



Headquarters Air Cadets Examination

Staff Cadet

32/4 Pilot Navigation

Generated 17-Jul-01

GROUP 3

www.134.org.uk

Serial: 400

1. Use black or dark blue pen, NOT pencil.
2. Mark one answer per question with a cross.
3. If you wish to change an answer, cancel the original mark and mark another single answer.

☒ A selected answer.

☒ A cancelled answer.

Mark:

Name and Initials _____

Date of Exam _____

Date of Birth _____

Squadron/Unit _____

Wing _____

- 1 How does the met office pass information about airfield weather to aircrew:
 - a ☐ By RADAR
 - b ☐ By TEMPOs and BECMGs
 - c ☐ By TELEVISION
 - d ☐ By using TAFs and METARs
- 2 What is the essential requirement of a feature for use in low level map reading:
 - a ☐ It must have vertical extent
 - b ☐ It must be a water feature
 - c ☐ It must be a different colour from the background
 - d ☐ It must be large enough to be seen at high speed
- 3 For what reasons do we need to calculate leg times and ETA's on our Pilot Navigation card:
 - a ☐ Air traffic and for astro calculations
 - b ☐ Fuel and de-icing fluid
 - c ☐ To calculate safety altitude and variation
 - d ☐ Fuel and air traffic
- 4 Flying at a typical airliner cruising level of 34000 feet, what would you expect the atmospheric pressure outside the a/c to be:
 - a ☐ One half of sea level pressure
 - b ☐ One quarter of sea level pressure
 - c ☐ One tenth of sea level pressure
 - d ☐ Three quarters of sea level pressure
- 5 In which 2 countries would you expect to be told by air traffic control to fly at a height of 300 metres instead of 1000 feet:
 - a ☐ Russia and China
 - b ☐ USA and Mexico
 - c ☐ UK and Ireland
 - d ☐ Australia and New Zealand
- 6 What is the best thing for an aviator to do about thunderstorms:
 - a ☐ Use the radar to go through the centre
 - b ☐ Pass downwind of them
 - c ☐ Stay on the ground
 - d ☐ Avoid them by a wide margin
- 7 All long range nav aids work on a similar basis, what do the equipments use to calculate position:
 - a ☐ Phase difference on various radials
 - b ☐ Time interval between synchronized signals
 - c ☐ Old moore's almanac
 - d ☐ Time interval between successive fixes
- 8 In a 3-position line fix what is the ideal angle between position lines:
 - a ☐ 30 degrees
 - b ☐ 60 degrees
 - c ☐ 90 degrees
 - d ☐ 45 degrees
- 9 What is the name of the first worldwide fixing aid:
 - a ☐ GPS
 - b ☐ Omega
 - c ☐ Loran
 - d ☐ Sputnik
- 10 If the highest obstacle near your track is 1750ft, what is your safety altitude:
 - a ☐ 2700ft
 - b ☐ 2800ft
 - c ☐ 3800ft
 - d ☐ 1800ft
- 11 As well as solving the triangle of velocities, what other information is logged on the Pilot Navigation log card:
 - a ☐ Time for each leg and fuel required
 - b ☐ Met forecast of icing and thunderstorms
 - c ☐ Amount of fuel received from tanker
 - d ☐ Time for each leg and a/c registration
- 12 Most large a/c have cabin pressurization systems to maintain air pressure inside the a/c fairly close to sea level pressure. Why is this:
 - a ☐ It keeps the cabin warm
 - b ☐ It helps the stewardesses keep the passengers calm
 - c ☐ It maintains the oxygen level
 - d ☐ It reduces the a/c fuel consumption
- 13 The units used for vertical distance and speed in most countries are:
 - a ☐ Feet and knots
 - b ☐ Feet and feet per minute
 - c ☐ Metres and knots
 - d ☐ Metres and metres per minute

14 What is the main difference between map reading on the ground and in the air:

- a ☐ The scale of maps is so different
- b ☐ You do not need waterproof maps in the air
- c ☐ There is no time in the air to discuss where we are
- d ☐ You don't have to wear an oxygen mask on the ground

15 What is the major advantage of Astro Navigation over more modern systems:

- a ☐ It is easier to use
- b ☐ It can only be used by naval aviators
- c ☐ It cannot be jammed
- d ☐ It is more accurate

16 Which of the following would you not expect to find on an air traffic control flight plan:

- a ☐ Persons on board
- b ☐ Destination
- c ☐ Windforecast
- d ☐ Callsign

17 What units would you expect to see on the fuel gauge of a Eurofighter

- a ☐ Kilogrammes
- b ☐ Imperial gallons
- c ☐ Pounds
- d ☐ US gallons

18 Why must you be very careful if using an OS map to work out safety altitudes:

- a ☐ The elevations are in metres
- b ☐ The grid is based on kilometre squares
- c ☐ The map is out of date
- d ☐ The map does not cover a large enough area

19 If you saw the term CAVOK in weather report, what would it mean to you:

- a ☐ Visibility better than 5km, no cloud below 10,000ft
- b ☐ Visibility 5km, cloud base 10,000ft
- c ☐ Visibility better than 10km, no cloud below 5,000ft
- d ☐ Combat all-terrain vehicles ok

20 What causes the air pressure at sea level:

- a ☐ All the aircraft flying around
- b ☐ Depression
- c ☐ The movement of highs and lows on the weather chart
- d ☐ The weight of the air above it

21 When choosing natural (rather than man-made) features for map reading, what characteristic is most important:

- a ☐ Their contrast and colour
- b ☐ Whether they are frozen or not
- c ☐ How they are shown on the map
- d ☐ Their size

22 The best passive navigation system is:

- a ☐ Twin inertial with omega
- b ☐ Loran with astro
- c ☐ Astro alone
- d ☐ Triple inertial with GPS

23 The radio compass enables you to take what kind of fix:

- a ☐ 3 position line fix
- b ☐ VOR/DME fix
- c ☐ Astro heading fix
- d ☐ Tacan fix

24 What is the purpose of the Pilot Navigation log card:

- a ☐ It tells the pilot where the a/c is
- b ☐ It records the instrument readings every 6 minutes
- c ☐ It is an accurate record of the flight for squadron statistics
- d ☐ It enables the pilot to plan the flight

25 An aircraft is flying at 2000ft above sea level, towards a hill whose peak is 1000 metres above sea level. If the pilot takes no further action, will the a/c:

- a ☐ Miss the hill by 1000 metres
- b ☐ Miss the hill by 1000ft
- c ☐ Hit the hill more than half way up the slope
- d ☐ Hit the hill near the peak