



**ANDREWSFIELD AVIATION**

**FI COURSE PRE-ENTRY QUESTIONS**

**PAPER 2019/001**

Use of calculators or Navigation Computers not allowed.

1. You have obtained the following incomplete METAR:

EGSS 070845Z 29007KT 9999 BKN030 23/17 Q1011

How many Octas is BKN

- a. 1-2
  - b. 3-4
  - c. 5-7
  - d. 8
2. Deviation error of the magnetic compass is caused by:
- a. northerly turning error.
  - b. certain metals and electrical systems within the aircraft.
  - c. the difference in location of true north and magnetic north.
  - d. magnetic dip.
3. A lower than normal indication on a suction gauge is most likely caused by:
- a. a blocked air filter.
  - b. suction gauge failure.
  - c. a vacuum pump failure.
  - d. failure of the pressure pump.
4. Given the following, what is the magnetic variation?
- | Hdg (T) | Hdg (M) | Hdg (C) |
|---------|---------|---------|
| 270     | 260     | 263     |
- a. 3° W
  - b. 10°E
  - c. 10°W
  - d. 3°E
5. Using the figures given in question 4.  
What is the magnetic deviation?
- a. 10° E
  - b. 3° E
  - c. 3° W
  - d. 10° W

6. The forecast temperature at 3000 ft above mean sea level is +7°C. What is the difference between this temperature and the International Standard Atmosphere temperature for the same height?
- ISA +2°C
  - ISA -2°C
  - ISA -4°C
  - ISA -5°C
7. You plan to fly to an airfield which is 97 nm from your departure airfield. Your true airspeed is 94 knots and you have a headwind of 13 knots. How long will the flight take after setting course above your departure airfield?
- 77 minutes
  - 67 minutes
  - 72 minutes
  - 81 minutes

8. After commencing a descent from FL 60 for a landing at sea level, the aircraft's static vent becomes blocked with ice. The flight instruments will read as follows:

Altimeter	ASI	VSI
a. Over read	Under read	Up indication
b. Over read	Over read	Level indication
c. Under read	Under read	Down indication
d. Under read	Over read	Level indication

9. An aircraft is flying from A to B, a distance of 150nm at an altitude of 2000 ft on a Track (T) of 310°. The wind at 2000ft is forecast to be from 050° at 32 kt with an OAT of +6°. Using a TAS of 96 kt, what will be the Ground Speed and Magnetic Heading throughout the route? The Variation is 6°W.

- 105kt      324°
- 112kt      316°
- 98kt        336°
- 90kt        330°

10. As a "rule of thumb", what angle of bank is required to achieve a Rate 1 turn at an airspeed of 120KTAS
- 12°
  - 16°
  - 19°
  - 21°

11. When flying at a constant indicated altitude and heading towards an area of low pressure, which of the following statements is correct in respect of the true altitude of the aircraft?
- the altitude will increase.
  - the altitude will remain constant.
  - the altitude will decrease.
  - the altitude will vary.
12. If, following a rain shower the runway surface conditions are described as WET, this means that:
- the runway surface is soaked but there is no standing water.
  - significant patches of standing water are visible
  - when approaching to land a 10% lower threshold speed should be used.
  - extensive standing water is visible
13. A mandatory instruction sign at an aerodrome shall consist of an inscription in:
- black on a yellow background
  - yellow on a black background
  - white on a red background
  - red on a white background
14. An overweight aircraft will:
- have a lower takeoff speed and a longer take-off run.
  - have a lower stalling speed and good climb performance.
  - have a lower stalling speed and improved performance.
  - perform and handle badly and risk structural damage.
15. For maximum endurance in a piston engine aircraft, the aircraft should be flown at:
- the same indicated airspeed and throttle setting as for maximum range.
  - a lower indicated airspeed than for maximum range and at the lowest altitude that is safely possible.
  - a higher indicated airspeed than for maximum range and at the highest altitude that is safely possible.
  - at the same speed and power as for maximum range.
16. If a magneto becomes disconnected from its ignition switch with the engine running:
- a dead cut will result when the other magneto is switched off.
  - selection of the other magneto's ignition switch to OFF will fail to stop the engine.
  - one plug in each cylinder will fail to provide a spark.
  - a dead cut will result when both magnetos are switched off.

17. The artificial horizon (Attitude Indicator) employs:
- an earth gyro that rotates in a horizontal plane about a vertical axis.
  - a space gyro that rotates in a vertical plane about the aeroplane's lateral axis
  - an earth gyro that rotates in a vertical plane about a horizontal axis.
  - a tied gyro that rotates in a vertical plane about a horizontal axis.
18. As the speed of an aeroplane is increased:
- induced drag decreases and parasite drag increases.
  - induced drag increases and parasite drag decreases.
  - both induced drag and parasite drag decrease.
  - both induced drag and parasite drag increase.
19. If the centre of gravity of an aircraft close to the aft limit, this will cause:
- a decrease in take-off speed.
  - an increase in stalling speed.
  - increased static longitudinal stability.
  - low elevator forces during the landing flare.
20. A pilot flying a visual approach to an up-sloping runway is likely to fly:
- a steeper approach than intended.
  - close to the intended approach path.
  - a much steeper approach than intended.
  - a shallower approach than intended.
21. A pilot in straight and level flight but accelerating (e.g. during a go-around) may experience an illusory perception of:
- pitching nose up.
  - pitching nose down
  - rolling
  - flying level
22. Aeroplane performance is often tabulated against pressure altitude. At an aerodrome, elevation 864 feet the QFE 992 hector pascals. What is the approximate pressure altitude ?
- 463
  - 1520
  - 1494
  - 1236

23. A UK General Aviation Safety Sense Leaflet refers to light aircraft certificated in the “Normal Category”. That permits:
- Normal flying, no spinning or aerobatic manoeuvres, and a bank angle that may be restricted to less than 60°.
  - manoeuvres in which bank angles exceed 60°, spinning may be permitted, but no aerobatics.
  - manoeuvres in which bank angles exceed 60°, spinning and aerobatics permitted
  - normal flying, spinning (if permitted), and bank angles may exceed 60°.
24. In relation to a Special VFR flight in a Control Zone, which of the following is correct:
- An authorisation to make a Special VFR flight absolves the pilot from complying with IFR rules and with the requirement to maintain a minimum height of 1000ft above the highest fixed object within 600m of the aircraft. It does not absolve the pilot from any other rule.
  - For the purposes of landing the pilot must comply with ATC instructions, remain clear of cloud, in sight of the surface, and assuming the pilot has only a PPL, maintain a visibility of at least 10km.
  - An authorisation to make a Special VFR flight must only be regarded as a concession which will be granted when traffic conditions permit.
  - All the above statements are correct.
25. In the UK during winter, which of the following air masses could produce cumulus and cumulonimbus cloud by day and radiation fog by night ?
- Tropical continental air.
  - Polar continental air.
  - Polar maritime.
  - Tropical maritime.
26. While flying at night, as the pilot in command, you see an anti-collision light and a steady red light at the same altitude, at a constant relative bearing of 050 degrees, there is a risk of collision? And who has right of way?
- No. The other aircraft does.
  - Yes. You do.
  - Yes. The other aircraft does.
  - No. You do.

27. Aquaplaning speed:

- a. Can be calculated, in knots, by multiplying the square root of the tyre pressure in psi by nine.
- b. Increases as the depth of tread on the tyres reduces.
- c. Increases as the depth of water on the ground increases.
- d. Is measured in miles per hour.

28. Connecting two 12 volt, 40 ampere-hour, capacity batteries in series will provide a battery of:

- a. 24 volts and 80 ampere-hours capacity.
- b. 12 volts and 80 ampere-hours capacity.
- c. 24 volts and 40 ampere-hours capacity.
- d. 12 volts and 40 ampere hour's capacity.

29. Which of the following is not a component of a dry vacuum system?

- a. A filter to clean the air.
- b. A vacuum generator.
- c. A vacuum controller.
- d. A system lubrication device.

30. The result of an aircraft being loaded such that its C of G is on the aft limit is:

1. The stalling speed decreases
  2. Range and endurance increase
  3. The stalling speed increases
  4. Stick forces increase
- a. Only 2 and 4 are correct.
  - b. 1, 2, and 4 are correct.
  - c. Only 1 and 4 are correct.
  - d. Only 1 and 2 are correct.

31 Your aircraft has an oil reservoir with a capacity of 3 imp/gal which is positioned 20 inches aft of the datum. Given that the oil weighs 9.1 lbs/gal, the reservoir will possess a moment of:

- a. 27.3 lb in.
- b. 60 lb in.
- c. 546 lb in.
- d. 182 lb in.

32. Increasing the mass (and, therefore, weight) of the aircraft will:

- a. Decrease the rate and angle of climb.
- b. Increase the rate and angle of climb.
- c. Increase the rate of climb and decrease the angle of climb.
- d. Decrease the rate of climb and increase the angle of climb.

33. The blood carries \_\_\_\_ around the body and removes \_\_\_\_ from the body with the exchange occurring in the \_\_\_\_.

- a. Carbon Dioxide / Oxygen / Capillaries
- b. Carbon / Dioxide / Oxygen Veins
- c. Oxygen / Carbon Dioxide / Arteries
- d. Oxygen / Carbon Dioxide / Capillaries

34. Enter into the following statement the most correct pair of gases from the options below.

Haemoglobin in red blood cells is more readily attracted to \_\_\_\_ than \_\_\_\_.

- a. Carbon Dioxide / Nitrogen.
- b. Nitrogen / Oxygen.
- c. Oxygen / Nitrogen.
- d. Carbon Monoxide / Oxygen.

35. What are the proportions of gases in the atmosphere?

- a. Oxygen 21%, Nitrogen 78%, other gasses 1%.
- b. Oxygen 21%, Hydrogen 78%, other gasses 1%.
- c. Nitrogen 78%, Argon 21%, Oxygen 1%.
- d. Nitrogen 78%, Oxygen 21%, Hydrogen 1%.

36. In still air the temperature decreases at an average of 1.2°C per 1000 ft 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



37. An aircraft flies at a constant indicated altitude from airfield A (QNH 1009 hPa) to airfield B (QNH 1019 hPa). If the subscale is not reset from 1009, what would be expected when over airfield B:
- Indicated altitude to be more than actual altitude.
  - Indicated altitude to be the same as actual altitude.
  - Indicated altitude to be less than actual altitude.
  - Indicated altitude may be greater or less depending on the airfield elevation.
38. What is the angle of inclination of the Earth's axis to its orbital plane?
- 23,5°
  - 66,5°
  - 90°
  - 33,5°
39. A Rhumb Line is?
- A regularly curved line on the Earth's surface which cuts all meridians at the same angle.
  - A regularly curved line on the Earth's surface which cuts all parallels of Latitude at the same angle.
  - A line showing True north.
  - A line on the surface of the Earth whose centre and radius are those of the Earth.
40. An isogonal is a line joining points of:
- Zero magnetic variation.
  - Equal magnetic deviation.
  - Equal magnetic variation.
  - Zero magnetic deviation.
41. In the course of a flight during daylight hours, a pilot notices that the aircraft's anti-collision light has failed. What course of action should he take?
- Continue with the flight, as long as it can be completed in daylight, and get the light repaired at the earliest opportunity.
  - Land immediately at the nearest aerodrome.
  - Land as soon as practically possible at the nearest suitable airfield.
  - Return to his base airfield and declare the aircraft unserviceable until the light has been repaired.

42. How should the flight controls be held while taxiing a tricycle-gear equipped airplane in a left quartering tailwind?
- Right aileron down, elevator neutral.
  - Left aileron up, elevator neutral.
  - Left aileron up, elevator down.
  - Left aileron down, elevator down.
43. When considering the changes in density of the air with altitude, which of the following four options is correct?
- The reduction in pressure with increasing altitude causes density to reduce.
  - The temperature increase with increasing altitude causes density to increase.
  - The temperature reduction with increasing altitude causes density to increase.
  - The increase in pressure with increasing altitude causes density to reduce.
44. What is the Q code for a true bearing from a station?
- QNH.
  - QDR.
  - QTE.
  - QFE.
45. What is the meaning of the phrase "ROGER"?
- Permission for proposed action granted.
  - I have received and understood your last message.
  - My transmission is ended and I expect a response from you.
  - I have received all of your last transmission.
46. In most training aeroplanes the centre of pressure is ..... the centre of gravity, and the tail plane produces an .....force.
- ahead          upward
  - behind        downward
  - ahead        downward
  - behind        upward

47. Which of the following statements most correctly completes the following statement?

When two or more aircraft are approaching same aerodrome for landing:

- a. The lower aircraft has the right of way unless ATC has already specified a landing order.
- b. The higher aircraft always has the right of way.
- c. The lower aircraft always has the right of way.
- d. The aircraft which has the least horizontal distance to run to the runway threshold has the right of way.

48. You are flying VFR in Class G airspace on a magnetic track of 178 degrees on a QNH of 996 hectopascals. The transition level is 3000 feet. What is the lowest flight level available to you ?

- a. Flight Level 45
- b. Flight Level 35
- c. Flight Level 40
- d. Flight Level 55

49. The conditions which must exist to allow thunderstorms to develop are:

- a. A plentiful supply of moisture and a steep lapse rate through a large vertical extent, together with a trigger action.
- b. A trigger action, a plentiful supply of moisture and a very stable atmosphere.
- c. A steep lapse rate, a stable atmosphere through a large vertical extent, and a plentiful supply of moisture.
- d. A steep lapse rate through a large vertical extent, a low relative humidity and a trigger action.

50. Except when necessary for take-off or landing, or except by permission from the competent authority, a VFR flight shall not be flown:

(1) over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than ....V....300 m (1 000 ft) above the highest obstacle within a radius of ....W....600 m from the aircraft;

(2) elsewhere than as specified in (1), at a height less than ....X....150 m (500 ft) above the ground or water, or ....Y....150 m (500 ft) above the highest obstacle within a radius of ....Z....150 m (500 ft) from the aircraft.

	V	W	X	Y	Z
a.	200m	500m	150m	200m	300m
b.	300m	600m	150m	150m	150m
c.	300m	600m	200m	150m	200m
d.	250m	500m	200m	150m	150m