



Headquarters Air Cadets

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Staff Cadet

Examination

32/4 Pilot Navigation

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GROUP 4

Serial: 755

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 _____

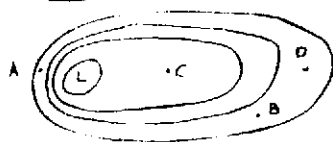
Wing _____

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

- a ☐ A
- b ☐ C
- c ☐ D
- d ☐ B



3 How is drift shown in the triangle of velocities:

- a ☐ The angle between track and heading
- b ☐ It is not shown at all
- c ☐ The angle between track and wind direction
- d ☐ The angle between heading and wind direction

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

5 In a TAF what would -SHSN mean:

- a ☐ Snow all day
- b ☐ Light snow showers
- c ☐ Heavy snow
- d ☐ Sleet

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

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

7 What is the best defence against enemy detection of active navigation systems in fast jet a/c:

- a ☐ Use only astro navigation
- b ☐ Climb to service ceiling
- c ☐ Use only passive systems
- d ☐ Scramble/unscramble the signals

8 In a 3-position line fix what is the ideal angle between position lines:

- a ☐ 90 degrees
- b ☐ 60 degrees
- c ☐ 45 degrees
- d ☐ 30 degrees

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 1750ft, what is your safety altitude:

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

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

- a ☐ 4
- b ☐ 6
- c ☐ 3
- d ☐ half

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

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

13 The base level of clouds is normally the point at which rising air has cooled to what temperature:

- a ☐ Its dewpoint
- b ☐ 0 degrees F
- c ☐ 0 degrees C
- d ☐ Its condensation

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

16 In the triangle of velocities, which vector represents the track and groundspeed:

- a ☐ The longest one
- b ☐ The vector with one arrowhead
- c ☐ The shortest one
- d ☐ The vector with two arrowheads

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 vector with one arrowhead
- d ☐ The angle between track and heading

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 elevations are in metres
- c ☐ The map is out of date
- d ☐ The grid is based on kilometre squares

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

- a ☐ Atmospheres
- b ☐ Hectonewtons
- c ☐ Inches of mercury
- d ☐ Millibars

20 What causes the air pressure at sea level:

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

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

- a ☐ It must be small enough
- b ☐ It must be tall enough
- c ☐ It must be large enough
- d ☐ It should be unique

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

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

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

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

24 What is the quickest and most accurate way of solving the vector triangle:

- a ☐ Mentally
- b ☐ Using a word processor
- c ☐ Using a sheet of graph paper
- d ☐ Using the Dalton DR computer

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

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