



# Headquarters Air Cadets Examination

Staff Cadet  
32/4 Pilot Navigation

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Serial: 202

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 RADAR
- c ☐ By TELEVISION
- d ☐ By TEMPOs and BECMGs

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

- a ☐ C
- b ☐ A
- c ☐ B
- d ☐ D



3 Only one long range Navigation System gives accuracies of about 100 metres. Which is it:

- a ☐ GPS
- b ☐ GEE
- c ☐ LORAN
- d ☐ DECCA

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

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:

- a ☐ 200/20
- b ☐ 175/25
- c ☐ 230/15
- d ☐ 175/15

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

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

7 All long range nav aids work on a similar basis, what do the equipments use to calculate position:

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

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 ☐ Airway centreline and distance
- d ☐ Magnetic track and groundspeed

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

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

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

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

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

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

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

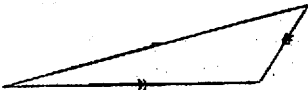
- a ☐ You don't have to wear an oxygen mask on the ground
- b ☐ The scale of maps is so different
- c ☐ There is no time in the air to discuss where we are
- d ☐ You do not need waterproof maps in the air

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

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

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

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



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

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

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 grid is based on kilometre squares
- d ☐ The elevations are in metres

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

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

20 What causes the air pressure at sea level:

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

21 What is the major variable in the atmosphere which affects weather:

- a ☐ Water in all its forms
- b ☐ Cigarette smoke
- c ☐ Temperature
- d ☐ Pressure

22 The best passive navigation system is:

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

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

- a ☐ Map reading
- b ☐ The observer
- c ☐ The navigator
- d ☐ The stars

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

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

25 If the fuel tanker has its fuel delivery guages calibrated in different units from the receiver aircraft fuel guages, what method of conversion would the crew use:

- a ☐ A fuel weight and volume conversion chart
- b ☐ A DR computer
- c ☐ A calculator
- d ☐ Any of the other three answer methods