



Headquarters Air Cadets Examination

GROUP 3

Staff Cadet

32/4 Pilot Navigation

Generated 16-Jul-02

Serial: 518

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 _____ www.134.org.uk

How does the met office pass information about airfield weather to aircrew:

- ☐ By TELEVISION
- ☐ By using TAFs and METARs
- ☐ By RADAR
- ☐ By TEMPOs and BECMGs

What is the essential requirement of a feature for use in low level map reading:

- ☐ It must be a different colour from the background
- ☐ It must be a water feature
- ☐ It must be large enough to be seen at high speed
- ☐ It must have vertical extent

Why do you need to know the outside air temperature at operating altitude in order to complete your flight planning:

- ☐ To ensure that the engines will work
- ☐ To calculate TAS from RAS
- ☐ To calculate IAS from mach No
- ☐ To ensure that the passengers meals stay frozen

Flying at a typical airliner cruising level of 34000 feet, what would you expect the atmospheric pressure outside the a/c to be:

- ☐ One tenth of sea level pressure
- ☐ One half of sea level pressure
- ☐ One quarter of sea level pressure
- ☐ Three quarters of sea level pressure

5 If the wind indicated by the isobars on a weather chart is 200 degrees/20kts, what would you expect the surface wind to be:

- ☐ 175/25
- ☐ 175/15
- ☐ 200/20
- ☐ 230/15

6 What is the best thing for an aviator to do about thunderstorms:

- ☐ Pass downwind of them
- ☐ Use the radar to go through the centre
- ☐ Stay on the ground
- ☐ 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:

- ☐ Phase difference on various radials
- ☐ Old moore's almanac
- ☐ Time interval between successive fixes
- ☐ Time interval between synchronized signals

8 Both VOR/DME and TACAN give the same information, is it:

- ☐ True heading and range to the beacon
- ☐ Airway centreline and distance
- ☐ Magnetic bearing and range to beacon
- ☐ Magnetic track and groundspeed

9 In the early stages of training, students are made to concentrate on which method of navigation:

- ☐ Astro navigation
- ☐ Map reading
- ☐ Mechanical track plot
- ☐ Air plot

10 If the highest obstacle near your track is 1750ft, what is your safety altitude:

- ☐ 1800ft
- ☐ 3800ft
- ☐ 2800ft
- ☐ 2700ft

11 How many elements of the vector triangle are needed in order that the triangle may be solved:

- ☐ 4
- ☐ 6
- ☐ half
- ☐ 3

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:

- ☐ It keeps the cabin warm
- ☐ It reduces the a/c fuel consumption
- ☐ It maintains the oxygen level
- ☐ It helps the stewards keep the passengers calm

13 Which of the following is not one of the hazards to a/c that is found in thunderstorms:

- ☐ ISOBARS
- ☐ ICING
- ☐ LIGHTNING
- ☐ TURBULENCE

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

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

Which units are used to measure pressure in the atmosphere throughout Europe?

☐ Millibars
☐ Hectonewtons
☐ Inches of mercury
☐ Atmospheres

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

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

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

☐ US gallons
☐ Kilograms
☐ Imperial gallons
☐ Pounds



The diagram shows a vector triangle for a flight along an easterly track. With the NE wind, which of the following is true:

☐ The heading is approximately 080 degrees
☐ The TAS is less than the groundspeed
☐ The a/c experiences port drift
☐ Without doppler radar, nothing is certain

The radio compass works on the same principle as which of these equipments:

☐ A gyro magnetic compass
☐ A radio sonar buoy
☐ A radio 1 transmitter
☐ A small portable radio

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:

☐ Hit the hill near the peak
☐ Miss the hill by 1000 metres
☐ Hit the hill more than half way up the slope
☐ Miss the hill by 1000ft

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

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

23 In the early days of aviation what did pilots have to rely on for navigation:

☐ The navigator
☐ The observer
☐ The stars
☐ Map reading

22 What is the major disadvantage of radar in combat a/c:

☐ It gives away your location
☐ You need a weapon system operator to use it
☐ It only works at low level
☐ It only works at night

21 What is the most important characteristic of a map reading feature:

☐ It must be small enough
☐ It must be large enough
☐ It must be tall enough
☐ It should be unique

20 What causes the air pressure at sea level:

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