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ATPL - Airline Transport Pilot license - Radio Navigation



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STUDENT NAME:

DATE AND TIME:

01. An aeroplane is to depart from an airfield where the performance limited take-off mass is 89200 kg. Certificated maximum masses are as follows: Ramp (taxi) mass 89930 kg Maximum Take-off mass 89430 kg Maximum Landing mass 71520 kg Actual Zero fuel mass 62050 kg Fuel on board at ramp: Taxi fuel 600 kg Trip fuel 17830 kg Contingency, final reserve and alternate 9030 kg If the Dry Operating Mass is 40970 kg the traffic load that can be carried on this flight is

- a) 21500 kg
- b) 21080 kg
- c) 20870 kg
- d) 21220 kg

02. Traffic load is the difference between:

- a) The operating mass and the basic empty mass.
- b) The take-off mass and the basic empty mass.
- c) The take-off mass and the basic empty mass plus trip fuel.
- d) The take-off mass and the operating mass.

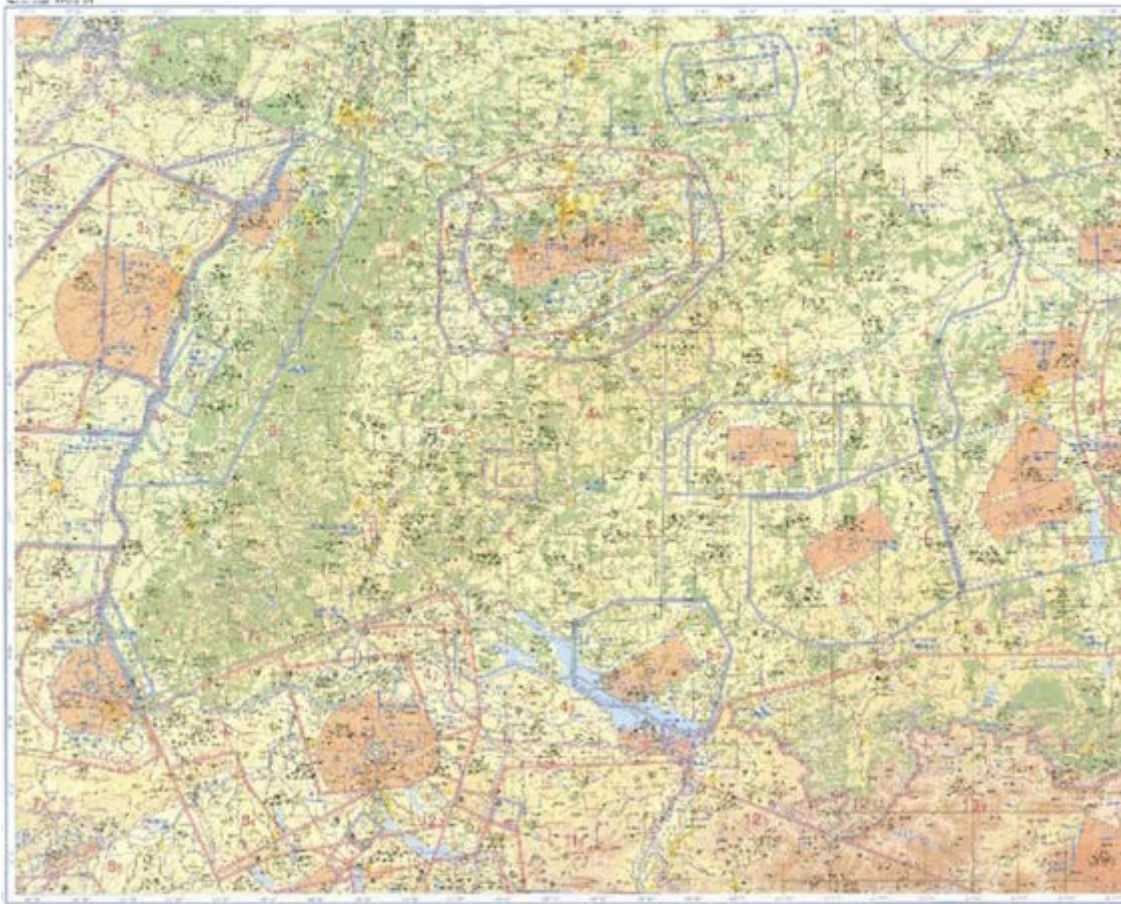
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03. Refer to the General Student Pilot Route Manual - VFR Chart ED-4 Which navigation aid is located in position 48°23'N, 008°39'E?



- a) VOR
- b) VORTAC
- c) VOR/DME
- d) NDB

04. VFR flights shall not be flown over the congested areas of cities at a height less than

- a) 500 ft above the highest obstacle.
- b) 2000 ft above the highest obstacle within a radius of 600 ft from the aircraft.
- c) The highest obstacle.
- d) 1000 ft above the highest obstacle within a radius of 600 m from the aircraft.

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05. During radar vectoring, the controller asks the pilot of XY-ABC to turn on to heading 360°. The correct read back of this instruction is:

- a) Heading north, X-BC
- b) Heading three hundred sixty, X-BC
- c) Heading three six zero, X-BC
- d) A read back is not necessary as XY-ABC has been identified

06. When the aircraft registration marking is used as a call-sign, your first contact with a station shall be in the following form:

- a) The first letter and the last two characters of the aircraft registration marking.
- b) The last three characters of the aircraft registration marking.
- c) All characters of the aircraft registration marking.
- d) The first three characters of the aircraft registration marking.

07. Which one of the following statements concerning the formation of aircraft icing is most correct ?

- a) A cloud consisting of both supercooled water droplets and ice crystals produces aircraft icing
- b) Probability of icing increases when dry snow starts to fall from a cloud.
- c) Risk for icing increases when cloud temperature decreases well below minus 12 degrees
- d) Greatest risk of icing conditions is experienced in cirrus clouds.

08. Which of the following is unlikely to have any effect on the position of the centre of gravity on an aeroplane in flight ?

- a) Changing the tailplane (horizontal stabiliser) incidence angle.
- b) Normal consumption of fuel for a swept wing aeroplane.
- c) Movement of cabin attendants going about their normal duties.
- d) Lowering the landing gear.

09. The regime of flight from the critical Mach number up to approximately $M = 1.3$ is called the:

- a) Supersonic range
- b) Transonic range
- c) Subsonic range
- d) Hypersonic range

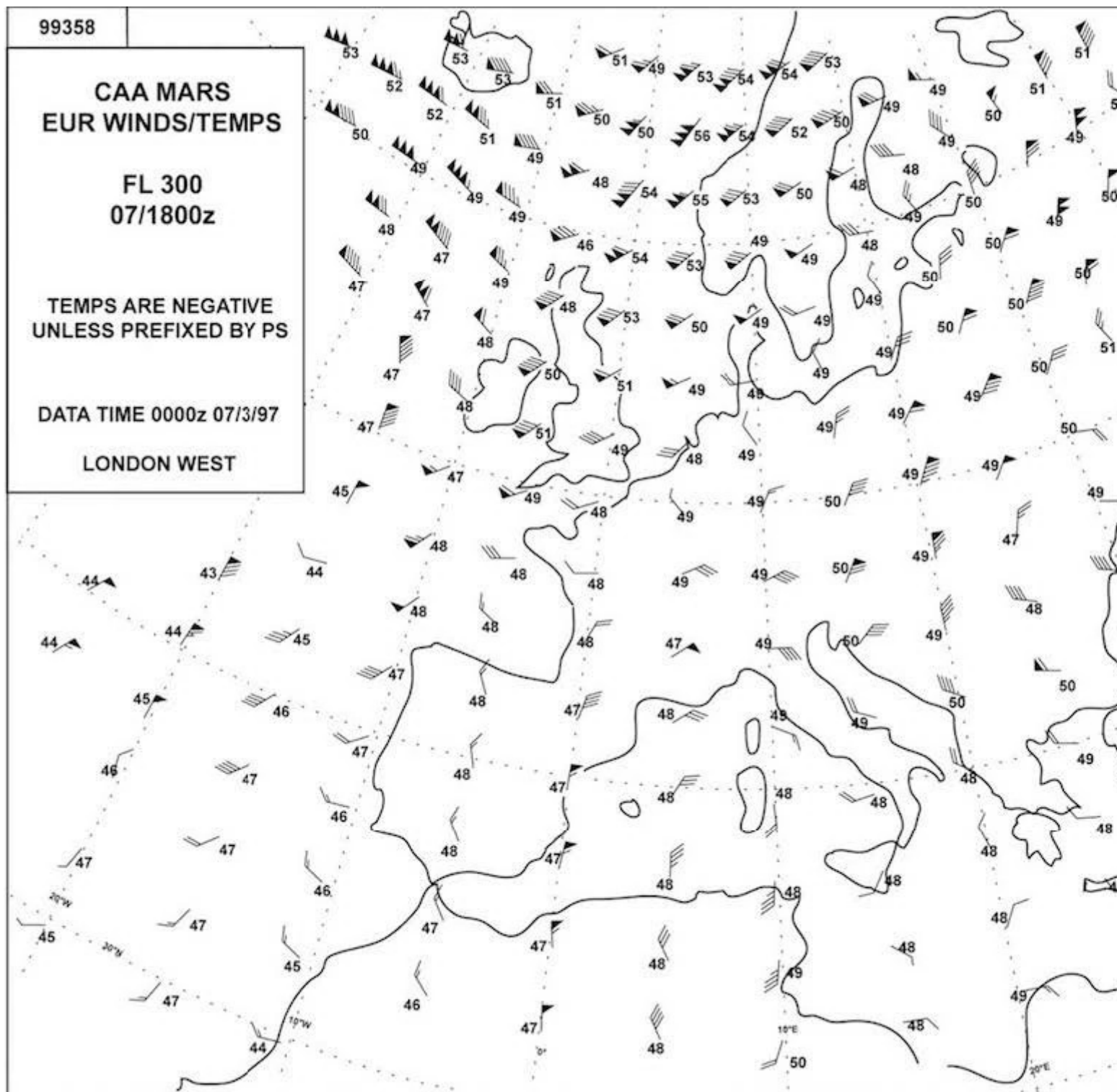
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10. What mean temperature (°C) is likely on a course of 360° (T) from 40°N to 50°N at 040°E ?



- a) -46
- b) -47
- c) -50
- d) -49

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11. 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 better go-around performance
- d) An increased landing distance and degraded go-around performance

12. In straight horizontal steady flight, at speeds below that for minimum drag:

- a) A lower speed requires a higher thrust.
- b) The aeroplane cannot be controlled manually.
- c) A higher speed, but still below that for minimum drag, requires a higher thrust.
- d) The aeroplane can be controlled only in level flight.

13. The Coriolis effect in spatial disorientation occurs as a result of:

- a) Simultaneous stimulation of several semicircular canals
- b) Absence of semicircular canal stimulation
- c) On stimulating the cochlea intensely
- d) Stimulation of the saccule and the utricle (otoliths) of the inner ear

14. If no meteorological information is available for the destination, the operator must:

- a) Not take-off until obtaining destination meteorological forecast.
- b) Take extra fuel to fly two hours at holding speed.
- c) Select two destination alternates.
- d) Take extra fuel to fly one hour at holding speed, 1.500 ft above the alternate aerodrome.

15. You cross a jet stream in horizontal flight at approximately right angles. While crossing, in spite of a strong wind of 120 kt, you notice the temperature barely changes. Which of the following statements is correct ?

- a) This phenomenon is absolutely normal as you are crossing the jet core.
- b) This phenomenon does not surprise you at all, since normally no large temperature differences are possible at these heights.
- c) Since the result of such readings seems impossible, you will have the instruments tested after landing.
- d) You assume the front associated with the jet stream to be very weak with practically no temperature difference between the two air masses.

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16. Which of the following statements concerning the variation in wind speed between summer and winter on the North Atlantic between FL 300 and FL 400 is most correct?

- a) The average westerly component is greater in the winter than in the summer. The latitude of the axis of greatest seasonal wind speed is further south in winter than in summer
- b) The average westerly component is greater in the summer than in the winter. The latitude of the axis of greatest wind speed is also further north in summer than in winter
- c) The average westerly component remains the same but the altitude of greatest wind speed reduces in winter
- d) The average westerly component remains the same but the axis of greatest speeds moves south in winter

17. See Flight Planning Manual SEP 1 Figure 2.5. Given: FL 75, Lean mixture, Full throttle, 2300 RPM. Take-off fuel: 444 lb. Endurance in hours and minutes.

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Endurance

ASSOCIATED CONDITIONS:

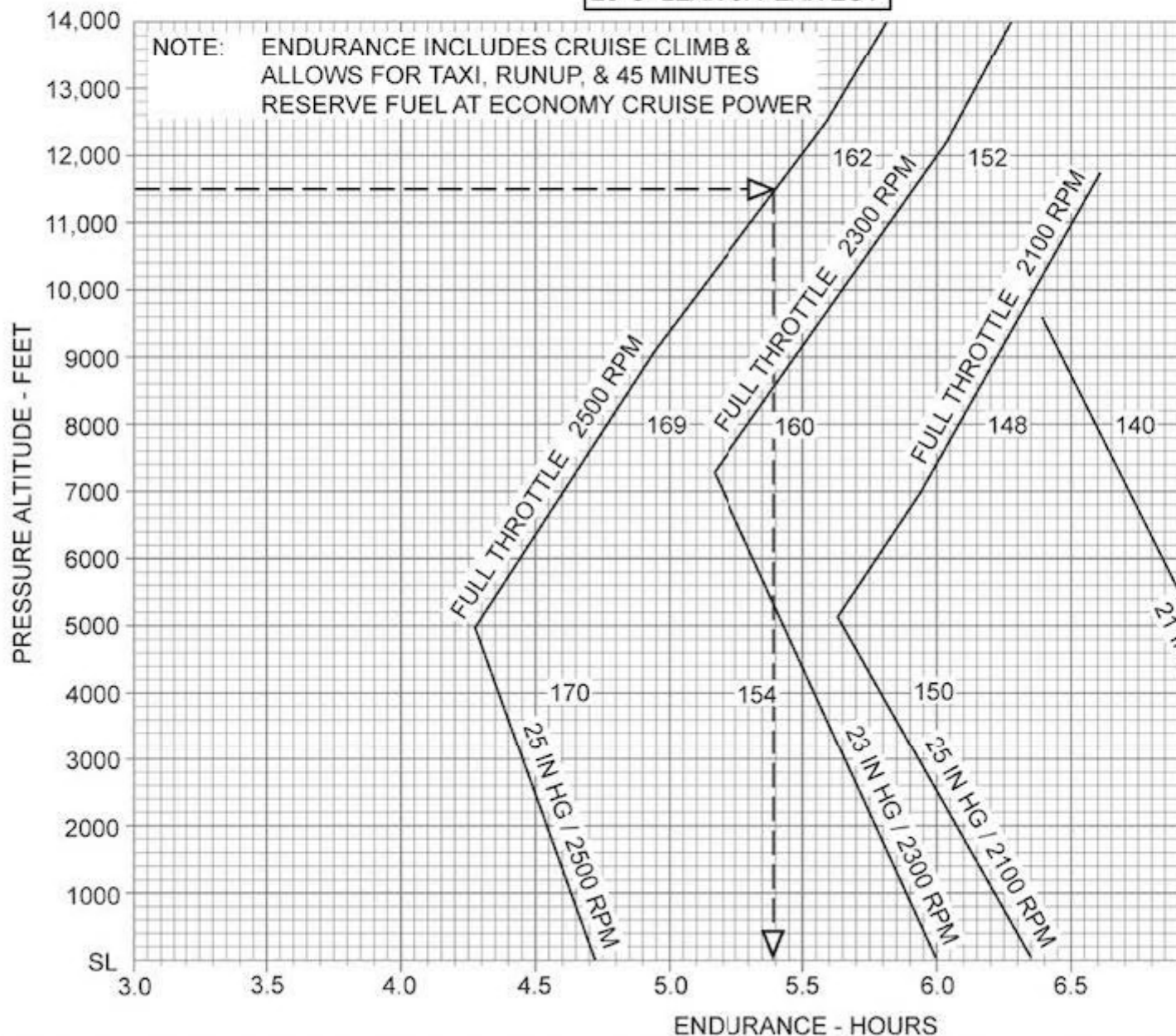
MASS..... 3663 LB BEFORE ENGINE START
FUEL..... AVIATION GASOLINE
FUEL DENSITY..... 6.0 LB/GAL
INITIAL FUEL LOAD..... 74 U.S. GAL (444 LB)
TAKE-OFF ALTITUDE..... SEA LEVEL
WIND..... ZERO

ISA

EXAMPLE:

CRUISE ALTITUDE..... 11,000
POWER SETTING..... F
ENDURANCE..... 5.4

20°C LEAN of PEAK EGT



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- a) 05 hours 12 minutes
- b) 05 hours 23 minutes
- c) 04 hours 42 minutes
- d) 05 hours 20 minutes

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18. Where dangerous goods are carried on a flight which takes place wholly or partly outside the territory of a State, which language must be used on the transport document in addition to any other language ?

- a) Spanish
- b) French
- c) English, French, Spanish, Russian, Chinese
- d) English

19. What does 'Friction coefficient 45' in a runway report mean:

- a) Braking action good
- b) Braking action not measurable
- c) Braking action poor
- d) Braking action medium

20. Using passenger oxygen in case of severe cabin smoke is:

- a) Useless because breathing oxygen would explode under smoke conditions
- b) Useless because the oxygen units do not operate under smoke conditions
- c) Possible and recommended
- d) Useless because the toxic cabin smoke is mixed with the breathing oxygen

21. How many hours in advance of EOBT should a ATC flight plan be filed in the case of flights into areas subject to air traffic flow management (ATFM)?

- a) 1:00 hour.
- b) 3:00 hours.
- c) 2 hours.
- d) 0:30 hours.

22. What does the term 'broadcast' mean?

- a) A radiotelephony transmission from ground station to aircraft in flight
- b) A transmission where no reply is required from the receiving station
- c) A transmission of information relating to air navigation that is not addressed to a specific station or stations
- d) A transmission containing meteorological and operational information to aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations

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23. The Bora is a

- a) Squally warm katabatic wind which occurs mainly in summer
- b) Cold katabatic wind with gusts associated with a maritime air mass
- c) Cold katabatic wind with the possibility of violent gusts
- d) Cold katabatic wind always associated with clouds and heavy showers

24. Equivalent Air Speed (EAS) is:

- a) Calibrated Air Speed (CAS) corrected for compressibility error.
- b) True Air Speed (TAS) corrected for compressibility error.
- c) Calibrated Air Speed (CAS) corrected for density error.
- d) True Air Speed (TAS) corrected for compressibility and density errors.

25. What characteristic is associated with a temperature inversion?

- a) Instability
- b) Stability
- c) Area of active storms
- d) Clear ice

26. With EAS and pressure altitude (Zp), we can deduce:

- a) TAS.
- b) CAS and TAS.
- c) CAS.
- d) IAS.

27. If the pilot increases the reference pressure using the sub-scale setting knob, the altitude indicated by the altimeter:

- a) Decreases if QNH > 1013 hPa.
- b) Decreases if QNH < 1013 hPa.
- c) Increases.
- d) Decreases.

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28. An aircraft at FL120, IAS 200kt, OAT -5° and wind component +30kt, is required to reduce speed in order to cross a reporting point 5 MIN later than planned. Assuming flight conditions do not change, when 100 NM from the reporting point IAS should be reduced to:

- a) 165 kt
- b) 169 kt
- c) 159 kt
- d) 174 kt

29. In NAT region, a revised estimate should be transmitted to the ATS when the estimated time for the next position has changed by:

- a) 3 minutes or more.
- b) 2 minutes or more.
- c) 5 minutes or more.
- d) 10 minutes or more.

30. In relation to the satellite navigation system NAVSTAR/GPS, the term 'inclination' denotes the angle between the:

- a) Horizontal plane at the location of the receiver and the direct line to a satellite
- b) Orbital plane and the equatorial plane
- c) Horizontal plane at the location of the receiver and the orbital plane of a satellite
- d) It varies, depending on the time and observer's location

31. The Auxiliary Power Unit (APU) has its own AC generator that:

- a) Is Driven At Constant Speed Through A Constant Speed Drive (csd), In The Same Way As The Main Ac Generator.
- b) Is excited by its Generator Control Unit (GCU) as soon as the APU starts up.
- c) Supplies the aircraft with three-phase 115-200 V, 400 Hz A
- d) Must Have The Same Characteristics As The Main Ac Generator So That It Can Be Easily Coupled With The Latter.

32. What is the correct call sign of Fastair 345 in the initial call to the aerodrome control tower and the approach control unit, if the aircraft has a maximum take-off weight of more than 136 tonnes:

- a) Fastair 345 heavy
- b) Fastair 345 widebody
- c) Fastair 345
- d) Heavy Fastair 345

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33. The validity of the instrument rating (IR) is:

- a) 5 years
- b) 6 months
- c) 2 years
- d) 1 year

34. What information may be displayed on an ATC radar screen connected only to a primary radar system?

- a) Aircraft position and SSR code.
- b) Aircraft position, SSR code and altitude.
- c) Aircraft position only.
- d) Aircraft altitude.

35. . Allowed traffic load is the difference between:

- a) Allowed take off mass and basic empty mass.
- b) Allowed take off mass and basic empty mass plus trip fuel.
- c) Operating mass and basic empty mass.
- d) Allowed take off mass and operating mass.

36. The equipment of an oxygen supply installation must be kept absolutely free of oil or grease traces as:

- a) These Substances Mixed With Oxygen Could Catch Fire In The Presence Of A Spark.
- b) The oxygen system would be contaminated.
- c) These substances could plug the oxygen masks filters.
- d) These substances catch fire spontaneously in the presence of oxygen under pressure.

37. CAS is obtained from IAS by correcting for the:

- a) Density error.
- b) Instrument error.
- c) Position and density errors.
- d) Position and instrument errors.

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38. The expression 'transmitting blind due to receiver failure' implies that no answer is expected. It shall be used by:

- a) An aircraft station doing blind transmissions at a 'non-towered' airfield
- b) A radar controller performing a PAR or SRE final approach
- c) An aircraft station being aware of receiver failure
- d) A ground station broadcasting information to all listening stations

39. A message concerning aircraft parts and material urgently required is:

- a) A flight regularity message.
- b) A flight security message.
- c) A flight safety message.
- d) An urgency message.

40. For a piston engine, the ideal fuel/air mixture corresponding to a richness of 1 is obtained for a weight ratio of:

- a) 1/15th
- b) 1/12th
- c) 1/10th
- d) 1/9th

41. Tip vortices which are responsible for wake turbulence appear as soon as the following is established:

- a) Drag
- b) Lift
- c) Lift destruction
- d) Spin up

42. In computer technology, an EPROM: 1) is a read-only memory 2) is a write memory 3) erases its content when power supply is cut off 4) keeps its content when power supply is cut off The combination re-grouping all the correct statements is:

- a) 1, 4
- b) 2, 3
- c) 1, 3
- d) 2, 4

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43. In compliance with PART-CAT and ICAO annex 18, in order to carry dangerous goods on board a public transport aircraft, they must be accompanied with a:

- a) Representative of the company owning the goods.
- b) Transport document for dangerous goods.
- c) System to warn the crew in case of a leak or of an abnormal increase in temperature.
- d) Specialized handling employee.

44. During deceleration following a landing in a northerly direction, a magnetic compass made for the southern hemisphere indicates:

- a) An apparent turn to the west.
- b) An apparent turn to the east.
- c) No apparent turn only on southern latitudes.
- d) No apparent turn.

45. On starting, in a brushless AC generator with no commutator rings, the generator is activated by:

- a) A set of permanent magnets.
- b) The auxiliary winding.
- c) The stabilizer winding jointly with the voltage regulator.
- d) The Main Field Winding.

46. An aircraft is flying a 3° glidepath and experiences a reduction in groundspeed from 150 kt at the outer marker to 120 kt over the threshold. The effect of this change in groundspeed on the aircraft's rate of descent will be a decrease of approximately:

- a) 50 FT/MIN
- b) 250 FT/MIN
- c) 100 FT/MIN
- d) 150 FT/MIN

47. The operator of an aircraft equipped with 50 seats uses standard masses for passengers and baggage. During the preparation of a scheduled flight a group of passengers present themselves at the check-in desk, it is apparent that even the lightest of these exceeds the value of the declared standard mass.

- a) The operator may use the standard masses for the load and balance calculation without correction
- b) The operator may use the standard masses for the balance but must correct these for the load calculation
- c) The operator should use the individual masses of the passengers or alter the standard mass
- d) The operator is obliged to use the actual masses of each passenger

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48. The standard mass for a child is

- a) 35 kg for holiday charters and 38 kg for all other flights.
- b) 35 kg for all flights.
- c) 30 kg for holiday charters and 35 kg for all other flights.
- d) 38 kg for all flights.

49. The application of the area rule on aeroplane design will decrease the

- a) Wave drag.
- b) Form drag.
- c) Induced drag.
- d) Skin friction drag.

50. In a single spool gas turbine engine, the compressor RPM is:

- a) Greater Than Turbine Rpm.
- b) Independent of turbine RPM.
- c) The same as turbine RPM.
- d) Less Than Turbine Rpm.

51. The 'Effective Performance Time' or 'Time of Useful Consciousness' after a decompression at 35 000 ft is:

- a) Approximately 3 minutes
- b) Between 30 and 60 seconds
- c) Less than 20 seconds
- d) Approximately 5 minutes

52. A nautical mile is:

- a) 1609 metres
- b) 1852 metres
- c) 1500 metres
- d) 1012 metres

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53. When visibility is reduced by water droplets to less than 1000 metres it is classified as

- a) Dust fog
- b) Fog
- c) Mist
- d) Haze

54. How shall a pilot ask for a QFE ?

- a) Request Queen Fox Easy
- b) Request Quebec Foxtrot Echo
- c) Request Quebec Fox Echo
- d) Request Quebec Fox Easy

55. AC generators operated in parallel must have the same:

- a) Voltage And Amperage.
- b) Amperage and kVAR.
- c) Frequency and amperage.
- d) Voltage and phase.

56. Given: Dry operating mass (DOM)= 33000 kg Traffic Load= 8110 kg Final reserve fuel= 983 kg Alternate fuel= 1100 kg Contingency fuel 102 kg The estimated landing mass at alternate should be:

- a) 41110 kg.
- b) 42195 kg.
- c) 42312 kg.
- d) 42210 kg.

57. The automatic flight control system is coupled to the guidance outputs from an inertial navigation system. Which pair of latitudes will give the greatest difference between initial track read-out and the average true course given, in each case, a difference of longitude of 10°?

- a) 60°N to 50°N
- b) 60°N to 60°N
- c) 30°S to 25°S
- d) 30°S to 30°N

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58. Which one of the following sensors/systems is self-contained?

- a) GPS
- b) Basic RNAV system
- c) Inertial Navigation System
- d) 2

59. Which phrase shall be used if you want to say: 'An error has been made in this transmission (or message indicated). The correct version is ...':

- a) QNH 1017, negative QNH 1016
- b) QNH 1017, negative 1016
- c) QNH 1017, correction QNH 1016
- d) QNH 1017, negative I say again 1016

60. The installation and use of on-board oxygen generators is such that 1 - the smoking ban is imperative when used 2 - in case of accidental drop of the 'continuous flow' passenger masks, no crew action is required 3 - no trace of grease must be found in the system assembly 4 - the system's filling adaptors must be greased with non-freezing or graphite grease The combination which regroups all of the correct statements is:

- a) 1 - 3
- b) 2 - 4
- c) 2 - 3
- d) 1 - 4

61. Search and Rescue signals The ground - air visual code for: 'REQUIRE MEDICAL ASSISTANCE' is:

- a) V
- b) X
- c) Y
- d) N

62. What does 'Friction coefficient 20' in a runway report mean:

- a) Braking action poor
- b) Braking action unreliable
- c) Braking action good
- d) Braking action medium

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63. An aircraft, on a heading of $180^{\circ}M$ is on a bearing of $270^{\circ}M$ from a VOR. The bearing you should select on the OMNI bearing selector to centralise the VOR/ILS left/right deviation needle with TO showing is:

- a) 270°
- b) 090°
- c) 180°
- d) Assignment of received PRN-codes (Pseudo Random Noise) to the appropriate satellite

64. Errors caused by the effect of coastal refraction on bearings at lower altitudes are maximum when the NDB is:

- a) Inland and the bearing crosses the coast at an acute angle
- b) Near the coast and the bearing crosses the coast at an acute angle
- c) Inland and the bearing crosses the coast at right angles
- d) Four

65. To measure the mass and CG-position of an aircraft, it should be weighed with a minimum of:

- a) 3 points of support
- b) 4 point of support
- c) 1 point of support
- d) 2 points of support

66. The empty mass of an aeroplane is given as 44800 kg. Operational items (including crew standard mass of 1060 kg) are 2300 kg. If the maximum zero fuel mass is given as 65500 kg, the maximum traffic load which could be carried is:

- a) 23000 kg
- b) 20700 kg
- c) 19460 kg.
- d) 18400 kg

67. 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) Straight and level flight
- b) Spinning into the same direction
- c) Climbing and turning into the original direction of the spin
- d) Spinning into the opposite direction

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68. When an aeronautical station broadcasts information to more than one station, the call starts with:

- a) 'Message to all aircraft on this frequency'
- b) 'General broadcast'
- c) 'Please listen'
- d) 'All stations'

69. Assuming gross mass, altitude and airspeed remain unchanged, movement of the centre of gravity from the forward to the aft limit will cause:

- a) Increased cruise range
- b) Reduced maximum cruise range
- c) Lower optimum cruising speed
- d) Higher stall speed

70. DME channels utilise frequencies of approximately:

- a) 1000 MHz
- b) 600 MHz
- c) 300 MHz
- d) The closer the receiver is to a LAAS ground reference station, the more accurate is the aircraft position fix.

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Response Scheme

Compare your answers with the following diagram and mark your score!

01: B	02: D	03: A	04: D
05: C	06: C	07: A	08: A
09: B	10: B	11: B	12: A
13: A	14: C	15: A	16: A
17: A	18: C	19: A	20: D
21: B	22: C	23: C	24: A
25: B	26: C	27: C	28: C
29: A	30: B	31: C	32: A
33: D	34: C	35: D	36: D
37: D	38: C	39: A	40: A
41: B	42: A	43: B	44: D
45: A	46: A	47: C	48: B
49: A	50: C	51: B	52: B
53: B	54: B	55: D	56: B
57: B	58: C	59: C	60: A
61: B	62: A	63: B	64: A
65: A	66: D	67: D	68: D
69: A	70: A		

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Response form

Use this form to mark your answers

01: _____	02: _____	03: _____	04: _____
05: _____	06: _____	07: _____	08: _____
09: _____	10: _____	11: _____	12: _____
13: _____	14: _____	15: _____	16: _____
17: _____	18: _____	19: _____	20: _____
21: _____	22: _____	23: _____	24: _____
25: _____	26: _____	27: _____	28: _____
29: _____	30: _____	31: _____	32: _____
33: _____	34: _____	35: _____	36: _____
37: _____	38: _____	39: _____	40: _____
41: _____	42: _____	43: _____	44: _____
45: _____	46: _____	47: _____	48: _____
49: _____	50: _____	51: _____	52: _____
53: _____	54: _____	55: _____	56: _____
57: _____	58: _____	59: _____	60: _____
61: _____	62: _____	63: _____	64: _____
65: _____	66: _____	67: _____	68: _____
69: _____	70: _____		