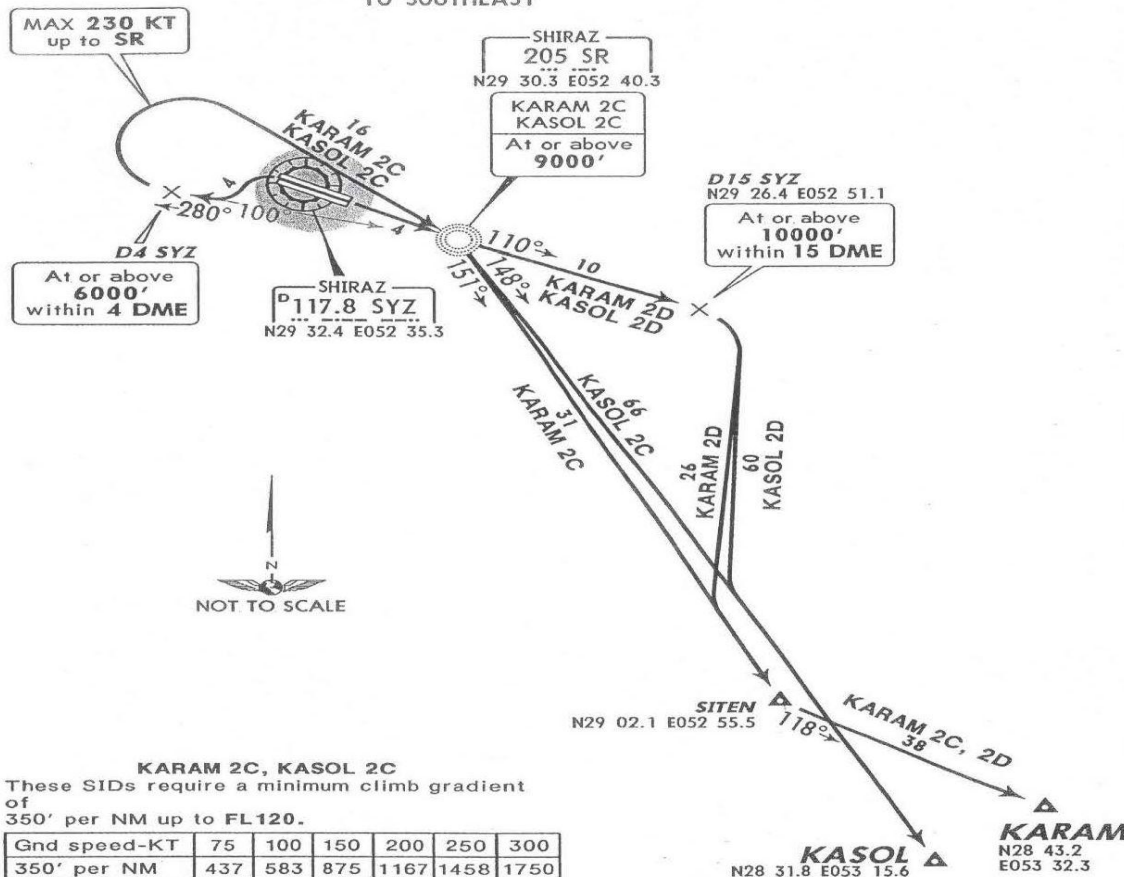
SID

Apt Elev  
4920'

Trans level: By ATC Trans alt: 13000'



KARAM 2C [KARA2C], KARAM 2D [KARA2D]  
KASOL 2C [KASO2C], KASOL 2D [KASO2D]  
RWYS 29L/R, 11R/L DEPARTURES  
BASED ON SR  
TO SOUTHEAST



KARAM 2C, KASOL 2C  
These SIDs require a minimum climb gradient  
of  
350' per NM up to FL120.

Gnd speed-KT	75	100	150	200	250	300
350' per NM	437	583	875	1167	1458	1750

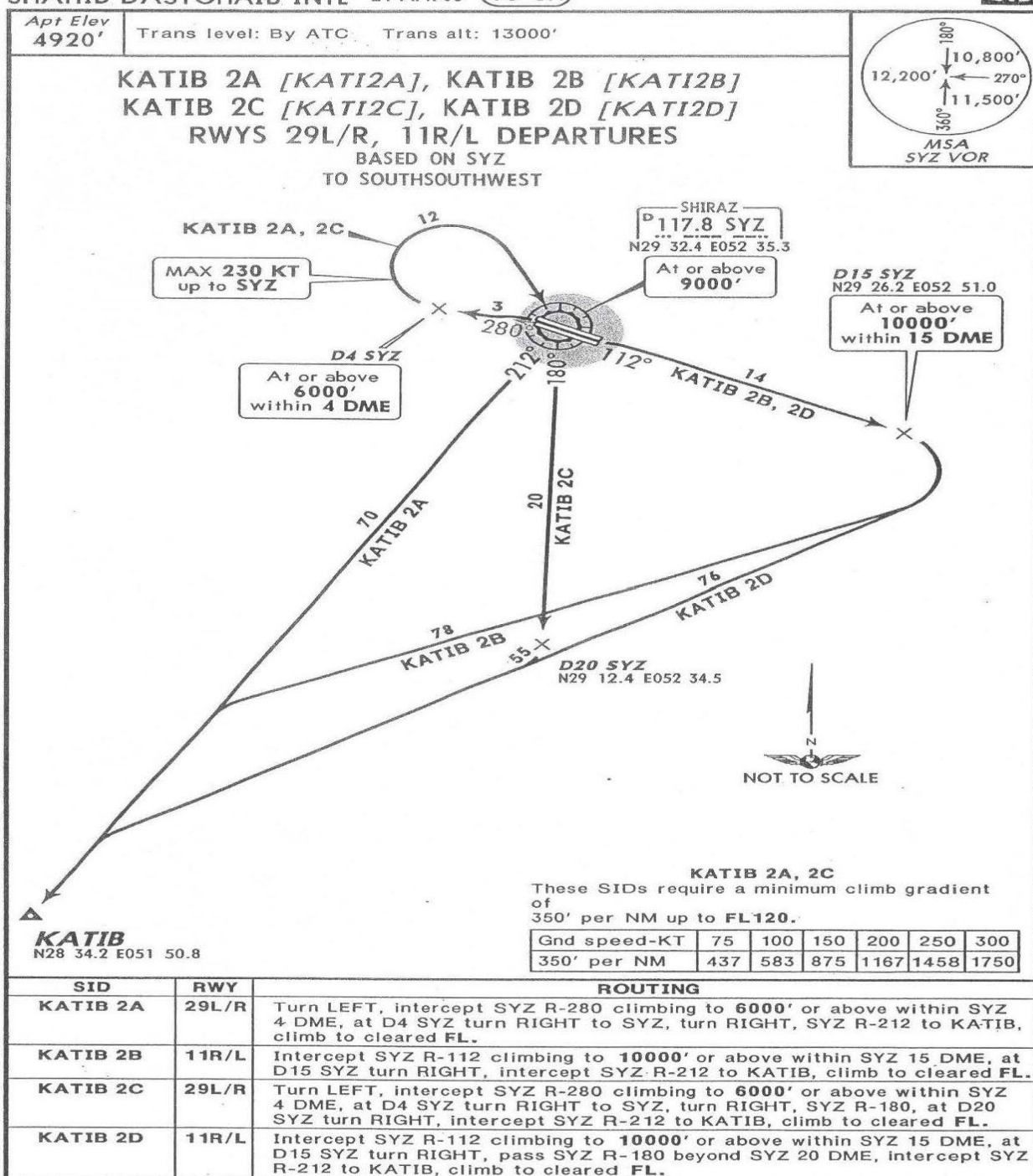
SID	RWY	ROUTING
KARAM 2C	29L/R	Turn LEFT, intercept 280° bearing from SR climbing to 6000' or above within SYZ 4 DME, at D4 SYZ turn RIGHT to SR, turn RIGHT, 151° bearing to SITEN, turn LEFT, 118° track to KARAM, climb to cleared FL.
KARAM 2D	11R/L	To SR, 110° bearing climbing to 10000' or above within SYZ 15 DME, at D15 SYZ turn RIGHT, intercept 151° bearing from SR to SITEN, turn LEFT, 118° track to KARAM, climb to cleared FL.
KASOL 2C	29L/R	Turn LEFT, intercept 280° bearing from SR climbing to 6000' or above within SYZ 4 DME, at D4 SYZ turn RIGHT to SR, turn RIGHT, 148° bearing to KASOL, climb to cleared FL.
KASOL 2D	11R/L	To SR, 110° bearing climbing to 10000' or above within SYZ 15 DME, at D15 SYZ turn RIGHT, intercept 148° bearing from SR to KASOL, climb to cleared FL.

CHANGES: Trans. altitude raised.

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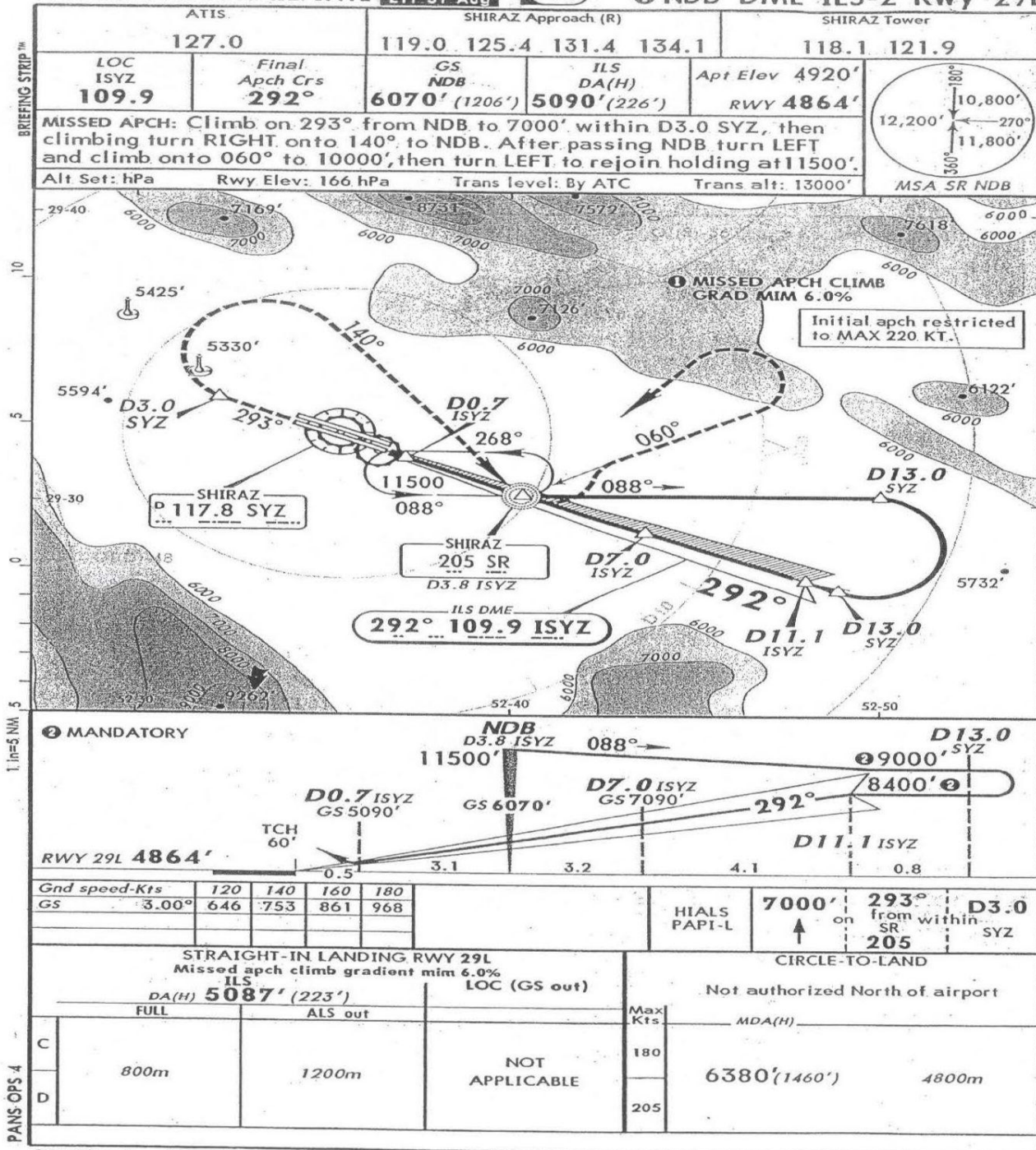
OISS/SYZ  
SHAHID DASTGHAIB INTL 21 APR 06 (10-3H)

SHIRAZ, IRAN  
SID

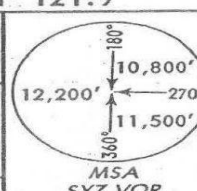


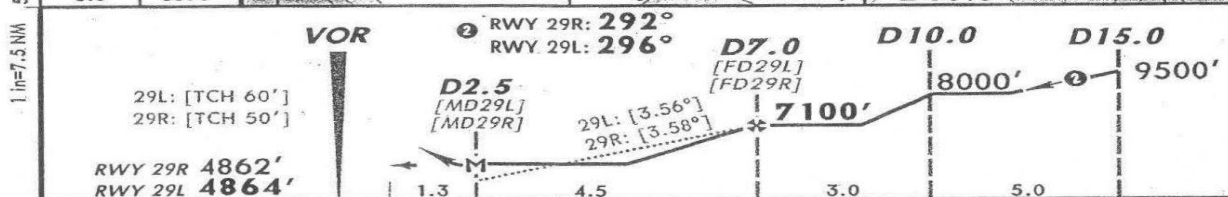
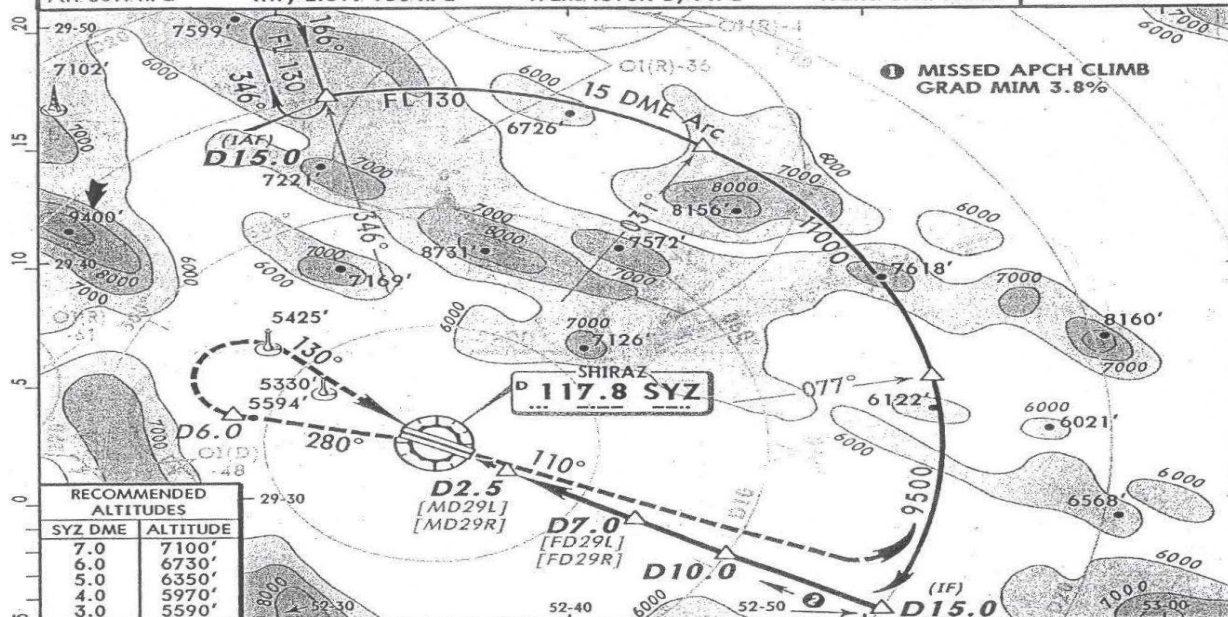


OISS/SYZ **A** **JEPPESSEN** SHIRAZ, IRAN  
SHAHID DASTGHAIB INTL 25 AUG 06 **(11-5)** NDB DME ILS-2 Rwy 29L



OISS/SYZ **A** **JEPPESSEN** SHIRAZ, IRAN  
 SHAHID DASTGHAIB INTL 25 AUG 06 **13-1** VOR DME-1 Rwy 29L/R

ATIS		SHIRAZ Approach (R)				SHIRAZ Tower	
127.0		119.0	125.4	131.4	134.1	118.1	121.9
VOR SYZ <b>117.8</b>	Final Apch Crs RWY 29L <b>296°</b> RWY 29R <b>292°</b>	Minimum Alt D7.0 <b>7100'</b> (2236')	MDA(H) Refer to Minimums	Apt Elev <b>4920'</b> RWY 29L <b>4864'</b> RWY 29R <b>4862'</b>			
MISSED APCH: Climb STRAIGHT AHEAD to VOR, then turn LEFT to continue climb on R-280 to 7400' within D6.0. Turn RIGHT and proceed on 130° to overhead VOR, then proceed on R-110. Turn LEFT to maintain 15 DME Arc to rejoin holding at FL 130. MAX 185 KT until overhead VOR.							
Alt Set: hPa		Rwy Elev: 166 hPa		Trans level: By ATC		Trans alt: 13000'	



Gnd Speed-Kts	120	140	160	180	HIALS PAPI-L		185 KT MAX	SYZ 117.8
29L: Descent angle [3.56°]	756	882	1008	1134				
29R: Descent angle [3.58°]	760	887	1014	1140				

STRAIGHT-IN LANDING RWY 29L/R				CIRCLE-TO-LAND			
Missed apch climb gradient min 3.8%				Not authorized North of airport			
MDA(H) RWY 29L: <b>5510'</b> (646')				MDA(H)			
RWY 29R: <b>5510'</b> (648')							
ALS out		Max Kts					
C	2000m	2800m	180	6380' (1460')			
D	2400m	3200m	205	4800m			

CHANGES: None.

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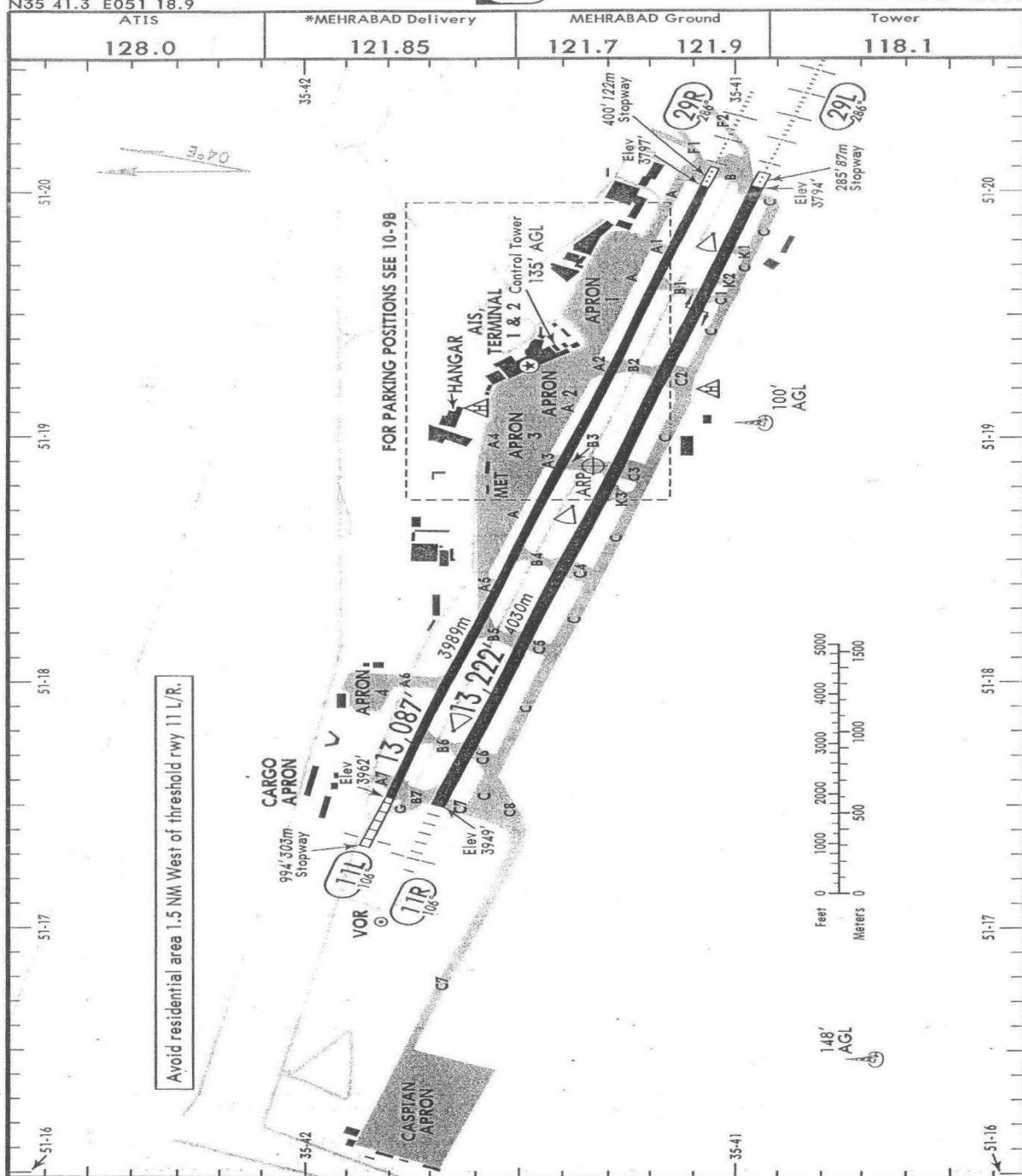


OIII/THR  
Apt Elev 3962'  
N35 41.3 E051 18.9



JEPPESSEN  
31 JUL 09 10-9

TEHRAN, IRAN  
MEHRABAD INTL



CHANGES: Stands. Twy designation. New apron 4.

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OIII/THR



16 MAR 07 **JEPPESSEN**  
(10-9A)

**TEHRAN, IRAN**  
**MEHRABAD INTL**

INS COORDINATES			
STAND No.	COORDINATES	STAND No.	COORDINATES
1, 2	N35 41.5 E051 19.0	23	N35 41.3 E051 19.7
3	N35 41.5 E051 19.1	24	N35 41.3 E051 19.6
4, 5	N35 41.5 E051 19.0	25	N35 41.3 E051 19.7
6, 7	N35 41.5 E051 19.1	26	N35 41.3 E051 19.6
8, 9	N35 41.5 E051 19.2	27	N35 41.3 E051 19.8
13	N35 41.4 E051 19.3	28	N35 41.3 E051 19.7
14	N35 41.3 E051 19.4	29	N35 41.3 E051 19.8
15	N35 41.4 E051 19.5	30, 32	N35 41.2 E051 19.7
16	N35 41.3 E051 19.5	J1	N35 41.5 E051 19.2
17	N35 41.4 E051 19.6	J2, J3	N35 41.4 E051 19.3
18	N35 41.3 E051 19.5		
19	N35 41.3 E051 19.6		
20	N35 41.3 E051 19.5		
21	N35 41.3 E051 19.7		
22	N35 41.3 E051 19.6		

**GENERAL**

Birds and stray dogs in vicinity of airport.  
RWY 11L/R right-hand circuit.

**ADDITIONAL RUNWAY INFORMATION**

RWY		USABLE LENGTHS		TAKE-OFF	WIDTH
		LANDING BEYOND			
11L	HIRL(60m) ALS PAPI-L (angle 3.22°)	Threshold	Glide Slope	①	148' 45m
29R	HIRL(60m) HIALS PAPI-L (angle 3.22°)				
① MIL jet barrier 100' West of RWY 11L height 12' AGL is in up psn and can be lowered on request.					
11R	HIRL(60m) ALS PAPI-L (angle 3.36°)	②		②	197' 60m
29L	HIRL(60m) HIALS SFL PAPI-L (angle 3.30°)		12,397'3779m		
② Single engine aircraft should use portion of runway West of arrester gear which is installed 2598'/792m inwards from threshold 29L.					

**TAKE-OFF & DEPARTURE PROCEDURE**

AIR CARRIER (JAA)	
All Rwys	
RL & RCLM	NIL (DAY only)
C	500m
D	

Departure rwy 11 L/R: Rwy 11 not used for T/O during 1730 - 0430 except tail wind component of rwy 29 is 10 KT or more.

Departure rwy 29 L/R: To avoid residential area 1.5 NM West of rwy 11 all JET acft are to make a LEFT turn as soon as practicable after passing end of rwy and follow assigned SID.

CHANGES: Minimums.

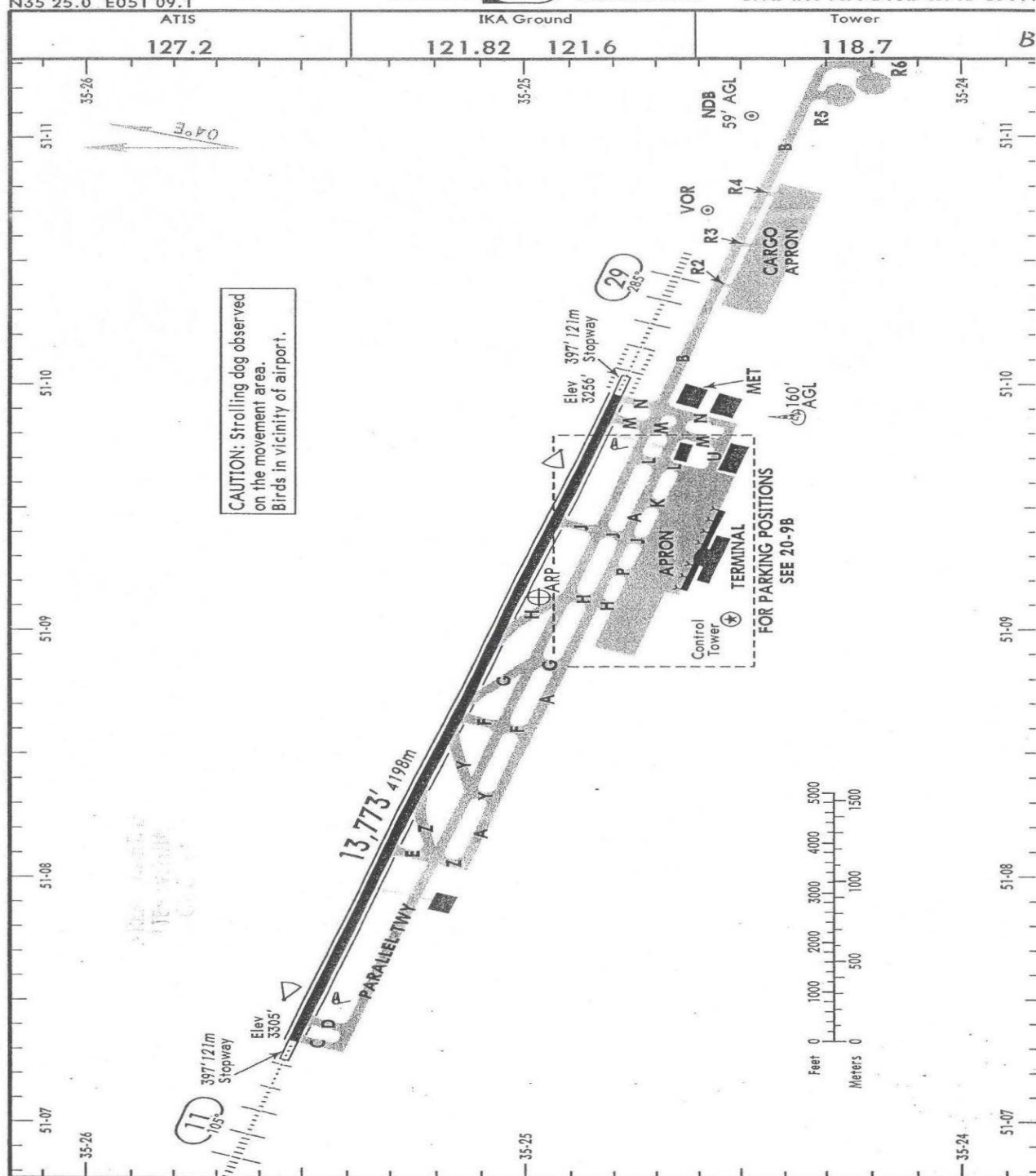
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OIIIE/IKA  
Apt Elev 3305'  
N35 25.0 E051 09.1



JEPPESSEN  
5 DEC 08 20-9 Eff 18 Dec

TEHRAN, IRAN  
IMAM KHOMAINI INT



CHANGES: None.

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OIIE/IKA



JEPPESSEN

5 DEC 08

20-9A

Eff: 18 Dec

TEHRAN, IRAN  
IMAM KHOMAINI INTL

RWY	ADDITIONAL RUNWAY INFORMATION					USABLE LENGTHS		TAKE-OFF	WIDTH
	LANDING BEYOND					Threshold	Glide Slope		
11	HIRL (60m)	CL (30m)	HIALS	PAPI-L (3.0°)	RVR				
29	HIRL (60m)	CL (30m)	HIALS-II	SFL TDZ ①	RVR		12,801' 3902m		148' 45m

① PAPI-L (angle 3.0°).

### MINIMUM RUNWAY OCCUPANCY TIME

#### ARRIVALS:

In order to minimize the occurrence of "go-around", lessen the runway occupancy time and, therefore, get the maximum runway utilization, pilots shall exit the rwy as soon as possible and this will not affect the acft safety and standard operation.

#### DEPARTURES:

Pilots, when the corresponding clearance is issued, shall be able to taxi to the take-off position in the rwy as soon as the preceding departure acft had began the take-off or the preceding arrival acft had passed their holding position.

Acft shall be able to initiate the take-off immediately after clearance is issued.

Pilots unable to comply with this requirement shall notify to ATC as soon as possible and once in contact with Tower.

Acft not ready to initiate take-off run immediately when cleared for take-off, will have take-off clearance cancelled and will receive instructions to vacate the rwy at the first available twy.

	TAKE-OFF		
	AIR CARRIER (JAA) All Rwys		
	LVP must be in force		NIL (DAY only)
	RL & CL & RCLM	RL & RCLM	
C	300m	400m	500m
D			

CHANGES: Usable lengths.

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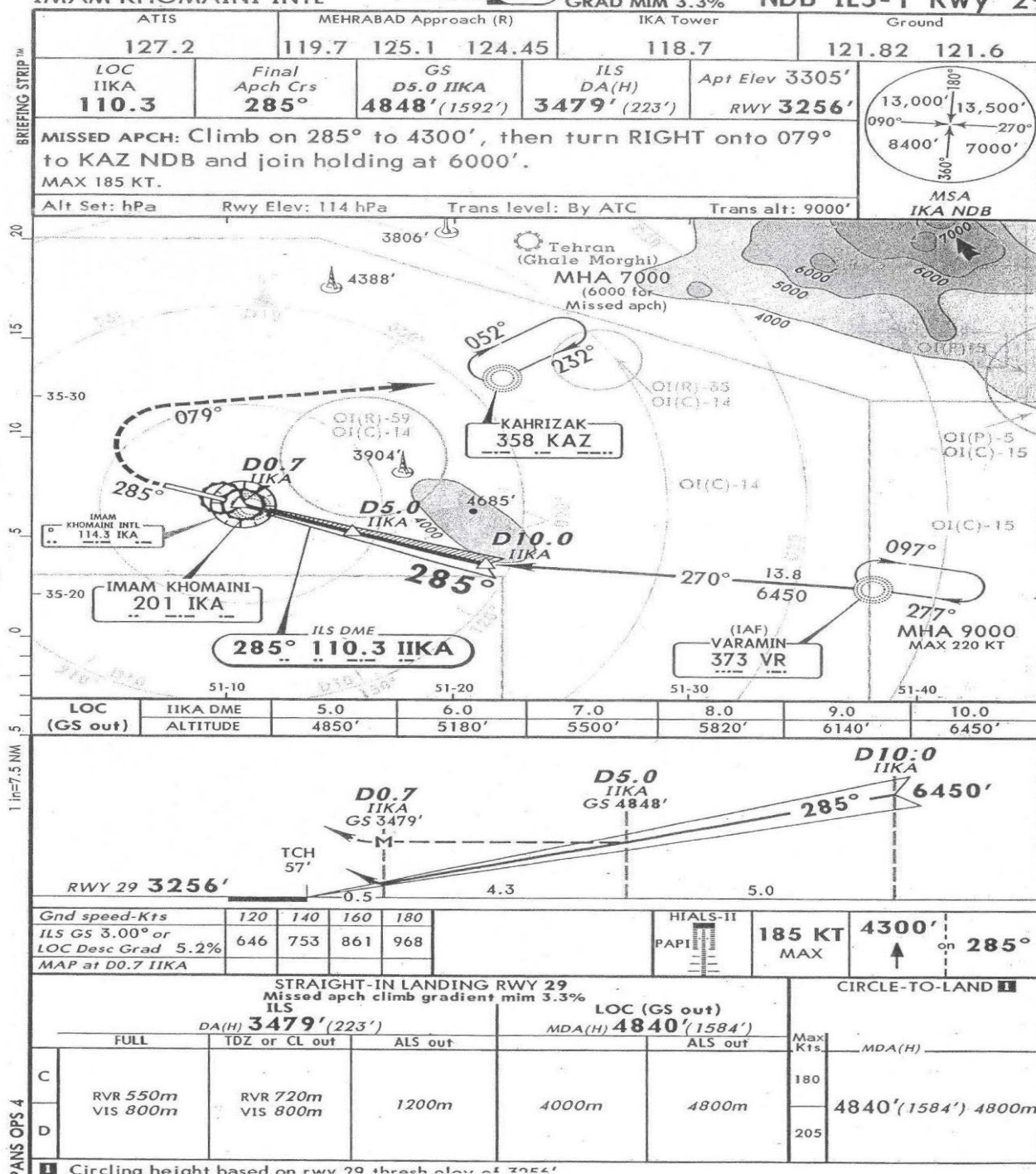


# OIIIE/IKA IMAM KHOMAINI INTL

20 MAR 09 21-7

MISSED APCH CLIMB  
GRAD MIM 3.3%

TEHRAN, IRAN  
NDB ILS-1 Rwy 29





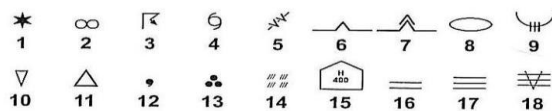


Figure I-01



Figure I-02

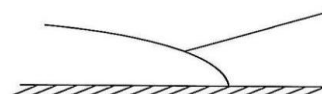


Figure I-03



Figure I-04

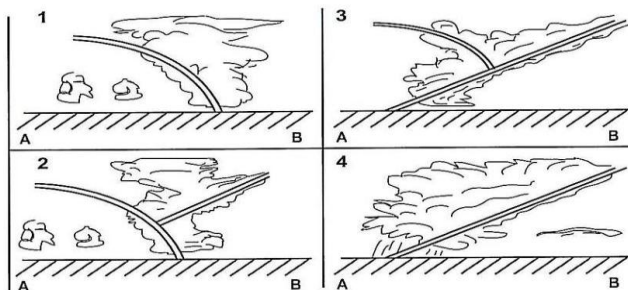


Figure I-05

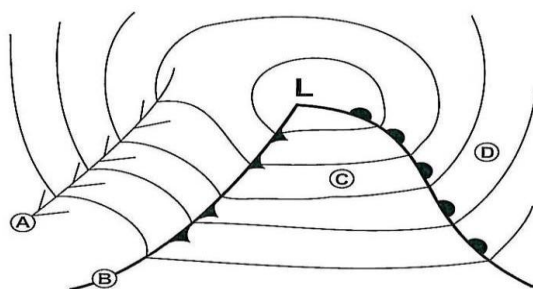


Figure I-06

Figure I-07

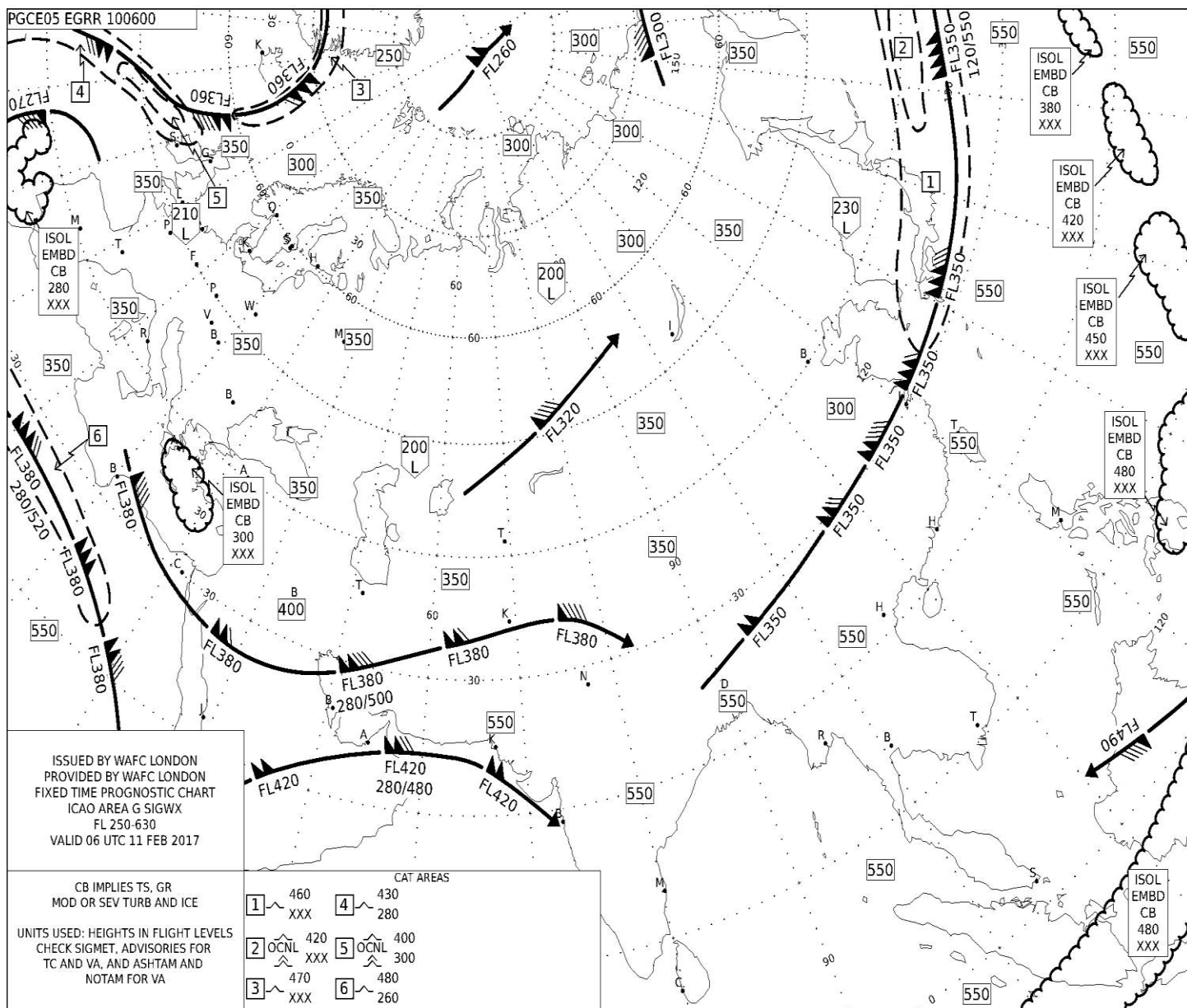


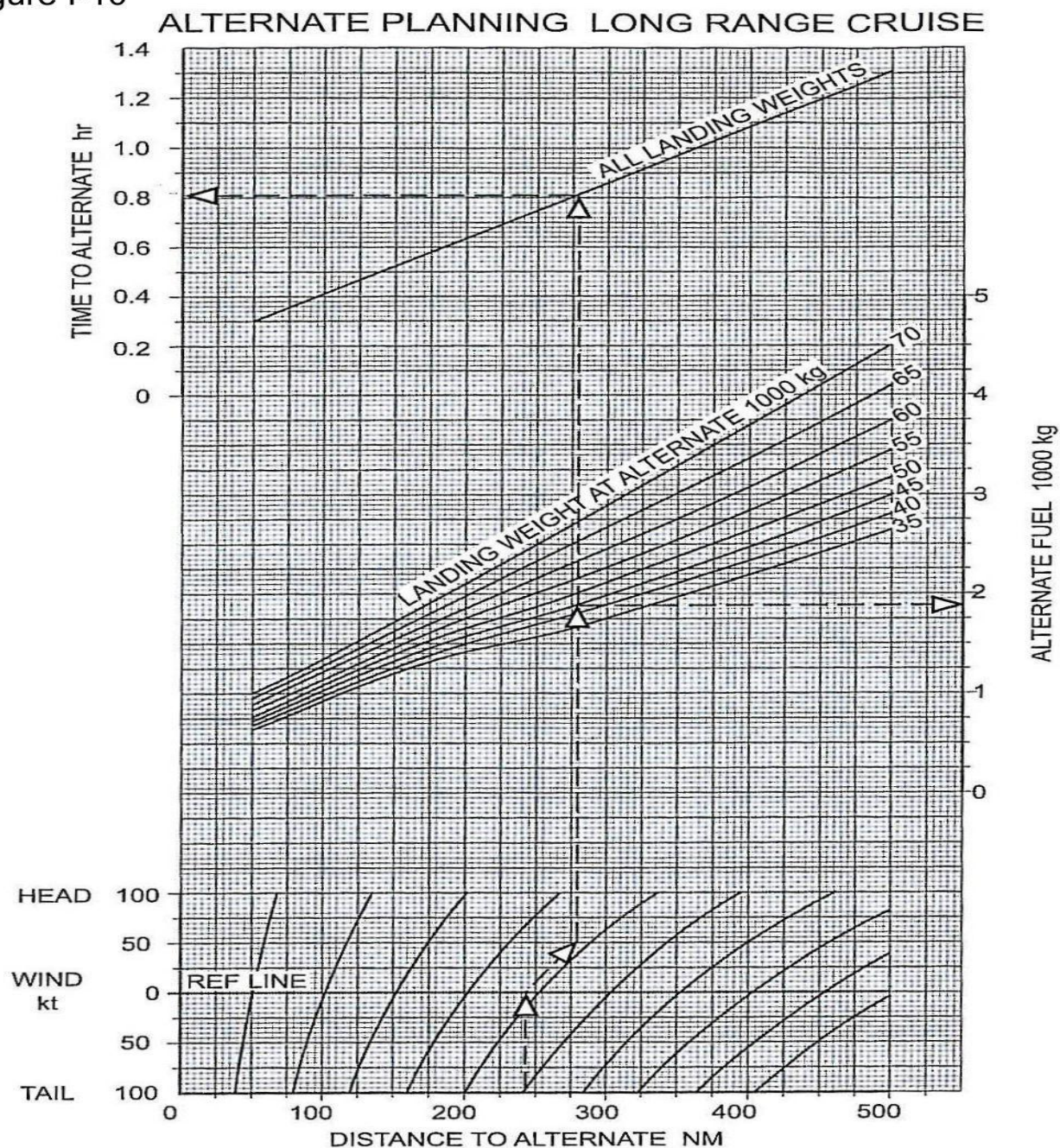


Figure I-09

ZCZC  
TAF OKBK 110445Z 1106/1212 35010KT 7000 NSC BECMG 1114/1116 VRB03KT SCT040 BKN080  
=  
TAF OBBI 110500Z 1106/1212 33008KT 5000 SCT020 BKN080 TEMPO 1106/1212 3000 SHRA  
PROB30 TEMPO 1106/1113 33020G30KT -TSRA FEW040CB BECMG 1203/1205 14010KT=  
TAF OMDB 110502Z 1106/1212 12005KT 8000 NSC BECMG 1109/1111 33013KT  
BECMG 1115/1117 08007KT BECMG 1204/1206 17010KT BECMG 1209/1211 34010KT=  
TAF OMRK 110502Z 1106/1212 VRB02KT 8000 NSC BECMG 1109/1111 34014KT  
BECMG 1115/1117 11005KT BECMG 1209/1211 35010KT=  
TAF OMSJ 110502Z 1106/1212 12005KT 8000 NSC BECMG 1109/1111 34014KT  
BECMG 1115/1117 08007KT BECMG 1204/1206 17010KT BECMG 1209/1211 34010KT=  
TAF OEJN 110500Z 1106/1212 33006G16KT 8000 FEW035 SCT100  
TEMPO 1106/1112 SCT035 BECMG 1017/1019 36010KT=  
TAF OEMA 110500Z 1106/1212 26006G16KT 8000 FEW045 SCT100  
TEMPO 1111/1114 4000 DU/BLDU BECMG 1118/1120 28006KT=  
TAF OERK 110500Z 1106/1212 10006G16KT 7000 FEW040 SCT100  
TEMPO 1106/1112 3500 TS/BLDU FEW035CB SCT040 BECMG 1120/1122 14012KT=  
TAF COR OERY 102300Z 1100/1206 06008G18KT 7000 SCT040 BKN080  
TEMPO 1100/1112 3000 DU/ST FEW030CB BKN040=  
TAF OEDF 110400Z 1106/1212 01010KT CAVOK TEMPO 1106/1112 -TSRA FEW030CB BKN090  
PROB30 TEMPO 1200/1212 VRB30KT 2000 TSRA FEW030CB OVC090=  
TAF OETF 110500Z 1106/1224 24010G20KT 7000 FEW030 SCT100 TEMPO 1108/1118 SCT030=  
TAF OSDI 1100/1206 VRB03KT 9999 FEW030 SCT100  
TEMPO 1109/1206 22010G20KT 8000 SHRA FEW025 CB SCT030 BKN100=  
TAF UDYZ 110506Z 1106/1206 VRB04KT 0800 FZFG OVC007 TEMPO 1106/1118 0200 SN FZFG  
VV001=  
TAF LTBA 110440Z 1106/1212 04015G30KT 9999 SCT016 BKN030  
TEMPO 1106/1110 -RASN SCT010 BKN025 BECMG 1114/1118 -RASN SCT010 BKN025=  
TAF LTAC 110440Z 1106/1206 VRB02KT 2500 BR BKN004 TEMPO 1106/1108 0500 FZFG VV001  
  
BECMG 1108/1110 8000 SCT040 BECMG 1116/1118 CAVOK  
BECMG 1118/1121 4000 BR PROB30 1203/1206 1200 BCFG BKN005=  
TAF OPKC 110400Z 1106/1212 26010KT 7000 NSC FM111600 02007KT 6000 NSC  
TEMPO 1200/1204 05005KT 5000 HZ NSC FM120400 05005G15KT 7000 NSC=  
NNNN



Figure I-10



Simplified Flight Planning – Alternate Distances to 500 NM



Figure I-11

All Engines		Maximum Cruise Thrust Limits					A/C Auto				
PRESSURE ALTITUDE		35,000 ft					LONG RANGE CRUISE				
GROSS		0	100	200	300	400	500	600	700	800	900
WT. kg	TAS	CRUISE DISTANCE NAUTICAL AIR MILES									
35000	410	0	23	47	71	95	119	143	167	191	214
36000	414	238	262	285	309	333	356	380	403	427	450
37000	417	474	497	521	544	567	590	614	637	660	683
38000	420	707	730	753	776	798	821	844	867	890	913
39000	422	936	959	982	1004	1027	1050	1072	1095	1117	1140
40000	425	1163	1185	1207	1230	1252	1275	1297	1319	1342	1364
41000	426	1386	1408	1430	1452	1474	1496	1519	1541	1563	1585
42000	428	1607	1628	1650	1672	1694	1715	1737	1759	1781	1802
43000	429	1824	1845	1867	1888	1910	1931	1953	1974	1996	2017
44000	429	2039	2060	2081	2102	2123	2144	2165	2187	2208	2229
45000	429	2250	2271	2292	2313	2334	2355	2375	2396	2417	2438
46000	429	2459	2480	2500	2521	2541	2562	2582	2603	2624	2644
47000	429	2665	2685	2705	2726	2746	2766	2787	2807	2827	2848
48000	429	2868	2888	2908	2928	2948	2968	2988	3008	3028	3048
49000	429	3068	3088	3107	3127	3147	3166	3186	3206	3226	3245
50000	429	3265	3284	3304	3323	3343	3362	3381	3401	3420	3440
51000	429	3459	3478	3497	3516	3536	3555	3574	3593	3612	3631
52000	429	3650	3669	3688	3707	3726	3744	3763	3782	3801	3820
53000	429	3838	3857	3875	3894	3913	3931	3950	3968	3987	4005
54000	429	4024	4042	4060	4078	4097	4115	4133	4151	4170	4188
55000	430	4206	4224	4242	4260	4278	4296	4314	4331	4349	4367
56000	430	4385	4403	4420	4438	4456	4473	4491	4509	4526	4544
57000	430	4561	4579	4596	4613	4631	4648	4665	4682	4700	4717
58000	429	4734	4751	4768	4785	4802	4819	4836	4853	4870	4887
59000	429	4904	4921	4937	4954	4971	4987	5004	5021	5037	5054
60000	429	5070	5087	5103	5119	5136	5152	5168	5184	5201	5217
61000	429	5233	5249	5265	5281	5297	5313	5329	5345	5361	5377
62000	429	5393	5408	5424	5439	5455	5470	5486	5501	5517	5532
63000	428	5548	5563	5578	5593	5608	5623	5638	5654	5669	5684
64000	428	5699	5714	5728	5743	5758	5772	5787	5802	5817	5831
65000	427	5846	5860	5874	5889	5903	5917	5932	5946	5960	5974
<b>NOTE 1:</b> OPTIMUM WEIGHT FOR PRESSURE ALTITUDE IS 53,000 kg A) THRUST LIMITED WEIGHT FOR ISA +10 AND COLDER IS 64,500 kg B) THRUST LIMITED WEIGHT FOR ISA +15 IS 63,100 kg C) THRUST LIMITED WEIGHT FOR ISA +20 IS 61,600 kg <b>NOTE 2:</b> ADJUSTMENTS FOR OPERATION AT NON-STANDARD TEMPERATURES A) INCREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C ABOVE ISA B) DECREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C BELOW ISA C) INCREASE TAS BY 1 KNOT PER DEGREE C ABOVE ISA D) DECREASE TAS BY 1 KNOT PER DEGREE C BELOW ISA											

Long Range Cruise – Pressure Altitude 35,000 ft

Figure I-12

GROUND DIST (NM)	AIR DISTANCE (NM)						
	TAIL WIND		WIND COMPONENT (KTS)			HEAD WIND	
	+150	+100	+50	0	-50	-100	-150
10	8	8	9	10	11	13	15
20	15	16	18	20	22	25	29
30	23	25	27	30	34	38	44
40	30	33	36	40	45	51	59
50	38	41	45	50	56	64	74
100	76	82	90	100	112	127	147
200	151	165	181	200	224	254	295
300	227	247	271	300	336	382	442
400	303	330	361	400	448	509	589
500	379	412	452	500	560	636	736
1000	757	824	903	1000	1120	1272	1473
1500	1136	1236	1355	1500	1680	1908	2209
2000	1514	1648	1807	2000	2240	2544	2945
2500	1893	2059	2258	2500	2799	3180	3681
3000	2271	2471	2710	3000	3359	3817	4418
3500	2650	2883	3162	3500	3919	4453	5154
4000	3028	3295	3613	4000	4479	5089	5890
4500	3407	3707	4065	4500	5039	5725	6627
5000	3785	4119	4517	5000	5599	6361	7363
5500	4164	4531	4968	5500	6159	6997	8099
6000	4542	4943	5420	6000	6719	7633	8836
6500	4921	5354	5872	6500	7279	8269	9572
7000	5299	5766	6324	7000	7839	8905	10308
7500	5678	6178	6775	7500	8398	9541	11044
8000	6056	6590	7227	8000	8958	10177	11781
8500	6435	7002	7679	8500	9518	10814	12517
9000	6813	7414	8130	9000	10078	11450	13253
9500	7192	7826	8582	9500	10638	12086	13990
10000	7570	8238	9043	10000	11198	12722	14726

LONG RANGE CRUISE ABOVE FL250



Figure I-13

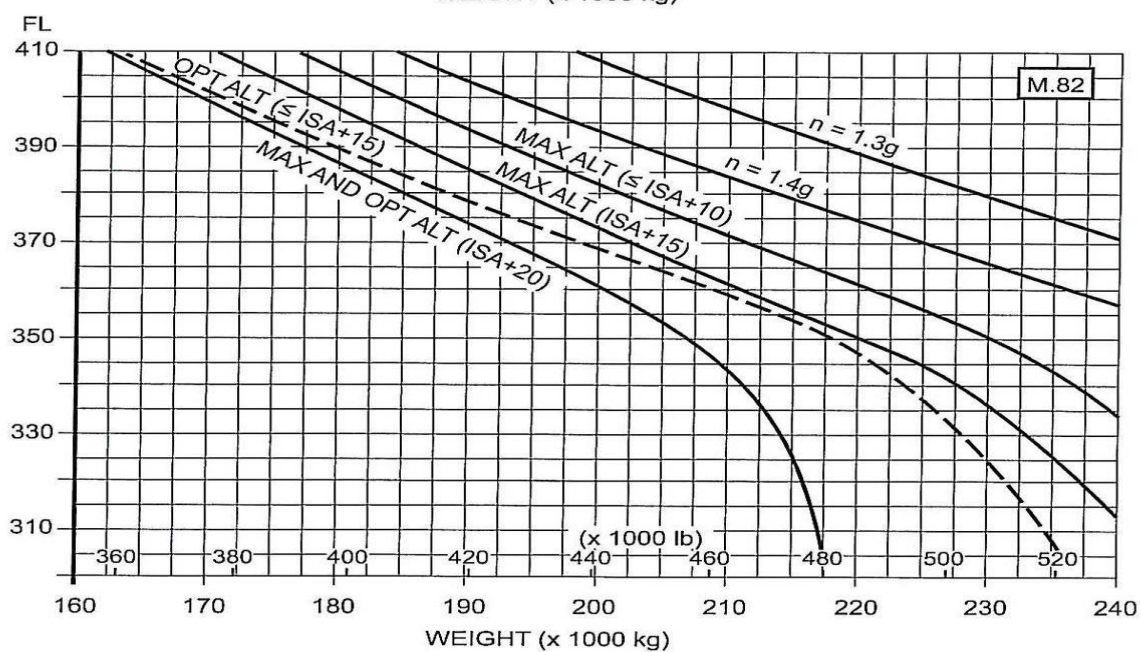
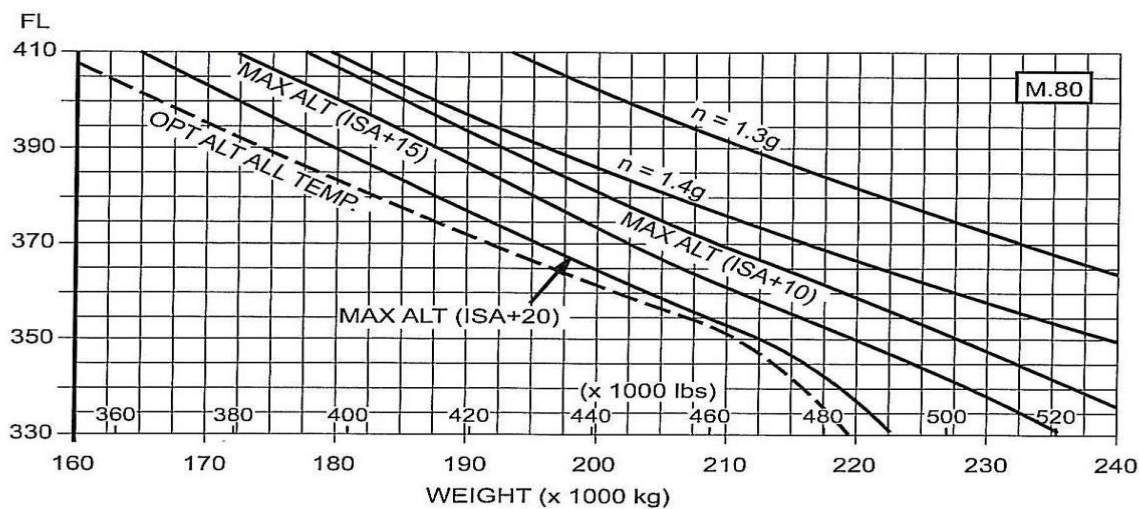
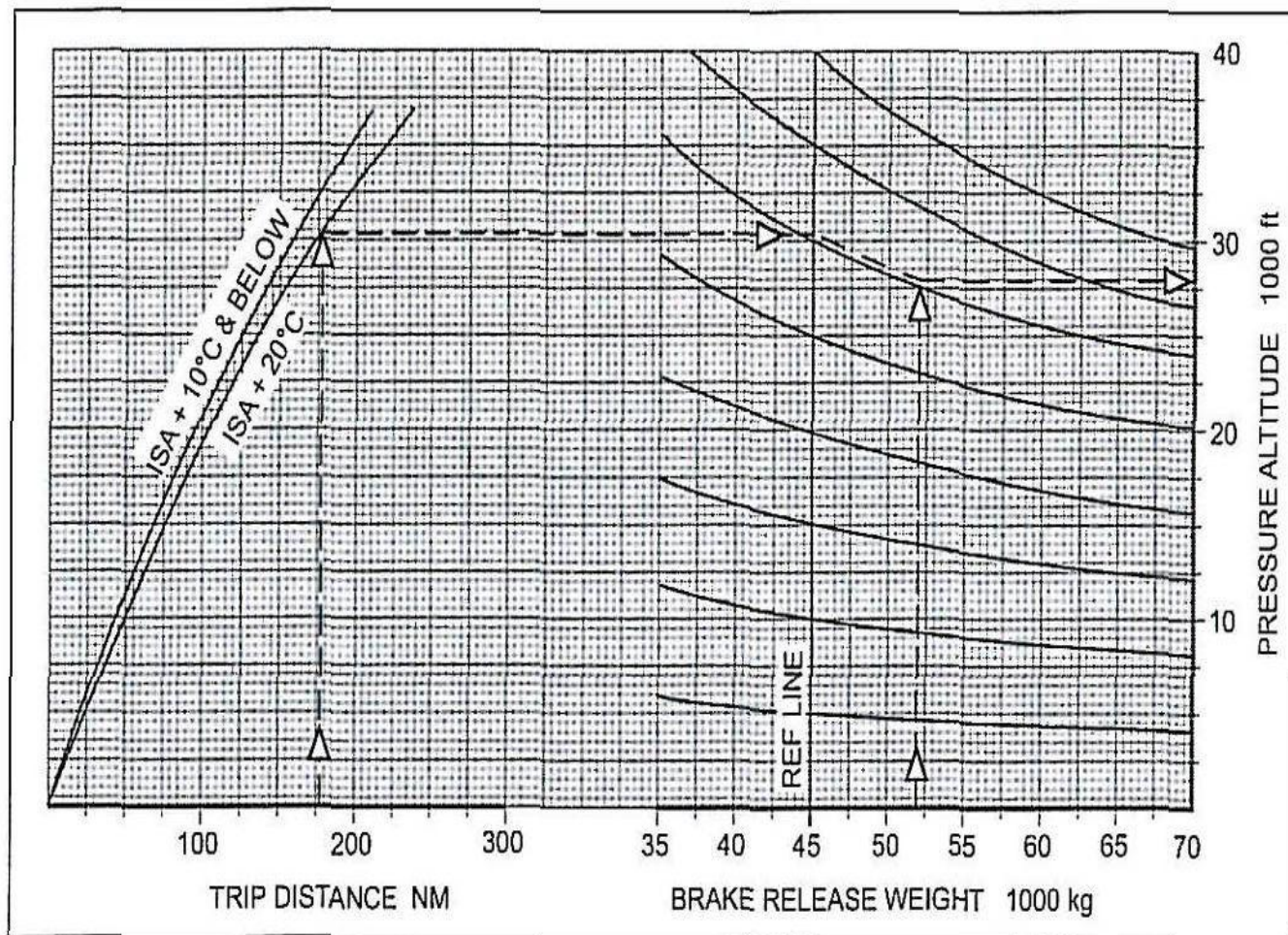




Figure I-14



Short Distance Cruise Altitude

Figure I-15

All Engines		Maximum Cruise Thrust Limits					A/C Auto			
PRESSURE ALTITUDE 31,000 ft MACH 0.74 CRUISE TAS 434 kt										
GROSS	0	100	200	300	400	500	600	700	800	900
WT. kg	CRUISE DISTANCE NAUTICAL AIR MILES									
35000	0	21	42	63	84	105	126	147	168	189
36000	210	231	252	273	294	315	336	357	378	399
37000	420	440	461	482	503	524	544	565	586	607
38000	628	648	669	689	710	731	751	772	793	813
39000	834	854	875	895	916	936	957	977	998	1018
40000	1039	1059	1079	1100	1120	1140	1161	1181	1201	1222
41000	1242	1262	1282	1303	1323	1343	1363	1383	1403	1423
42000	1444	1464	1484	1504	1524	1544	1564	1584	1604	1624
43000	1644	1663	1683	1703	1723	1743	1763	1782	1802	1822
44000	1842	1862	1881	1901	1921	1940	1960	1979	1999	2019
45000	2038	2058	2077	2097	2116	2136	2155	2175	2194	2214
46000	2233	2252	2272	2291	2310	2330	2349	2368	2388	2407
47000	2426	2445	2464	2483	2503	2522	2541	2560	2579	2598
48000	2617	2636	2655	2674	2693	2712	2731	2750	2769	2788
49000	2807	2825	2844	2863	2882	2900	2919	2938	2956	2975
50000	2994	3013	3031	3050	3068	3087	3105	3124	3142	3161
51000	3179	3198	3216	3235	3253	3271	3290	3308	3326	3345
52000	3363	3381	3399	3417	3436	3454	3472	3490	3508	3526
53000	3545	3563	3580	3598	3616	3634	3652	3670	3688	3706
54000	3724	3742	3760	3777	3795	3813	3831	3848	3866	3884
55000	3902	3919	3937	3954	3972	3989	4007	4024	4042	4060
56000	4077	4094	4112	4129	4146	4164	4181	4198	4216	4233
57000	4251	4268	4285	4302	4319	4336	4353	4370	4388	4405
58000	4422	4439	4456	4473	4490	4507	4523	4540	4557	4574
59000	4591	4608	4625	4641	4658	4675	4691	4708	4725	4742
60000	4758	4775	4791	4808	4824	4841	4857	4874	4890	4907
61000	4923	4940	4956	4972	4989	5005	5021	5038	5054	5070
62000	5086	5103	5119	5135	5151	5167	5183	5199	5215	5231
63000	5247	5263	5279	5295	5311	5327	5343	5358	5374	5390
64000	5406	5422	5437	5453	5469	5484	5500	5516	5531	5547
65000	5563	5578	5594	5609	5624	5640	5655	5671	5686	5702
66000	5717	5732	5748	5763	5778	5793	5809	5824	5839	5854
67000	5870	5885	5900	5915	5930	5945	5960	5975	5990	6005
NOTE 1: OPTIMUM WEIGHT FOR PRESSURE ALTITUDE IS 63,500 kg										
A) THRUST LIMITED WEIGHT FOR ISA +10 AND COLDER EXCEEDS STRUCTURAL LIMIT										
B) THRUST LIMITED WEIGHT FOR ISA +15 EXCEEDS STRUCTURAL LIMIT										
C) THRUST LIMITED WEIGHT FOR ISA +20 EXCEEDS STRUCTURAL LIMIT										
NOTE 2: ADJUSTMENTS FOR OPERATION AT NON-STANDARD TEMPERATURES										
A) INCREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C ABOVE ISA										
B) DECREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C BELOW ISA										
C) INCREASE TAS BY 1 KNOT PER DEGREE C ABOVE ISA										
D) DECREASE TAS BY 1 KNOT PER DEGREE C BELOW ISA										

Mach 0.74 Cruise – Pressure Altitude 31,000 ft



Figure I-16

**0.74 M/250 KIAS (Economy) Descent**

PRESS. ALT. ft	TIME min	FUEL kg	AIR DISTANCE TRAVELLED NM				
			LANDING WEIGHT kg				
			35,000	45,000	55,000	65,000	75,000
37,000	23	295	98	109	114	114	110
35,000	22	290	94	105	110	110	106
33,000	21	285	89	99	103	103	101
31,000	20	280	83	93	97	98	95
29,000	19	275	78	87	91	91	89
27,000	19	270	73	81	85	85	83
25,000	18	260	68	75	79	79	77
23,000	16	255	63	69	72	73	71
21,000	15	245	58	64	66	67	66
19,000	14	235	53	58	60	61	60
17,000	13	225	48	52	54	55	54
15,000	12	215	43	46	48	49	48
10,000	9	185	30	32	33	34	33
5,000	6	140	18	18	18	18	18
3,700	5	130	14	14	14	14	14

Economy Descent

**0.70 M/280/250 KIAS (Turbulence Penetration) Descent**

PRESS. ALT. ft	TIME min	FUEL kg	AIR DISTANCE TRAVELLED NM				
			LANDING WEIGHT kg				
			35,000	45,000	55,000	65,000	75,000
37,000	21	280	88	100	107	110	109
35,000	20	275	84	96	102	105	105
33,000	20	275	80	91	98	101	101
31,000	19	270	76	86	93	96	96
29,000	18	265	72	82	88	91	92
27,000	17	260	69	78	84	87	87
25,000	17	255	64	73	78	80	81
23,000	16	250	60	67	72	74	74
21,000	15	240	55	62	66	68	68
19,000	14	230	51	57	60	62	62
17,000	13	225	46	52	55	56	56
15,000	12	215	42	46	49	50	50
10,000	9	185	30	32	33	34	33
5,000	6	140	18	18	18	18	18
3,700	5	130	14	14	14	14	14

Turbulence Penetration Descent

Figure I-17

		ISA +6°C TO +15°C											
Press. Alt. ft	Units Min/kg. NAM/Kt	BRAKE RELEASE WEIGHT KG											
		68000	66000	64000	62000	60000	58000	56000	52000	48000	44000	40000	
37000	Time/Fuel				33/2350	27/2000	24/1850	22/1700	18/1500	16/1300	14/1150	12/1000	
	Dist/TAS				212/409	169/404	147/402	132/400	111/397	95/396	82/394	72/393	
36000	Time/Fuel			30/2250	26/2000	23/1650	21/1700	20/1600	17/1400	15/1250	13/1100	12/1000	
	Dist/TAS			189/405	161/402	143/400	130/398	119/397	102/395	89/393	77/392	68/391	
35000	Time/Fuel	35/2600	29/2250	26/2050	23/1900	21/1750	20/1650	19/1550	16/1350	14/1200	13/1100	11/950	
	Dist/TAS	224/407	180/402	157/399	141/397	129/396	119/395	110/394	95/392	83/391	73/390	64/389	
34000	Time/Fuel	28/2250	25/2050	23/1900	21/1800	20/1650	19/1550	18/1500	16/1300	14/1200	12/1050	11/950	
	Dist/TAS	173/400	154/397	140/395	128/394	118/393	110/392	102/391	89/389	78/388	69/387	61/386	
33000	Time/Fuel	25/2100	23/1950	21/1800	20/1700	19/1600	18/1500	17/1450	15/1300	13/1150	12/1050	10/900	
	Dist/TAS	151/394	138/393	127/391	118/390	109/389	102/388	95/388	84/386	74/385	65/385	58/384	
32000	Time/Fuel	23/1950	21/1850	20/1750	19/1650	18/1550	17/1450	16/1400	14/1250	13/1100	11/1000	10/900	
	Dist/TAS	136/390	126/389	117/388	109/387	102/386	95/385	89/384	79/383	70/383	62/382	55/381	
31000	Time/Fuel	22/1850	20/1750	19/1650	18/1550	17/1500	16/1400	15/1350	13/1200	12/1100	11/1000	10/900	
	Dist/TAS	125/386	116/385	108/384	101/383	95/382	89/382	84/381	74/380	66/380	59/379	52/378	
30000	Time/Fuel	20/1800	19/1700	18/1600	17/1500	16/1450	15/1350	14/1300	13/1150	12/1050	10/950	9/850	
	Dist/TAS	115/382	108/381	101/380	95/379	89/379	84/378	77/378	70/377	62/376	56/376	49/375	
29000	Time/Fuel	19/1700	18/1600	17/1550	16/1450	15/1400	14/1300	14/1250	12/1150	11/1000	10/900	9/850	
	Dist/TAS	105/376	98/376	92/375	87/374	82/374	77/374	73/373	65/373	58/372	52/372	46/371	
28000	Time/Fuel	17/1600	17/1550	16/1450	15/1400	14/1300	13/1250	13/1200	12/1100	10/1000	9/900	8/800	
	Dist/TAS	95/371	90/371	84/370	80/370	75/369	71/369	67/369	60/368	54/368	48/367	42/367	
27000	Time/Fuel	16/1550	15/1450	15/1400	14/1350	13/1250	13/1200	12/1150	11/1050	10/950	9/850	8/750	
	Dist/TAS	87/366	82/366	77/366	73/365	69/365	66/365	62/364	56/364	50/363	44/363	39/363	
26000	Time/Fuel	15/1450	15/1400	14/1350	13/1250	13/1200	12/1150	11/1100	10/1000	9/900	8/800	8/750	
	Dist/TAS	80/362	75/362	71/361	67/361	64/361	60/360	57/360	51/360	46/359	41/359	37/359	
25000	Time/Fuel	14/1400	14/1350	13/1250	12/1200	12/1150	11/1100	11/1050	10/950	9/850	8/800	7/700	
	Dist/TAS	73/356	69/357	65/357	62/357	59/367	56/356	53/356	47/356	43/356	38/355	34/355	
24000	Time/Fuel	13/1350	13/1250	12/1200	12/1150	11/1100	11/1050	10/1000	9/900	8/850	8/750	7/700	
	Dist/TAS	67/354	63/353	60/353	57/353	54/353	51/353	49/352	44/352	39/352	35/352	32/351	
23000	Time/Fuel	13/1250	12/1200	11/1150	11/1100	10/1050	10/1000	10/950	9/900	8/800	7/750	7/650	
	Dist/TAS	61/350	58/350	55/349	53/349	50/349	47/349	45/349	41/348	37/348	33/348	29/348	
22000	Time/Fuel	12/1200	11/1150	11/1100	10/1050	10/1000	9/950	9/900	8/850	8/750	7/700	6/650	
	Dist/TAS	56/346	54/346	51/346	48/346	46/345	44/345	42/345	37/345	34/345	30/345	27/344	
21000	Time/Fuel	11/1150	11/1100	10/1050	10/1000	9/950	9/900	8/800	7/750	7/700	6/700	6/600	
	Dist/TAS	52/343	49/342	47/342	44/342	42/342	40/342	38/342	35/342	31/341	28/341	25/341	
20000	Time/Fuel	10/1100	10/1050	10/1000	9/950	9/900	8/900	8/850	7/800	7/700	6/650	6/600	
	Dist/TAS	47/339	45/339	43/339	41/339	39/339	37/338	35/338	32/338	29/338	26/338	23/338	
19000	Time/Fuel	10/1050	9/1000	9/950	9/900	8/900	8/850	8/800	7/750	6/700	6/600	5/550	
	Dist/TAS	43/336	41/336	39/335	37/335	36/335	34/335	32/335	29/335	26/335	24/335	21/335	
18000	Time/Fuel	9/1000	9/950	8/900	8/900	8/850	7/800	7/800	7/700	6/650	6/600	5/550	
	Dist/TAS	39/332	38/332	36/332	34/332	33/332	31/332	30/332	27/332	24/332	22/332	19/332	
17000	Time/Fuel	9/950	8/900	8/900	8/850	7/800	7/750	7/750	6/700	6/600	5/550	5/500	
	Dist/TAS	36/329	34/329	33/329	31/329	30/329	28/329	27/329	24/329	22/329	20/329	18/329	
16000	Time/Fuel	8/900	8/850	7/850	7/800	7/750	7/750	6/700	6/650	5/600	5/550	4/500	
	Dist/TAS	33/326	31/326	30/326	28/326	27/326	26/326	25/326	22/326	20/326	18/326	16/326	
15000	Time/Fuel	8/850	7/800	7/800	7/750	6/750	6/700	6/650	5/600	5/550	5/500	4/450	
	Dist/TAS	29/323	28/323	27/323	26/323	24/323	23/323	22/323	20/323	18/323	16/323	15/323	
14000	Time/Fuel	7/800	7/800	7/750	6/700	6/700	6/650	6/650	5/600	5/550	4/500	4/450	
	Dist/TAS	26/321	25/321	24/321	23/320	22/320	21/320	20/320	18/320	17/320	15/320	13/320	
13000	Time/Fuel	7/750	6/750	6/700	6/700	6/650	5/650	5/600	5/550	4/500	4/450	4/450	
	Dist/TAS	24/318	23/318	22/318	21/318	20/318	19/318	18/318	16/318	15/318	13/318	12/318	
12000	Time/Fuel	6/700	6/700	6/650	5/650	5/600	5/600	5/550	5/500	4/500	4/450	4/400	
	Dist/TAS	21/315	20/315	19/315	18/315	18/315	17/315	16/315	15/315	13/315	12/315	11/315	
11000	Time/Fuel	6/650	5/650	5/600	5/600	5/550	5/550	5/500	4/500	4/450	4/400	3/400	
	Dist/TAS	19/313	18/313	17/313	16/313	16/313	15/312	14/312	13/312	12/312	11/312	9/312	
10000	Time/Fuel	5/600	5/600	5/550	5/550	4/500	4/500	4/450	4/450	4/450	3/400	3/350	
	Dist/TAS	16/310	16/310	15/310	14/310	14/310	13/310	12/310	11/310	10/310	9/310	8/310	
8000	Time/Fuel	4/550	4/500	4/500	4/500	4/450	4/450	4/450	3/400	3/350	3/350	3/300	
	Dist/TAS	12/305	11/305	11/305	10/305	10/305	10/305	9/305	8/305	8/305	7/305	6/305	
6000	Time/Fuel	4/450	4/450	3/400	3/400	3/400	3/400	3/350	3/350	3/300	2/300	2/250	
	Dist/TAS	8/301	8/301	7/301	7/301	7/301	6/301	6/301	6/301	5/301	5/301	4/301	
1500	Time/Fuel	2/250	2/250	2/250	2/250	2/250	2/250	2/250	2/200	2/200	2/200	1/150	

Fuel Adjustment for high elevation airports	Airport Elevation	2000	4000	6000	8000	10000	12000
Effect on time and distance is negligible	Fuel Adjustment	-50	-100	-200	-250	-300	-400

En-route Climb 280/74



Figure I-18

All Engines		Maximum Cruise Thrust Limits					A/C Auto				
PRESSURE ALTITUDE		34,000 ft					LONG RANGE CRUISE				
GROSS		0	100	200	300	400	500	600	700	800	900
WT. kg	TAS	CRUISE DISTANCE NAUTICAL AIR MILES									
35000	405	0	23	46	70	93	117	140	164	187	210
36000	409	234	257	280	303	326	350	373	396	419	442
37000	413	465	488	511	534	557	579	602	625	648	671
38000	416	694	716	739	761	784	806	829	851	874	896
39000	419	919	941	963	986	1008	1030	1053	1075	1097	1119
40000	422	1142	1164	1186	1207	1229	1251	1273	1295	1317	1339
41000	424	1361	1383	1405	1426	1448	1470	1492	1513	1535	1557
42000	427	1578	1600	1621	1643	1664	1685	1707	1728	1750	1771
43000	428	1792	1814	1835	1856	1877	1898	1919	1940	1961	1983
44000	430	2004	2025	2045	2066	2087	2108	2129	2150	2171	2191
45000	431	2212	2233	2253	2274	2295	2315	2336	2356	2377	2398
46000	431	2418	2438	2459	2479	2499	2520	2540	2560	2581	2601
47000	431	2621	2641	2661	2682	2702	2722	2742	2762	2782	2802
48000	431	2822	2842	2862	2881	2901	2921	2941	2960	2980	3000
49000	431	3020	3039	3059	3078	3098	3118	3137	3157	3176	3196
50000	431	3215	3234	3254	3273	3292	3311	3331	3350	3369	3389
51000	431	3408	3427	3446	3465	3484	3503	3522	3541	3560	3579
52000	431	3598	3616	3635	3654	3673	3691	3710	3729	3747	3766
53000	431	3785	3803	3822	3840	3859	3877	3896	3914	3932	3951
54000	431	3969	3987	4006	4024	4042	4060	4078	4096	4115	4133
55000	431	4151	4169	4187	4205	4223	4240	4258	4276	4294	4312
56000	431	4330	4348	4365	4383	4400	4418	4436	4453	4471	4489
57000	431	4506	4524	4541	4558	4576	4593	4610	4628	4645	4662
58000	431	4680	4697	4714	4731	4748	4765	4782	4799	4816	4833
59000	431	4851	4867	4884	4901	4918	4934	4951	4968	4985	5002
60000	431	5018	5035	5051	5068	5084	5101	5117	5134	5150	5167
61000	431	5183	5200	5216	5232	5248	5264	5281	5297	5313	5329
62000	431	5345	5361	5377	5393	5409	5425	5441	5457	5472	5488
63000	431	5504	5520	5535	5551	5566	5582	5598	5613	5629	5644
64000	431	5660	5675	5690	5706	5721	5736	5751	5766	5782	5797
65000	430	5812	5827	5842	5857	5872	5886	5901	5916	5931	5946
66000	430	5961	5975	5990	6004	6019	6033	6048	6062	6077	6091
67000	430	6106	6120	6134	6148	6162	6176	6190	6204	6219	6233
<b>NOTE 1:</b> OPTIMUM WEIGHT FOR PRESSURE ALTITUDE IS 55,500 kg A) THRUST LIMITED WEIGHT FOR ISA +10 AND COLDER IS 67,100 kg B) THRUST LIMITED WEIGHT FOR ISA +15 IS 65,700 kg C) THRUST LIMITED WEIGHT FOR ISA +20 IS 64,000 kg <b>NOTE 2:</b> ADJUSTMENTS FOR OPERATION AT NON-STANDARD TEMPERATURES A) INCREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C ABOVE ISA B) DECREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C BELOW ISA C) INCREASE TAS BY 1 KNOT PER DEGREE C ABOVE ISA D) DECREASE TAS BY 1 KNOT PER DEGREE C BELOW ISA											

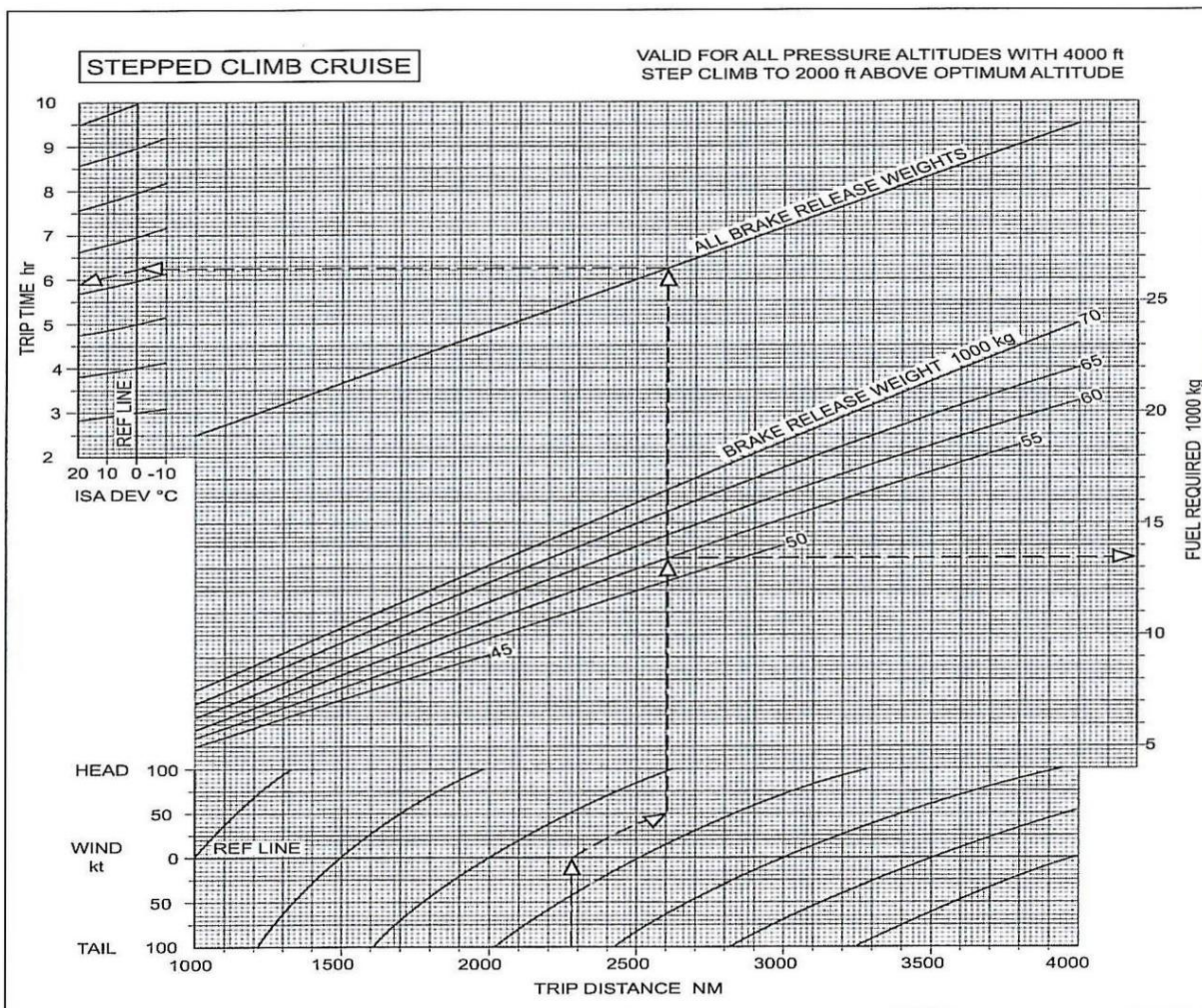
Long Range Cruise – Pressure Altitude 34,000 ft

Figure I-19

### Step Climb Simplified Fuel Planning

This chart allows the planner to optimise aeroplane performance by increasing the cruise altitude in 4000 ft steps in order to allow for the increase in optimum altitude as aeroplane weight decreases.

The graph is valid for altitudes with 'Step Climb' of 4,000 ft to 2,000 ft above optimum altitude. The graph provides trip fuel and time, at LRC or 0.74 M, from brake release to touchdown. The method of use is the same as that for the constant altitude charts except that the argument of 'Brake Release Weight' is used in place of 'Cruise Pressure Altitude' - see example on chart.



Simplified Flight Planning – Trip Distances 1,000 NM to 4,000 NM



Figure I-20

ISA -6°C TO -15°C

Press. Alt. ft	Units Min/kg. NAM/Kt	BRAKE RELEASE WEIGHT KG											
		68000	66000	64000	62000	60000	58000	56000	52000	48000	44000	40000	
37000	Time/Fuel				30/2100	25/1800	22/1650	20/1550	17/1350	15/1200	13/1050	12/950	
	Dist/TAS				184/391	148/387	130/385	117/383	98/381	85/379	73/378	64/377	
36000	Time/Fuel			28/2050	24/1800	22/1650	20/1550	19/1450	16/1300	14/1150	13/1100	11/900	
	Dist/TAS			166/388	142/385	127/383	115/381	106/380	91/378	79/377	69/376	60/375	
35000	Time/Fuel	32/2350	27/2000	24/1850	22/1700	20/1600	19/1500	17/1400	15/1250	13/1100	12/1000	11/900	
	Dist/TAS	195/390	156/385	139/383	125/381	114/380	105/378	97/377	85/376	74/375	65/374	57/373	
34000	Time/Fuel	26/2000	23/1850	21/1700	20/1600	19/1500	17/1400	16/1350	14/1200	13/1100	11/950	10/850	
	Dist/TAS	152/383	136/381	123/379	113/378	105/376	97/375	90/375	79/373	70/372	61/371	54/371	
33000	Time/Fuel	23/1850	21/1750	20/1650	19/1550	17/1450	16/1350	15/1300	14/1150	12/1050	11/950	10/850	
	Dist/TAS	133/378	121/376	112/375	104/374	97/373	90/372	84/372	74/371	66/370	58/369	51/368	
32000	Time/Fuel	21/1750	20/1650	19/1550	17/1500	16/1400	16/1300	15/1250	13/1150	12/1000	11/900	9/800	
	Dist/TAS	120/374	111/373	103/372	96/371	90/370	84/369	79/369	70/368	62/367	55/366	48/366	
31000	Time/Fuel	20/1700	19/1600	18/1500	17/1400	16/1350	15/1300	14/1200	13/1100	11/1000	10/900	9/800	
	Dist/TAS	110/370	102/369	95/368	89/367	84/367	79/366	74/366	66/365	58/364	52/364	46/363	
30000	Time/Fuel	19/1600	18/1550	17/1450	16/1350	15/1300	14/1250	13/1200	12/1050	11/950	10/850	9/800	
	Dist/TAS	101/366	95/365	89/364	83/364	78/363	74/363	70/362	62/362	55/361	49/361	43/360	
29000	Time/Fuel	17/1550	16/1450	16/1400	15/1300	14/1250	13/1200	13/1150	11/1050	10/950	9/850	8/750	
	Dist/TAS	92/361	87/360	81/360	77/359	72/359	68/358	64/358	57/357	51/357	46/357	41/356	
28000	Time/Fuel	16/1450	15/1400	15/1300	14/1250	13/1200	13/1150	12/1100	11/1000	10/900	9/800	8/750	
	Dist/TAS	84/356	79/356	75/355	70/355	67/355	63/354	59/354	53/353	48/353	42/353	38/352	
27000	Time/Fuel	15/1400	14/1350	14/1250	13/1200	12/1150	12/1100	11/1050	10/950	9/850	8/800	8/700	
	Dist/TAS	77/352	73/351	69/351	65/351	61/350	58/350	55/350	49/349	44/349	39/349	35/348	
26000	Time/Fuel	14/1350	14/1250	13/1200	12/1150	12/1100	11/1050	11/1000	10/900	9/850	8/750	7/700	
	Dist/TAS	71/348	67/347	63/347	60/347	57/347	54/346	51/346	46/346	41/345	37/345	33/345	
25000	Time/Fuel	13/1300	13/1200	12/1150	12/1100	11/1050	11/1000	10/950	9/900	8/800	7/750	7/650	
	Dist/TAS	65/344	61/343	58/343	55/343	52/343	50/343	47/342	42/342	38/342	34/342	30/341	
24000	Time/Fuel	13/1200	12/1150	11/1100	11/1050	10/1000	10/950	10/900	9/850	8/750	7/700	6/650	
	Dist/TAS	60/340	56/340	54/340	51/339	48/339	46/339	43/339	39/339	35/338	32/338	28/338	
23000	Time/Fuel	12/1150	11/1100	11/1050	10/1000	10/1000	9/950	9/900	8/800	7/750	7/700	6/600	
	Dist/TAS	55/336	52/336	49/336	47/336	44/336	42/335	40/335	36/335	33/335	29/335	26/335	
22000	Time/Fuel	11/1100	11/1050	10/1000	10/1000	9/950	9/900	9/850	8/800	7/700	6/650	6/600	
	Dist/TAS	50/333	48/333	45/333	43/332	41/332	39/332	37/332	33/332	30/332	27/332	24/331	
21000	Time/Fuel	10/1050	10/1000	10/1000	9/950	9/900	8/850	8/800	7/750	7/700	6/650	6/550	
	Dist/TAS	46/330	44/329	42/329	40/329	38/329	36/329	34/329	31/329	28/328	25/328	22/328	
20000	Time/Fuel	10/1000	9/950	9/900	8/850	8/800	8/800	8/800	7/700	6/650	6/600	5/550	
	Dist/TAS	42/326	40/326	38/326	36/326	35/326	33/326	31/326	28/326	26/325	23/325	21/325	
19000	Time/Fuel	9/950	9/950	8/900	8/850	8/800	7/800	7/750	7/700	6/650	6/600	5/500	
	Dist/TAS	39/323	37/323	35/323	33/323	32/323	30/323	29/323	26/323	24/322	21/322	19/322	
18000	Time/Fuel	9/900	8/900	8/850	8/800	7/800	7/750	7/700	6/650	6/600	5/550	5/500	
	Dist/TAS	35/320	34/320	32/320	31/320	29/320	28/320	26/320	24/320	22/320	19/319	17/319	
17000	Time/Fuel	8/900	8/850	8/800	7/800	7/750	7/700	6/700	6/650	5/600	5/550	5/500	
	Dist/TAS	32/317	31/317	29/317	28/317	27/317	25/317	24/317	22/317	20/317	18/317	16/317	
16000	Time/Fuel	8/850	7/800	7/750	7/750	7/700	6/700	6/650	6/600	5/550	5/500	4/450	
	Dist/TAS	29/314	28/314	27/314	25/314	24/314	23/314	22/314	20/314	18/314	16/314	15/314	
15000	Time/Fuel	7/800	7/750	7/700	6/700	6/700	6/650	6/600	5/550	5/500	4/500	4/450	
	Dist/TAS	26/312	25/312	24/312	23/311	22/311	21/311	20/311	18/311	16/311	15/311	13/311	
14000	Time/Fuel	7/750	6/700	6/700	6/650	6/600	6/600	5/600	5/550	5/500	4/450	4/400	
	Dist/TAS	24/309	23/309	22/309	21/309	20/309	19/309	18/309	16/309	15/309	13/309	12/309	
13000	Time/Fuel	6/700	6/700	6/650	6/650	5/600	5/600	5/550	5/500	4/500	4/450	4/400	
	Dist/TAS	21/306	20/306	19/306	19/306	18/306	17/306	16/306	15/306	13/306	12/306	11/306	
12000	Time/Fuel	6/650	6/650	5/600	5/600	5/600	5/550	5/550	4/500	4/450	4/400	3/400	
	Dist/TAS	19/304	18/304	17/304	17/304	16/304	15/304	14/304	13/304	12/304	11/304	10/304	
11000	Time/Fuel	5/650	5/600	5/600	5/550	5/550	5/500	4/500	4/450	4/450	3/400	3/350	
	Dist/TAS	17/301	16/301	15/301	15/301	14/301	13/301	13/301	12/301	11/301	10/301	9/301	
10000	Time/Fuel	5/600	5/550	5/550	5/550	4/500	4/500	4/500	4/450	4/400	3/350	3/350	
	Dist/TAS	15/299	14/299	13/299	13/299	12/299	12/299	11/299	10/299	9/299	8/299	7/299	
8000	Time/Fuel	4/500	4/500	4/500	4/450	4/450	4/450	3/400	3/400	3/350	3/350	3/300	
	Dist/TAS	11/294	10/294	10/294	9/294	9/294	9/294	8/294	7/294	7/294	6/294	6/294	
6000	Time/Fuel	4/450	3/400	3/400	3/400	3/400	3/350	3/350	3/350	3/300	2/300	2/250	
	Dist/TAS	7/290	7/290	6/290	6/290	6/290	6/290	5/290	5/290	5/290	4/290	4/290	
1500	Time/Fuel	2/250	2/250	2/250	2/250	2/250	2/250	2/250	2/200	2/200	2/200	1/150	

Fuel Adjustment for high elevation airports	Airport Elevation	2000	4000	6000	8000	10000	12000
Effect on time and distance is negligible	Fuel Adjustment	-50	-100	-150	-250	-300	-350

En-route Climb 280/.74



Figure I-21

ISA +16°C TO +25°C												
Press. Alt. ft	Units Min/kg. NAM/Kt	BRAKE RELEASE WEIGHT KG										
		68000	66000	64000	62000	60000	58000	56000	52000	48000	44000	40000
37000	Time/Fuel					37/2550	31/2150	27/1950	22/1650	19/1450	17/1300	15/1150
	Dist/TAS					246/417	198/413	172/410	140/407	118/405	101/403	88/402
36000	Time/Fuel				35/2450	30/2200	27/2000	24/1850	21/1600	18/1400	16/1250	14/1100
	Dist/TAS				227/414	192/411	170/408	153/406	128/404	110/402	95/400	82/399
35000	Time/Fuel		42/2950	34/2500	30/2200	27/2050	25/1900	23/1750	20/1550	17/1350	15/1200	13/1050
	Dist/TAS		281/418	220/412	190/409	169/406	153/405	140/403	119/401	103/399	90/398	78/397
34000	Time/Fuel	40/2850	34/2500	30/2250	27/2100	25/1950	23/1800	21/1700	19/1500	16/1300	14/1150	13/1050
	Dist/TAS	260/414	215/409	188/406	169/404	153/403	141/401	130/400	112/398	97/397	85/396	74/395
33000	Time/Fuel	33/2500	30/2300	27/2100	25/1950	23/1850	21/1700	20/1600	18/1450	16/1300	14/1150	12/1000
	Dist/TAS	210/407	186/404	168/402	153/400	141/399	130/398	121/397	105/395	92/394	80/393	70/392
32000	Time/Fuel	30/2350	27/2150	25/2000	23/1900	22/1750	20/1650	19/1550	17/1400	15/1250	13/1100	12/1000
	Dist/TAS	185/401	167/399	153/398	141/396	130/395	121/394	113/394	98/392	86/391	76/390	67/389
31000	Time/Fuel	27/2200	25/2050	23/1900	22/1800	20/1700	19/1600	18/1500	16/1350	14/1200	13/1100	11/950
	Dist/TAS	166/396	152/395	141/394	130/393	121/392	113/391	106/390	93/389	82/388	72/387	63/387
30000	Time/Fuel	25/2100	24/1950	22/1850	21/1750	19/1650	18/1550	17/1450	15/1300	14/1150	12/1050	11/950
	Dist/TAS	152/392	140/391	130/389	121/389	113/388	106/387	99/387	87/385	77/385	68/384	60/383
29000	Time/Fuel	23/1950	22/1850	20/1750	19/1650	18/1550	17/1450	16/1400	14/1250	13/1100	12/1000	10/900
	Dist/TAS	136/386	126/385	118/384	110/383	106/383	97/382	91/382	80/381	71/380	63/379	56/379
28000	Time/Fuel	21/1850	20/1750	19/1650	18/1550	17/1500	16/1400	15/1350	14/1200	12/1100	11/950	10/850
	Dist/TAS	123/380	114/379	107/379	100/378	94/378	89/377	83/377	74/376	66/375	58/375	52/375
27000	Time/Fuel	20/1750	19/1650	18/1550	17/1500	16/1400	15/1350	14/1250	13/1150	11/1050	10/950	9/850
	Dist/TAS	111/375	104/374	98/374	92/373	86/373	81/372	77/372	68/371	61/371	54/371	48/370
26000	Time/Fuel	18/1650	17/1550	16/1500	16/1400	15/1350	14/1300	13/1200	12/1100	11/1000	10/900	9/800
	Dist/TAS	101/370	95/370	89/369	84/369	79/368	75/368	70/368	63/367	56/367	50/366	44/366
25000	Time/Fuel	17/1550	16/1500	15/1400	15/1350	14/1300	13/1200	13/1150	11/1050	10/950	9/850	8/750
	Dist/TAS	92/365	86/365	81/365	77/364	73/364	69/364	65/363	58/363	52/363	46/362	41/362
24000	Time/Fuel	16/1500	15/1400	14/1350	14/1300	13/1200	12/1150	12/1100	11/1000	10/900	9/850	8/750
	Dist/TAS	84/361	79/361	75/360	70/360	67/360	63/360	60/359	53/359	48/359	43/358	38/358
23000	Time/Fuel	15/1400	14/1350	13/1300	13/1250	12/1150	12/1100	11/1050	10/950	9/900	8/800	7/700
	Dist/TAS	77/357	72/357	68/356	65/356	61/356	58/356	55/356	49/355	44/355	39/355	35/355
22000	Time/Fuel	14/1350	13/1300	13/1250	12/1150	11/1100	11/1050	10/1000	9/900	8/850	7/750	7/700
	Dist/TAS	70/353	66/353	63/352	59/352	56/352	53/352	50/352	45/351	41/351	36/351	32/351
21000	Time/Fuel	13/1300	12/1200	12/1150	11/1100	11/1050	10/1000	10/950	9/900	8/800	7/750	7/650
	Dist/TAS	64/349	60/349	57/349	54/349	52/348	49/348	46/348	42/348	37/348	34/348	30/347
20000	Time/Fuel	12/1200	12/1150	11/1100	11/1050	10/1000	10/950	9/950	8/850	8/750	7/700	6/650
	Dist/TAS	58/345	55/345	52/345	50/345	47/345	45/345	43/345	38/344	34/344	31/344	28/344
19000	Time/Fuel	11/1150	11/1100	10/1050	10/1000	9/950	9/900	9/900	8/800	7/750	7/650	6/600
	Dist/TAS	53/342	50/342	48/342	45/342	43/342	41/341	39/341	35/341	32/341	28/341	25/341
18000	Time/Fuel	11/1100	10/1050	10/1000	9/950	9/900	9/900	8/850	7/750	7/700	6/650	6/600
	Dist/TAS	48/339	46/339	44/338	42/338	39/338	38/338	36/338	32/338	29/338	26/338	23/338
17000	Time/Fuel	10/1050	10/1000	9/950	9/900	8/850	8/850	8/800	7/750	6/650	6/600	5/550
	Dist/TAS	44/335	42/335	40/335	38/335	36/335	34/335	33/335	29/335	27/335	24/335	21/335
16000	Time/Fuel	9/1000	9/950	9/900	8/850	8/850	7/800	7/750	7/700	6/650	5/600	5/550
	Dist/TAS	40/332	38/332	36/332	34/332	33/332	31/332	30/332	27/332	24/332	22/332	19/332
15000	Time/Fuel	9/950	8/900	8/850	8/800	7/800	7/750	7/700	6/650	6/600	5/550	5/500
	Dist/TAS	36/329	34/329	33/329	31/329	30/329	28/329	27/329	24/329	22/329	20/329	18/329
14000	Time/Fuel	8/850	8/800	7/800	7/750	7/700	6/700	6/650	5/600	5/550	5/500	4/500
	Dist/TAS	32/326	31/326	29/326	28/326	27/326	25/326	24/326	22/326	20/326	18/326	16/326
13000	Time/Fuel	7/800	7/800	7/750	7/750	6/700	6/650	6/650	5/600	5/550	5/500	4/450
	Dist/TAS	29/323	28/323	26/323	25/323	24/323	23/323	22/323	20/323	18/323	16/323	14/323
12000	Time/Fuel	7/750	7/750	6/700	6/700	6/650	6/650	5/600	5/550	5/500	4/450	4/450
	Dist/TAS	26/321	25/321	23/321	22/321	21/321	20/321	19/321	18/321	16/320	14/320	13/320
11000	Time/Fuel	6/700	6/700	6/650	6/650	5/600	5/600	5/550	5/500	4/500	4/450	4/400
	Dist/TAS	23/318	22/318	21/318	20/318	19/318	18/318	17/318	16/318	14/318	13/318	11/318
10000	Time/Fuel	6/650	6/650	5/600	5/600	5/550	5/550	5/550	4/500	4/450	4/400	3/400
	Dist/TAS	20/315	19/315	18/315	17/315	16/315	16/315	15/315	14/315	12/315	11/315	10/315
8000	Time/Fuel	5/550	5/550	5/500	4/500	4/500	4/500	4/450	4/400	3/400	3/350	3/350
	Dist/TAS	14/310	14/310	13/310	13/310	12/310	11/310	11/310	10/310	9/310	8/310	7/310
6000	Time/Fuel	4/450	4/450	4/450	4/450	3/400	3/400	3/400	3/350	3/350	3/300	2/300
	Dist/TAS	10/306	9/306	9/306	8/306	8/306	8/306	7/306	7/306	6/306	5/306	5/306
1500	Time/Fuel	2/250	2/250	2/250	2/250	2/250	2/250	2/250	2/200	2/200	1/150	

Fuel Adjustment for high elevation airports	Airport Elevation	2000	4000	6000	8000	10000	12000
Effect on time and distance is negligible	Fuel Adjustment	-50	-150	-200	-300	-350	-400

En-route Climb 280/.74



Figure I-22

### Holding Fuel Planning

The table below provides fuel flow values for various hold entry weights and holding pressure altitudes to facilitate the calculation of the holding reserve fuel requirements for flight planning.

#### Calculation Procedure

- Enter Figure 4.4 with the Pressure Altitude at which the hold is planned and the weight at the start of the hold, interpolating as required.
- Extract the holding fuel flow in kg per hour.
- The fuel flow is based on a racetrack pattern at the minimum drag KIAS. The minimum speed that is permitted to be flown is 210 KIAS.
- If the hold is to be conducted in straight and level flight, reduce the fuel flow by 5%.

Press Alt. ft	Weight x 1,000 kg														
	66	64	62	60	58	56	54	52	50	48	46	44	42	40	38
	FUEL FLOW in kg per hour														
37,000					2,740	2,540	2,400	2,260	2,160	2,080	1,980	1,900	1,800	1,740	1,680
35,000		3,020	2,820	2,660	2,520	2,420	2,320	2,220	2,140	2,060	1,960	1,880	1,800	1,720	1,660
30,000	2,840	2,740	2,660	2,560	2,480	2,400	2,300	2,220	2,140	2,060	1,960	1,880	1,800	1,740	1,680
25,000	2,840	2,760	2,660	2,580	2,500	2,420	2,320	2,240	2,160	2,080	2,000	1,920	1,840	1,780	1,720
20,000	2,840	2,760	2,680	2,580	2,500	2,420	2,340	2,260	2,180	2,100	2,020	1,940	1,860	1,800	1,760
15,000	2,880	2,800	2,700	2,620	2,540	2,460	2,380	2,300	2,220	2,140	2,060	1,980	1,920	1,860	1,800
10,000	2,920	2,820	2,740	2,660	2,580	2,500	2,420	2,340	2,260	2,180	2,100	2,020	1,980	1,920	1,880
5,000	2,960	2,860	2,780	2,700	2,620	2,540	2,460	2,380	2,300	2,220	2,140	2,080	2,020	1,960	1,920
1,500	3,000	2,900	2,820	2,740	2,660	2,580	2,520	2,440	2,360	2,280	2,220	2,140	2,080	2,020	1,980

Holding Fuel Flow – Flaps Retracted

Figure I-23

All Engines		Maximum Cruise Thrust Limits					A/C Auto				
PRESSURE ALTITUDE		28,000 ft					LONG RANGE CRUISE				
GROSS		0	100	200	300	400	500	600	700	800	900
WT. kg	TAS	CRUISE DISTANCE NAUTICAL AIR MILES									
35000	376	0	20	41	62	83	104	125	145	166	187
36000	380	208	229	249	270	290	311	332	352	373	393
37000	384	414	434	455	475	495	516	536	557	577	597
38000	388	618	638	658	678	698	718	738	759	779	799
39000	392	819	839	859	879	898	918	938	958	978	998
40000	396	1018	1037	1057	1077	1096	1116	1136	1155	1175	1195
41000	399	1214	1234	1253	1273	1292	1312	1331	1350	1370	1389
42000	403	1409	1428	1447	1466	1486	1505	1524	1543	1563	1582
43000	406	1601	1620	1639	1658	1677	1696	1715	1734	1753	1772
44000	409	1791	1810	1829	1848	1866	1885	1904	1923	1942	1960
45000	413	1979	1998	2016	2035	2054	2072	2091	2109	2128	2147
46000	416	2165	2184	2202	2220	2239	2257	2275	2294	2312	2331
47000	419	2349	2367	2385	2404	2422	2440	2458	2476	2495	2513
48000	422	2531	2549	2567	2585	2603	2621	2639	2657	2675	2693
49000	425	2711	2729	2747	2764	2782	2800	2818	2836	2853	2871
50000	427	2889	2907	2924	2942	2960	2977	2995	3013	3030	3048
51000	429	3065	3083	3100	3118	3135	3153	3170	3188	3205	3222
52000	432	3240	3257	3274	3292	3309	3326	3344	3361	3378	3395
53000	434	3413	3430	3447	3464	3481	3498	3515	3532	3549	3567
54000	436	3584	3601	3617	3634	3651	3668	3685	3702	3719	3736
55000	437	3753	3770	3786	3803	3820	3837	3853	3870	3887	3904
56000	439	3920	3937	3953	3970	3987	4003	4020	4036	4053	4069
57000	440	4086	4102	4119	4135	4152	4168	4184	4201	4217	4234
58000	441	4250	4266	4282	4299	4315	4331	4347	4364	4380	4396
59000	442	4412	4428	4444	4460	4476	4492	4509	4525	4541	4557
60000	442	4573	4589	4605	4620	4636	4652	4668	4684	4700	4716
61000	442	4732	4747	4763	4779	4795	4810	4826	4842	4858	4873
62000	442	4889	4905	4920	4936	4951	4967	4983	4998	5014	5029
63000	443	5045	5060	5076	5091	5106	5122	5137	5153	5168	5184
64000	443	5199	5214	5229	5245	5260	5275	5290	5306	5321	5336
65000	443	5351	5367	5382	5397	5412	5427	5442	5457	5472	5487
66000	443	5502	5517	5532	5547	5562	5577	5592	5607	5622	5637
67000	443	5652	5666	5681	5696	5711	5725	5740	5755	5770	5784
<b>NOTE 1:</b> OPTIMUM WEIGHT FOR PRESSURE ALTITUDE EXCEEDS STRUCTURAL LIMIT A) THRUST LIMITED WEIGHT FOR ISA +10 AND COLDER EXCEEDS STRUCTURAL LIMIT B) THRUST LIMITED WEIGHT FOR ISA +15 EXCEEDS STRUCTURAL LIMIT C) THRUST LIMITED WEIGHT FOR ISA +20 EXCEEDS STRUCTURAL LIMIT <b>NOTE 2:</b> ADJUSTMENTS FOR OPERATION AT NON-STANDARD TEMPERATURES A) INCREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C ABOVE ISA B) DECREASE FUEL REQUIRED BY 0.6 PERCENT PER 10 DEGREES C BELOW ISA C) INCREASE TAS BY 1 KNOT PER DEGREE C ABOVE ISA D) DECREASE TAS BY 1 KNOT PER DEGREE C BELOW ISA											

Long Range Cruise – Pressure Altitude 28,000 ft

Figure I-24

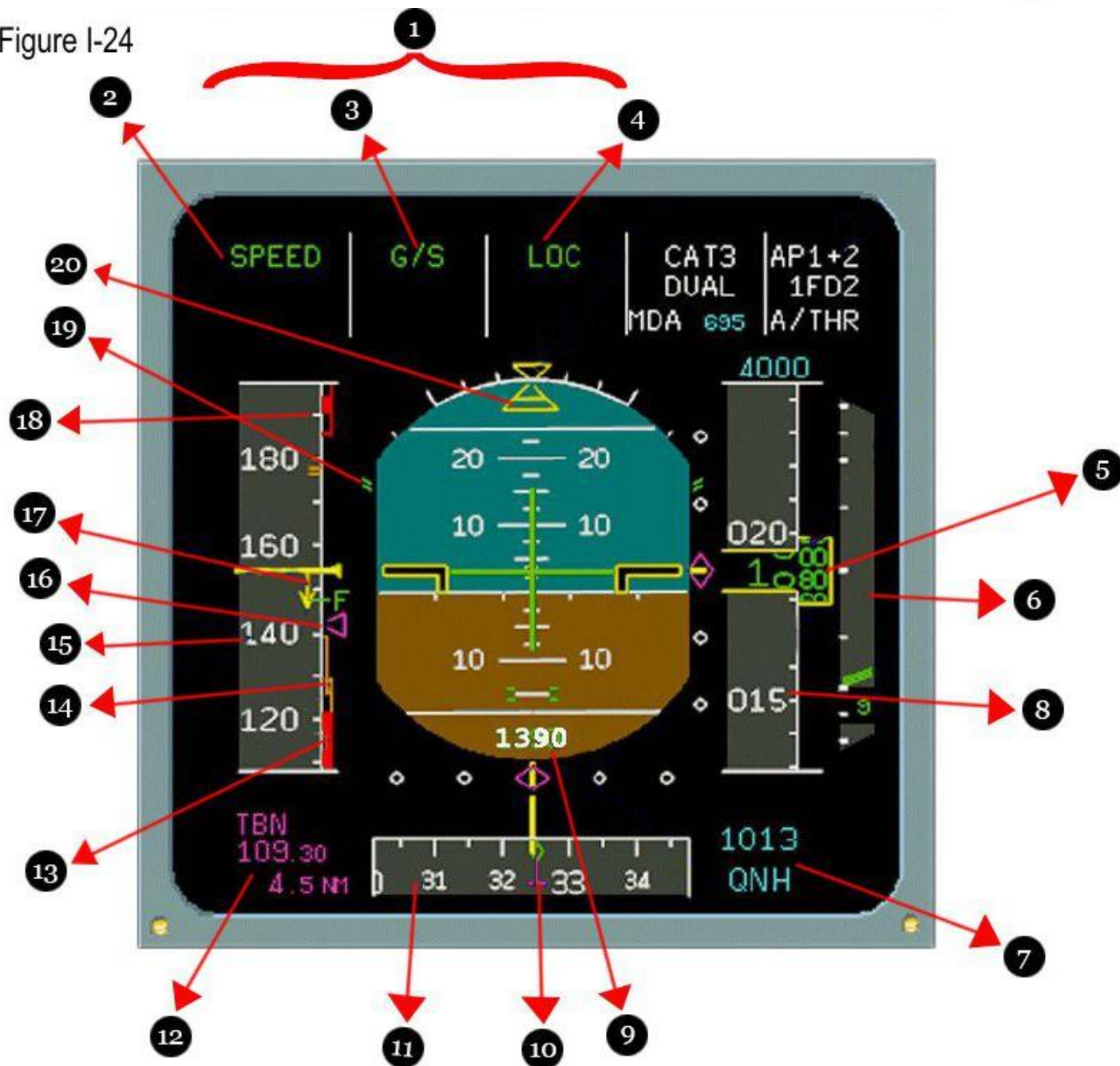




Figure I-25



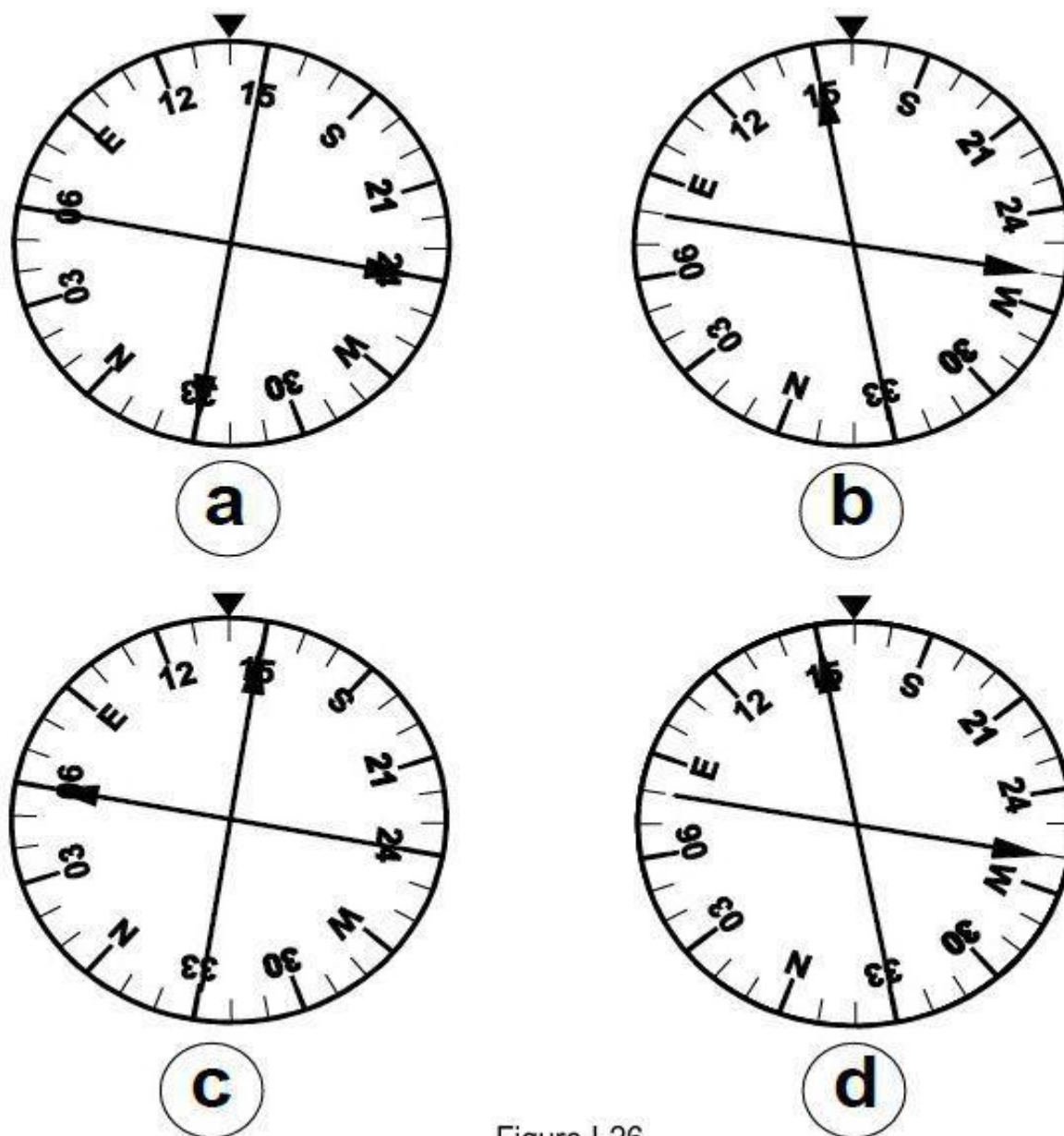


Figure I-26

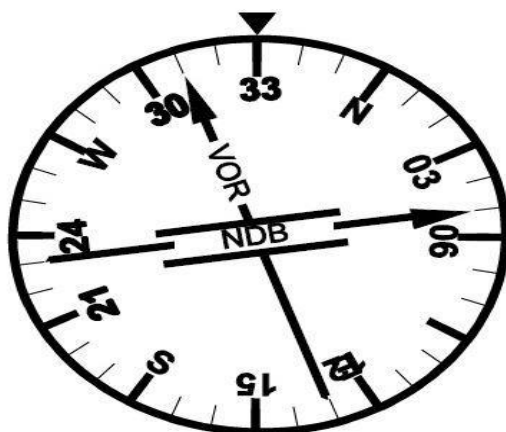
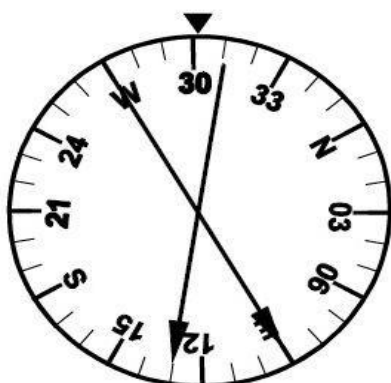
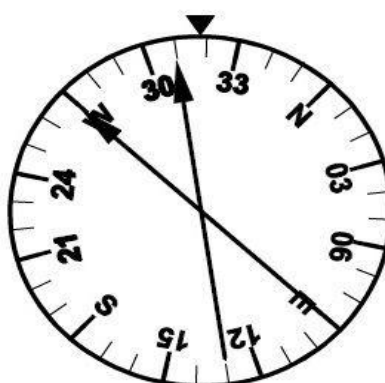


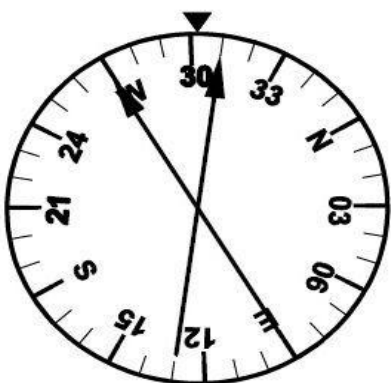
Figure I-27



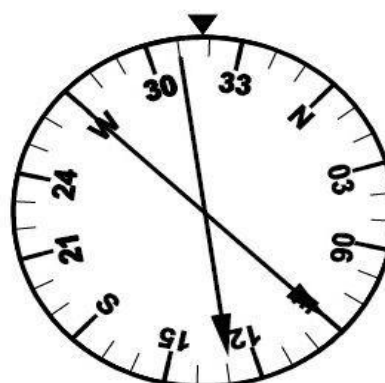
a



b



c



d

Figure I-28

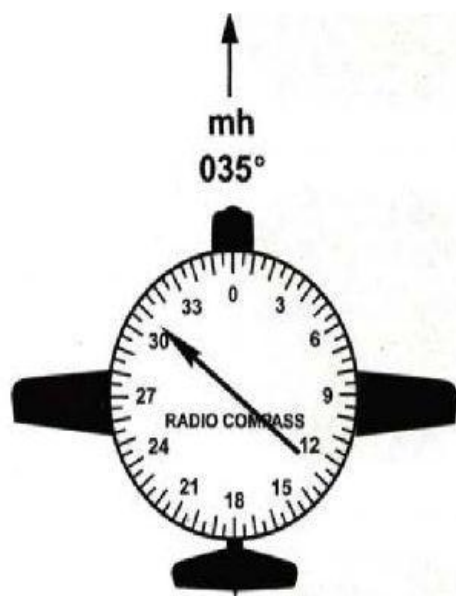


Figure I-29

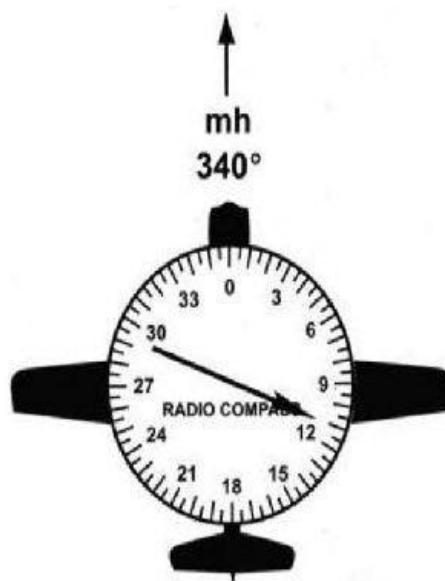


Figure I-30

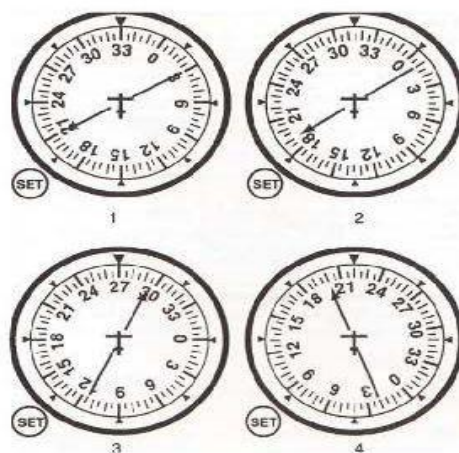


Figure I-31

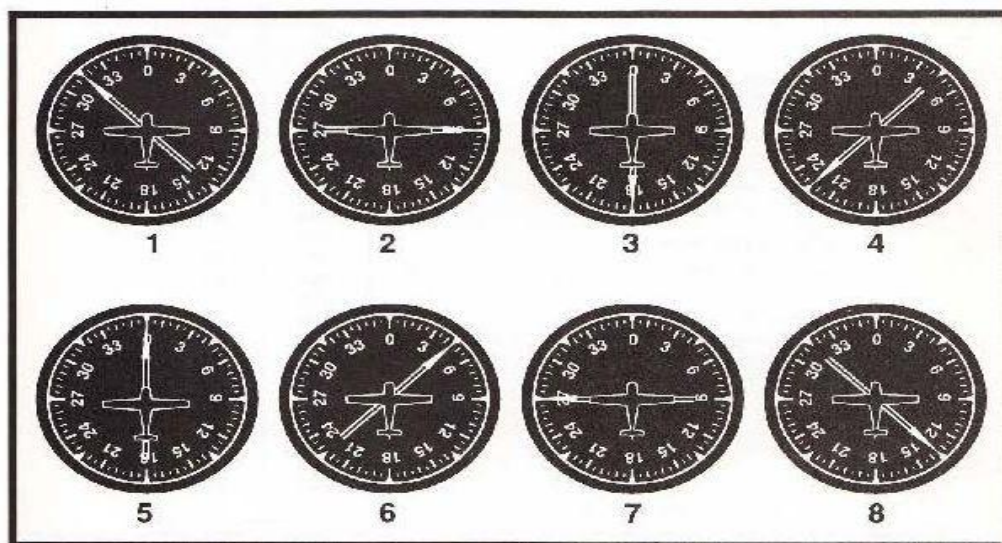
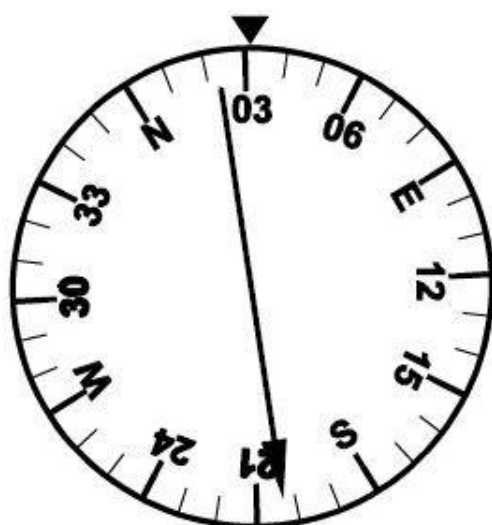
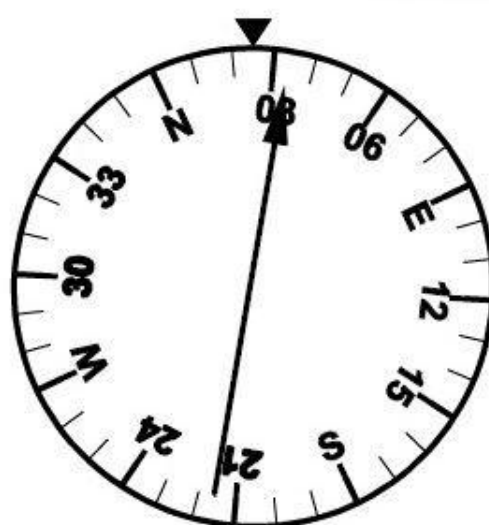


Figure I-32

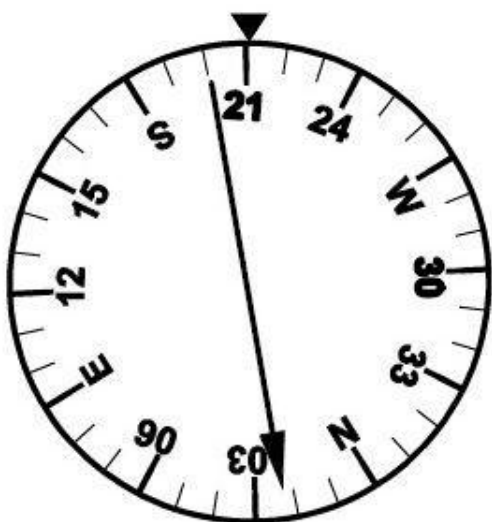




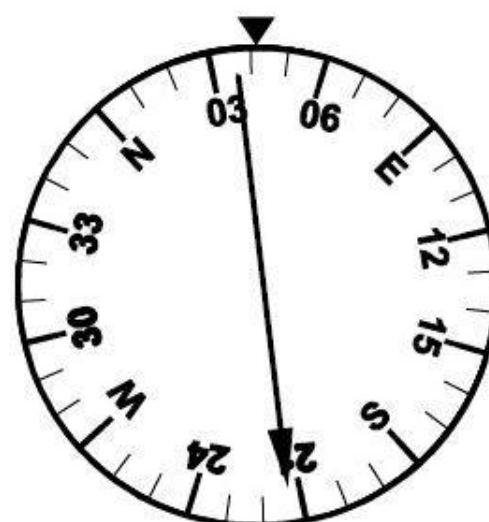
**a**



**b**



**c**



**d**

Figure I-33

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