



Headquarters Air Cadets Examination

S-taff Cade
32/4 Pilot Navigatio

Generated 06-Aug-03

Serial : 49

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 TEMPOs and BECMGs
- b ☐ By TELEVISION
- c ☐ By RADAR
- 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 be a different colour from the background
- b ☐ It must be a water feature
- c ☐ It must be large enough to be seen at high speed
- d ☐ It must have vertical extent

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

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

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 ☐ 4000 pounds
- c ☐ 400 gallons
- d ☐ 8000 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 ☐ 175/15
- b ☐ 230/15
- c ☐ 200/20
- d ☐ 175/25

6 The 4 main reasons that air moves vertically are known as the trigger actions. What are these:

- a ☐ Market forces, radiation, x-rays, frontal uplift
- b ☐ Conduction, precipitation, thunderstorms, convection
- c ☐ Turbulence, conduction, orographic, fiscal
- d ☐ Turbulence, convection, orographic and frontal uplift

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

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

8 In the tornado GR variants, a computer generated low level map can be superimposed over the radar picture. What does this enable the Navigator to do:

- a ☐ Avoid carrying paper maps
- b ☐ Spot the golf courses he/she would like to play
- c ☐ Use look down, shoot down missiles
- d ☐ Take quick, accurate fixes

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

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

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

- a ☐ 3800ft
- b ☐ 1800ft
- c ☐ 2700ft
- 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 fuel required
- c ☐ Time for each leg and a/c registration
- d ☐ Met forecast of icing and thunderstorms

12 Why do we use units of volume for a/c fuel, even though it would be more correct to measure its mass:

- a ☐ The Americans don't like doing it that way
- b ☐ The mass of the fuel depends on its type
- c ☐ It is impossible to weigh the fuel in the air
- d ☐ The fuel is affected by outside air temperatures

13 In the northern hemisphere, if you stand with your back to the wind, where is the higher pressure air:

- a ☐ On your left
 - b ☐ On your right
 - c ☐ Above you
 - d ☐ In front of you
-

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

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

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

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

- a ☐ Kilogrammes
 - b ☐ Pounds
 - c ☐ US gallons
 - d ☐ Imperial 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 What form of precipitation is commonest in thunderstorms:

- a ☐ SNOW
 - b ☐ DRIZZLE
 - c ☐ HAIL
 - d ☐ SHOWERS
-

20 What are clouds made of:

- a ☐ Steam
 - b ☐ Visible droplets of water
 - c ☐ Scotch mist
 - d ☐ Water vapour
-

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 ☐ Their size
 - d ☐ How they are shown on the map
-

22 The first long range Navigation System to give world wide coverage was Omega. This is now being replaced by what system:

- a ☐ ILS
 - b ☐ GPS
 - c ☐ TCAS
 - d ☐ LORAN
-

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

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

24 What must a pilot do in order to complete the Pilot Navigation log card:

- a ☐ Ensure the a/c has the correct equipment fitted
 - b ☐ Extract the tower frequencies from the navigation handbook
 - c ☐ Measure the tracks with dividers and the distances with a protractor
 - d ☐ Measure the tracks with a protractor and the distances with dividers
-

25 Outside the USA, what units are used to measure atmospheric pressure:

- a ☐ Millimetres of mercury
 - b ☐ Inches of mercury
 - c ☐ Millibars
 - d ☐ Pounds per square inch
-