Exam simulation

ATPL - Airline Transport Pilot Licence - Radio Navigation

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STUDENT NAME:	DATE AND TIME:

01. What is the maximum number of usable Secondary Surveillance Radar (SSR) transponder codes in Mode A?

a) 3600
b) 1000
c) 4096
d) 760

02. The value of the manoeuvre stability of an aeroplane is 150 N / g. The stick force required to achieve a load factor of 2.5 from steady level flight is:

a) 225 N
b) 150 N
c) 450 N
d) 375 N

03. When an aircraft has turned 360 degrees with a constant attitude and bank, the pilot observes the following on a classic artificial horizon:

a) Attitude and bank correct
b) Too much nose-up and bank too high
c) Too much nose-up and bank correct
d) Too much nose-up and bank too low

04. Which of these radar types can operate using pulse techniques? 1. Aerodrome surface movement radar 2. Airborne weather radar 3. Secondary surveillance radar (SSR) 4. Aerodrome surveillance (approach) radar

a) 1, 2 and 4 only
b) 1, 2, 3 and 4
c) 2 and 4 only
d) 2, 3 and 4 only

05. When a commercial transport passenger aircraft is equipped with a door in the flight crew compartment area, this door must include:

a) A device preventing the flight crew from being locked in the cockpit.

b) A locking system to prevent any unauthorized access.

c) A sealing system which, in case of depressurisation in the compartment area allows the maintenance of the pressure in the cockpit for as long as possible.

d) Distinctive red or yellow coloured markings indicating the access area (in case of a blocked door).

06. What is the correct action to counteract vertigo?

a) Reduce rate of breathing until all symptoms disappear, then breathe again normally

b) Believe the instruments

c) Rely on the information from the semicircular canals, since these will be transmitting correct information

d) Concentrate on the vertical speed indicator

07. Given: TAS = 290 kt, True HDG = 171°, W/V = 310°(T)/30kt. Calculate the drift angle and GS?

a) 4°R - 310 kt

b) 4°L - 314 kt

c) 4°L - 310 kt

d) 4°R - 314 kt

08. A plain flap will increase CLmax by

a) Increasing angle of attack.

b) Boundary layer control.

c) Increasing the camber of the aerofoil.

d) Centre of lift movement.

09. A scissor is a component found on landing gears. Its function is to:

a) Prevent relative rotation of the inner and outer shock-strut cylinders and keep the wheel aligned

b) Make the body gears pivot when the nose wheel is turned through more than 20°.

c) Transform the translational movement of the rudder pedals into the rotational movement of the nose wheel.

d) Create the wheel pitch on bogie gears.

10. In an autopilot system, the basic stabilisation modes are: 1) Altitude hold. 2) Pitch attitude hold. 3) Roll attitude hold. 4) IAS hold. The combination regrouping all the correct statements is:

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

11. In accordance with Air OPS, an operator must ensure that the MDH for a VOR/DME approach is not lower than:

a) 250 ft
b) 350 ft
c) 300 ft
d) 200 ft

12. For an illustrative jet-stream cross-section 6,000 ft deep and 300 NM wide, what is the approximate ratio of vertical depth to horizontal width?

a) 1/1
b) 1/300
c) 1/1000
d) 1/10

13. Under ICAO Annex 8, Part II 4.2.1.1(c), which mass criterion determines the aeroplanes for which the State of Design must ensure a continuing structural integrity programme including corrosion prevention and control?

a) Only aeroplanes whose maximum certificated take-off and landing masses both exceed 5 700 kg
b) Up to 5700 kg maximum certificated take-off mass
c) Over 5700 kg maximum certificated take-off mass
d) Up to 5700 kg maximum certificated take-off and landing mass

14. 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

15. For a conventional chromel/alumel thermocouple connected directly to a moving-coil temperature indicator, without electronic amplification or a digital display, what external electrical supply is required?

a) 3 phase AC for sensor plus 28V DC for gauging

b) No external supply for the temperature-measuring circuit; a separate supply may be required for gauge lighting

c) 28V DC for sensor plus power for gauge lighting

d) 3 phase AC for sensor plus 26V AC for gauge lighting

16. The frontal area of a body, placed in a certain airstream is increased by a factor 3. The shape will not alter. The aerodynamic drag will increase with a factor:

a) 6

b) 9

c) 1.5

d) 3

17. Communications Failure - Flight Procedures. You are on a flight in accordance with IFR in IMC, exactly on the current flight plan route. At 18:36 UTC you receive and acknowledge the following instruction from the radar controller: 'Turn immediately, fly heading 050° until further advised'. At 18:37 UTC you discover a communication failure. Two way radio communication cannot be established again.

a) You continue on Heading 050.

b) You have to rejoin the last received and acknowledged route.

c) You continue on Heading 050 for 30 minutes.

d) You continue on Heading 050 for 15 minutes.

18. For a gas turbine operating at the same thrust and ambient conditions, what is the normal effect on exhaust gas temperature (EGT) of increasing compressor bleed demand, for example by supplying additional air-conditioning or anti-ice flow?

a) EGT remains unchanged because compressor bleed demand cannot affect it

b) EGT decreases as additional compressor air is extracted

c) EGT depends only on outside-air temperature and is independent of bleed demand

d) EGT increases to produce the same thrust

19. The type of icing that occurs in dense clouds with large supercooled drops that have a temperature of -5°C is most likely to be

a) Clear ice

b) Cloudy ice

c) Rime ice

d) Hoar frost

20. Under ICAO Annex 10, which global-average positioning error limit for 95% of the time applies to healthy GPS SPS L1 C/A signal-in-space under normal operations, excluding atmospheric and receiver errors?

a) 22m in 3D

b) 30m horizontally

c) 5m vertically

d) 8 m horizontally.

21. What is decompression sickness?

a) A disorder which is solely encountered below 18,000 ft

b) A frequent disorder in commercial aviation due to the pressurisation curve of modern aircraft

c) The formation of air bubbles in bodily tissues, with no consequences for people's capabilities

d) A condition in which dissolved inert gas, mainly nitrogen, forms bubbles in body tissues and fluids after a reduction in ambient pressure.

22. The selection of code 7500 on an aircraft SSR transponder indicates:

a) Transponder malfunction

b) An emergency

c) Radio communication failure

d) Unlawful interference with the planned operation of the flight

23. Which of the following conditions is most conducive to significant conventional airframe icing from supercooled liquid water?

a) Cold clear air with no visible moisture.

b) Warm clear air above freezing, with no liquid cloud or precipitation.

c) A nimbostratus layer below freezing that contains abundant supercooled liquid water droplets able to freeze on the airframe.

d) A cloud composed almost entirely of ice crystals, with little or no supercooled liquid water.

24. After engine failure the aeroplane is unable to maintain its cruising altitude. What is the procedure which should be followed?

a) ETOPS.

b) Emergency Descent Procedure.

c) Long Range Cruise Descent.

d) Drift Down Procedure.

25. For an EU commercial air transport aeroplane with reciprocating engines, final reserve fuel is calculated at holding speed at 1500 ft above the applicable aerodrome elevation in standard conditions, using the estimated arrival mass. What is the minimum flight time represented by this reserve?

a) Fuel to fly for 2 hours

b) Fuel to fly for 1 hour at holding speed

c) Fuel to fly for 45 minutes

d) Fuel to fly for 30 minutes at holding speed

26. An Air Traffic Control Unit:

a) 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.

b) Must not ask an aircraft to change its call sign.

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) May not ask an aircraft to change its call sign after accepting the flight plan.

27. How shall a pilot inform the control tower that they have to abandon the take-off manoeuvre:

a) Stopping

b) Cancelling take-off

c) Aborting take-off

d) Abandoning take-off

28. Under EU CAT.IDE.A.250, an aeroplane with a maximum operational passenger seating configuration (MOPSC) of 201 to 300 must have at least how many hand fire extinguishers conveniently located in the passenger compartment?

a) 3 hand fire-extinguishers conveniently located in the passenger compartment.

b) 5 hand fire-extinguishers conveniently located in the passenger compartment.

c) 4 hand fire-extinguishers conveniently located in the passenger compartment.

d) 6 hand fire-extinguishers conveniently located in the passenger compartment.

29. The compression ratio of a piston engine is the ratio of the:

a) Weight of the air induced to its weight after compression.

b) Area of the piston to the cylinder volume.

c) Diameter of the bore to the piston stroke.

d) Volume of the cylinder with the piston at bottom dead centre to that with the piston at top dead centre.

30. What elements establish synergy within the crew?

a) Synergy is independent of the natural individual characteristics of the group members (communication, mutual confidence, sharing of tasks, etc.)

b) Synergy establishes itself automatically within the crew, right through from briefing to debriefing

c) It is only the captain's status which allows the establishment of synergy within the crew

d) Synergy must be built up from the start of the mission (briefing) and be maintained until it comes to an end (debriefing)

31. When departing after a larger aeroplane has landed on the same runway, which rotation-point precaution is recommended for wake avoidance, if the runway length and aircraft performance permit it?

a) In front of the point where the aircraft's wheels have touched down.

b) Rotate beyond the preceding aircraft’s touchdown point; otherwise delay as needed for wake decay and drift.

c) At the point where the aircraft's wheels have touched the ground and on the underwind side of the runway.

d) At the point where the aircraft's wheels have touched down and on the wind side of the runway.

32. A cable operated flight control system can be equipped with external gust locks.

a) When fitted to the control surface, they will prevent movement of the control column if the controls are not fitted with servo tabs.

b) They will prevent movement of a servo tab.

c) They will not be necessary because controls are irreversible and cannot be moved by the wind.

d) They will not prevent movement of the control column.

33. An aeroplane has 15400 kg of fuel aboard, but 14500 kg is entered on the load sheet. All other entries are correct. At the same CG and configuration, how does the actual lift-off speed required compare with that calculated from the understated mass?

a) The required lift-off speed is lower than the value based on the entered mass.

b) It is unchanged because the traffic load has not changed.

c) The required lift-off speed is higher than the value based on the entered mass.

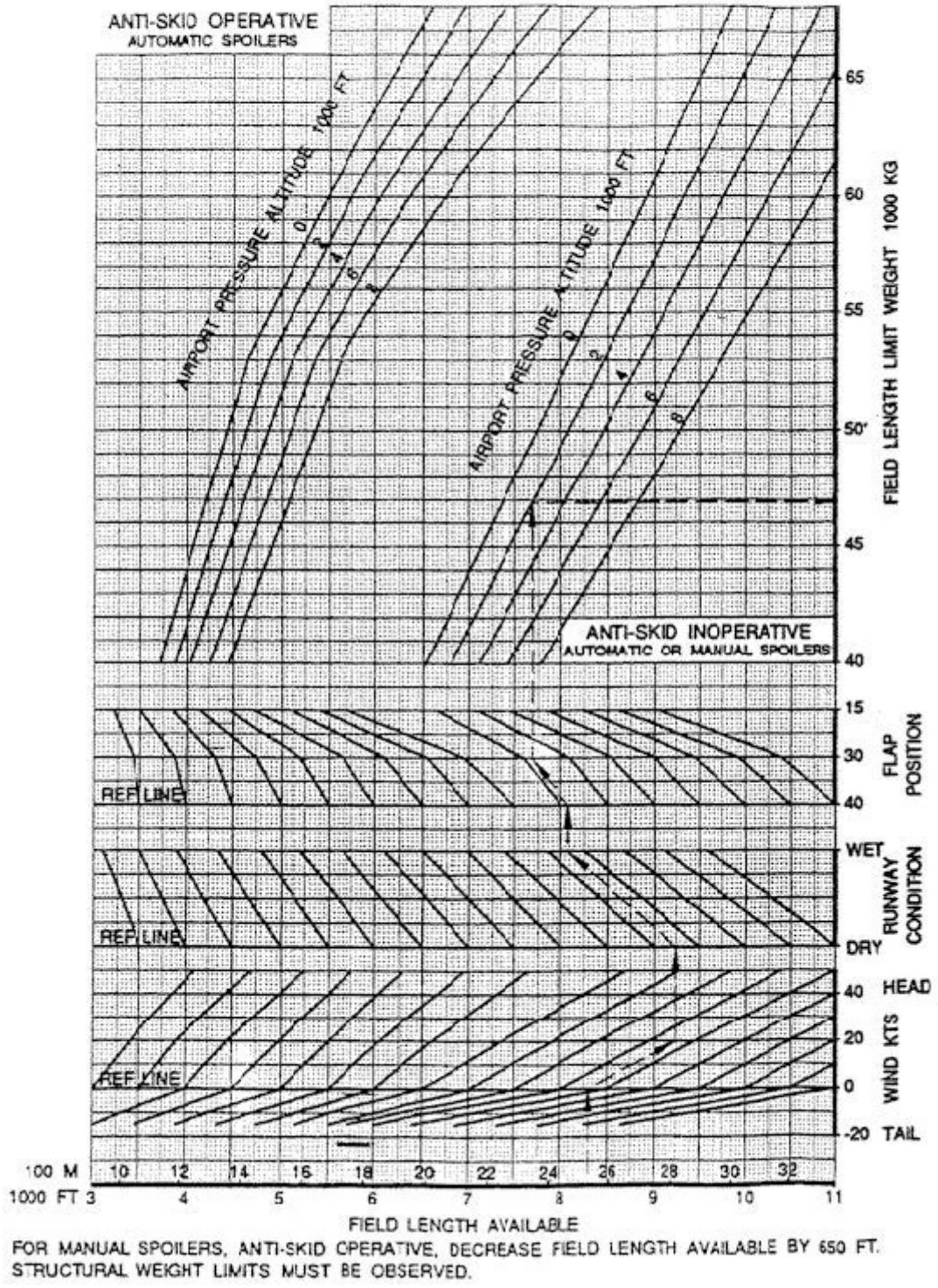
d) It is unchanged because fuel mass does not affect the required take-off speeds.

34. Refer to the training Performance Manual MRJT1 Figure 4.28. What is the minimum field length required for the worst wind situation, landing with anti-skid inoperative? Pressure altitude: 2000 ft; landing mass: 50 000 kg; flaps: as required for minimum landing distance; dry runway; maximum allowable tailwind: 15 kt; maximum allowable headwind: 50 kt.

CIVIL AVIATION AUTHORITY
PERFORMANCE - AEROPLANES

DATA SHEET
MRJT1

Figure 4. 28 Landing Performance **Field Length Limit**



FOR MANUAL SPOILERS, ANTI-SKID OPERATIVE, DECREASE FIELD LENGTH AVAILABLE BY 650 FT.
STRUCTURAL WEIGHT LIMITS MUST BE OBSERVED.

a) 2600 m.
b) 3100 m.
c) 2900 m.
d) 2700 m.

35. The purpose of a diluter demand regulator in an oxygen system is to:

a) Deliver oxygen flow only above FL 100.
b) Deliver oxygen flow when inhaling.
c) Mix air and oxygen in a passenger oxygen mask.
d) Is only recommended with smoke in the cockpit.

36. Which of the following equipments uses primary radar principles?

a) Distance Measuring Equipment (DME)
b) Secondary Surveillance Radar (SSR)
c) Global Positioning System (GPS)
d) Airborne weather radar (AWR)

37. Engine temperature limitations of a gas turbine engine are usually imposed due to temperature limitations on the:

a) Compressor section.
b) Casing of the combustion chamber.
c) Jet pipe.
d) Turbine section.

38. The radar controller shall not request the pilot to adjust the speed where the aircraft has passed:

a) 2 NM from the threshold on final approach.
b) 5 NM from the threshold on final approach.
c) 3 NM from the threshold on final approach.
d) 4 NM from the threshold on final approach.

39. In the ATC flight plan item 15, when entering a route for which standard departure (SID) and standard arrival (STAR) procedures exist:

a) SIDs should be entered but not STARs
b) Both should be entered in the ATC plan where appropriate
c) Neither SID nor STAR should be entered
d) STARS should be entered but not SIDs

40. If the take-off mass of an aeroplane is tyre speed limited, downhill slope would:

a) Have no effect on the maximum mass for take-off

b) Increase the required take-off distance

c) Increase the maximum mass for take-off

d) Decrease the maximum mass for take-off

41. In an ATC flight plan Item 15, in order to define a position as a bearing and distance from a VOR, the group of figures should consist of:

a) VOR ident, true bearing and distance in kilometres

b) VOR ident, magnetic bearing and distance in kilometres

c) VOR ident, magnetic bearing and distance in nautical miles

d) Full name of VOR, true bearing and distance in kilometres

42. On a transport with fully powered, irreversible elevator controls, what is an important advantage of an adjustable horizontal stabiliser for pitch trim?

a) The pilot does not feel the stick forces at all

b) It supplies pitch-trim authority by changing tail incidence, without relying on trim-tab airloads to move a hydraulically held elevator.

c) Trim tab deflection increases Mcrit

d) Mechanical adjustment of trim tabs creates too many problems

43. On the display of a TCAS II (Traffic alert and Collision Avoidance System), a traffic advisory (TA) is represented by:

a) A white or cyan empty lozenge.

b) A white or cyan solid lozenge.

c) An amber solid circle.

d) A red full square.

44. What does the word "NEGATIVE" mean?

a) Proposed action granted.

b) Permission not granted.

c) Consider that transmission as not sent.

d) Disregard last instruction.

45. The so-called 'Seat-of-the-Pants' sense is

a) Only to be used by experienced pilots with the permission to fly in IMC

b) Not suitable for spatial orientation when outside visual references are lost

c) The only sense a pilot can rely on, when flying in IMC

d) Useful for instrument and contact flight

46. The type of brake unit found on most transport aeroplanes is a:

a) Single disk brake.

b) Drum type brake.

c) Belt brake.

d) Multiple disk brake.

47. Which combination of information does a VOR/DME station give an aircraft?

a) Relative bearing and slant range

b) Magnetic radial and slant range

c) Localiser deviation and slant range

d) Magnetic radial and relative bearing

48. The datum used for balance calculations is:

a) Chosen on the longitudinal axis of the aeroplane, and necessarily situated between the nose and the tail of the aircraft

b) Chosen on the longitudinal axis of the aeroplane, but not necessarily between the nose and the tail of the aircraft

c) Chosen on the longitudinal axis of the aircraft, and always at the fire-wall level

d) Chosen on the longitudinal axis of the aircraft and necessarily situated between the leading edge and trailing edge of the wing

49. Under the current ICAO Annex 11 ATS route-designator system, what does a supplementary letter G added after the basic route designator indicate?

a) Flight information service only is provided on the route or portion concerned

b) Air traffic control service is provided to every flight on the route

c) Only air traffic advisory service is provided on the route

d) The route may be used only by aircraft in distress

50. The ground - air visual signal code for use by survivors on ground in order to indicate "REQUIRE ASSISTANCE" is (search and rescue signals):

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

51. Within its specified vertical sector, normal ICAO ILS glidepath coverage extends (i) …° on each side of the glidepath centreline to at least (ii) … NM from the glidepath antenna.

a) (i) 8 (ii) 10
b) (i) 5 (ii) 8
c) (i) 35 (ii) 25
d) (i) 25 (ii) 17

52. In the simple, unconstrained propeller-aircraft range model at fixed mass, altitude and configuration, what is the effect of a uniform headwind on the IAS for maximum ground range and on the IAS for maximum air-relative climb angle, respectively?

a) Maximum range speed decreases and maximum climb angle speed increases
b) Maximum range speed decreases and maximum climb angle speed decreases
c) Maximum range speed increases and maximum climb angle speed stays constant
d) Maximum range speed increases and maximum climb angle speed increases

53. The stopway is an area which allows an increase only in the:

a) Accelerate-stop distance available
b) Landing distance available
c) Take-off distance available
d) Take-off run available

54. The operator shall include in the operations manual a Minimum Equipment List which shall be approved by the Authority of:

a) The country of the operator.
b) It is not mandatory that such a book be approved by aviation authorities.
c) The country where the aircraft was manufactured.
d) The country where the aircraft is operated.

55. Isogonic lines connect positions that have:

a) 0° variation

b) The same elevation

c) The same variation

d) The same angle of magnetic dip

56. In accordance with IR-OPS an operator must ensure that the lowest MDH for a NDB approach without CDFA technique shall not be lower than:

a) 300 ft

b) 250 ft

c) 350 ft

d) 200 ft

57. Which statements about pneumatic de-icing boots are correct? 1 - Their basic operating principle is to prevent all ice from forming continuously. 2 - They are cyclically inflated by pneumatic pressure and then deflated. 3 - Inflation breaks ice that has accumulated on the boot. 4 - Every installation must operate at more than ten complete cycles per second.

a) 2 and 4

b) 2 and 3

c) 1 and 4

d) 1 and 3

58. Under current commercial air transport operating rules, the lowest minima to be used by an operator for circling with a category A aeroplane is a meteorological visibility of:

a) 2400 m

b) 1500 m

c) 3600 m

d) 1600 m

59. When a conductor cuts the flux of a magnetic field:

a) There will be no effect on the conductor.

b) An electromotive force (emf) is induced in the conductor.

c) Current will flow in accordance with Fleming's left hand rule.

d) The field will collapse.

60. In accordance with the PART-CAT, a single deck aeroplane, equipped with an approved seating capacity of 61 seats and carrying passengers, must be equipped with:

a) 2 megaphones.

b) 1 megaphone.

c) No megaphone.

d) 2 megaphones if there are more than 31 passengers on board.

61. In the northern hemisphere, during a take-off run in a westerly direction, a direct reading magnetic compass indicates:

a) An apparent turn to the north.

b) An apparent turn to the south.

c) No apparent turn.

d) An apparent turn to approximately the heading 255°.

62. The dewpoint temperature

a) Can be reached by cooling the air whilst keeping pressure constant

b) Can not be lower than the air temperature

c) Can not be equal to the air temperature

d) Can be reached by lowering the pressure whilst keeping temperature constant

63. According to EASA CS-25 the worst effect of a MAJOR FAILURE on the flight crew could be:

a) No effect on flight crew.

b) Physical distress or excessive workload, impairs ability to perform tasks.

c) Physical discomfort or a significant increase in workload.

d) A slight increase in workload.

64. 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.

65. In a typical Northern Hemisphere cold-front passage, what pressure and surface-wind changes are generally observed behind the front?

a) A steady fall in pressure and a veering of the surface wind.
b) A steady fall in pressure and a backing of the surface wind.
c) A steady rise in pressure and a backing of the surface wind.
d) A steady rise in pressure and a veering of the surface wind.

66. The formation of morning fog before sunrise is possible if

a) The wind is strong
b) Air temperature and dew point are equal or close to one another
c) The turbulence in the lower layers is moderate
d) The sky is overcast

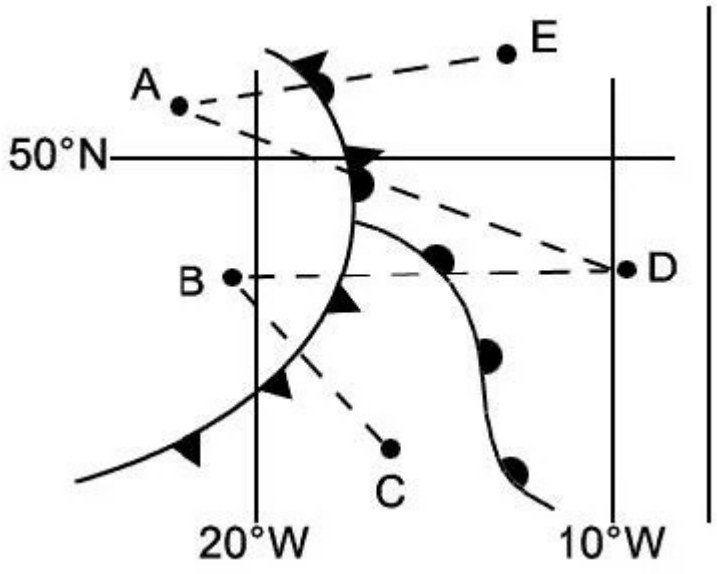
67. The pendulum type detector system of the directional gyro feeds:

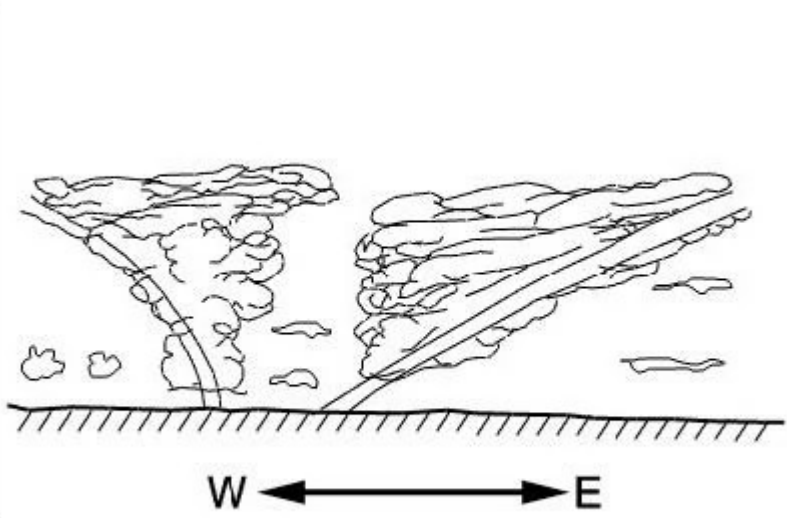
a) A torque motor on the sensitive axis
b) A nozzle integral with the outer gimbal ring
c) 2 torque motors arranged horizontally
d) A levelling erection torque motor

68. Under the approved take-off procedure, if a single critical-engine failure is recognised at or above V1 and the aeroplane remains capable of safe flight, the take-off should:

a) A height of 50 ft must be reached within the take-off distance
b) The take-off must be rejected if the speed is still below VLOF
c) The take-off should be rejected if the speed is still below VR
d) The take-off must be continued

69. Examining the pictures, on which one of the tracks (dashed lines) is this cross-section to be expected?





a) Track B-D
b) Track A-E
c) Track A-D
d) Track B-C

70. Aerodrome traffic is:

a) All traffic on the manoeuvring area and flying in the vicinity of an aerodrome.
b) All traffic in the aerodrome circuit.
c) All traffic on the movement area and flying in the vicinity of an aerodrome.
d) All traffic on the manoeuvring area.

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Response Scheme

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

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