



# Headquarters Air Cadets Examination

Staff Cadet  
Pilot Navigation  
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Serial: 43

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 \_\_\_\_\_

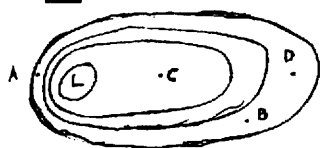
Squadron/Unit \_\_\_\_\_ Wing \_\_\_\_\_

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

- a ☐ By using TAFs and METARs
- b ☐ By TELEVISION
- c ☐ By RADAR
- d ☐ By TEMPOs and BECMGs

2 Where in this pressure diagram will the wind speed be greatest:

- a ☐ C
- b ☐ D
- c ☐ A
- d ☐ B



3 For what reasons do we need to calculate leg times and ETA's on our Pilot Navigation card:

- a ☐ Fuel and de-icing fluid
- b ☐ To calculate safety altitude and variation
- c ☐ Fuel and air traffic
- d ☐ Air traffic and for astro calculations

4 If an a/c fuel tank was filled with water, it would contain 5000 pounds of water. If this water is now replaced by fuel at an SG of 0.80, how heavy would the fuel be:

- a ☐ 4000 pounds
- b ☐ 400 gallons
- c ☐ 8000 pounds
- d ☐ 5000 pounds

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 ☐ UK and Ireland
- c ☐ Australia and New Zealand
- d ☐ USA and Mexico

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

- a ☐ Avoid them by a wide margin
- b ☐ Use the radar to go through the centre
- c ☐ Pass downwind of them
- d ☐ Stay on the ground

7 In a simple a/c, what piece of equipment do we rely on to assist with map reading:

- a ☐ The radar
- b ☐ The watch
- c ☐ The gyro magnetic compass
- d ☐ The magnifying glass

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

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

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

- a ☐ Astro navigation
- b ☐ Air plot
- c ☐ Map reading
- d ☐ Mechanical track plot

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

- a ☐ 2700ft
- b ☐ 1800ft
- c ☐ 3800ft
- d ☐ 2800ft

11 As well as solving the triangle of velocities, what other information is logged on the Pilot Navigation log card:

- a ☐ Amount of fuel received from tanker
- b ☐ Time for each leg and a/c registration
- c ☐ Met forecast of icing and thunderstorms
- d ☐ Time for each leg and fuel required

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

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

- a ☐ ICING
- b ☐ LIGHTNING
- c ☐ TURBULENCE
- d ☐ ISOBARS

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

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

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

- a ☐ A radio 1 transmitter
- b ☐ A gyro magnetic compass
- c ☐ A small portable radio
- d ☐ A radio sonar buoy

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

- a ☐ Destination
- b ☐ Callsign
- c ☐ Persons on board
- d ☐ Wind forecast

17 In the triangle of velocities, which vector represents the wind velocity:

- a ☐ The angle between track and heading
- b ☐ The vector with one arrowhead
- c ☐ The vector with two arrowheads
- d ☐ The vector with three arrowheads

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

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

19 The main difference between a TAF and a METAR is:

- a ☐ One is a report, the other is a forecast
- b ☐ One never includes the wind velocity
- c ☐ One is for a longer time period than the other
- d ☐ One TAF is more reliable

20 What causes the air pressure at sea level:

- a ☐ The movement of highs and lows on the weather chart
- b ☐ All the aircraft flying around
- c ☐ Depression
- 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 ☐ How they are shown on the map
- b ☐ Their contrast and colour
- c ☐ Their size
- d ☐ Whether they are frozen or not

22 The best passive navigation system is:

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

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

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

24 If you are flying an a/c at 2000' and you fly into cloud, to what altitude must you climb:

- a ☐ 3000ft
- b ☐ To safety altitude or higher
- c ☐ Flight level 40
- d ☐ Maintain altitude

25 The country which is changing to metric units most slowly in aviation is:

- a ☐ Russia
- b ☐ USA
- c ☐ UK
- d ☐ France