Headquarters Air Cadets
Examination

GROUP 3

Staff Cadet
32/4 Pilot Navigation
Generated 17-Jul-01

Serial: 400

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 Initals _____ Date of Exam _____

Date of Birth _____ Squadron/Unit _____ Wing _____

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

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

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

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

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

a ☐ One half of sea level pressure
b ☐ One quarter of sea level pressure
c ☐ One tenth of sea level pressure
d ☐ Three quarters of sea level pressure

5 In which 2 countries would you expect to be told by air traffic contol to fly at a height of 300 metres instead of 1000 feet:

a ☐ Russia and China
b ☐ USA and Mexico
c ☐ UK and Ireland
d ☐ Australia and New Zealand

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

a ☐ Use the radar to go through the centre
b ☐ Pass downwind of them
c ☐ Stay on the ground
d ☐ 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:

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

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

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

9 What is the name of the first worldwide fixing aid:

a ☐ GPS
b ☐ Omega
c ☐ Loran
d ☐ Sputnik

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

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

13 The units used for vertical distance and speed in most countries are:

a ☐ Feet and knots
b ☐ Feet and feet per minute
c ☐ Metres and knots
d ☐ Metres and metres per minute

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 is easier to use

b ☐ It can only be used by naval aviators

c ☐ It cannot be jammed

d ☐ It is more accurate

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

a ☐ Persons on board

b ☐ Destination

c ☐ Windforecast

d ☐ Callsign

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

a ☐ Kilogrammes

b ☐ Imperial gallons

c ☐ Pounds

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

a ☐ Visibility better than 5km, no cloud below 10,000ft

b ☐ Visibility 5km, cloud base 10,000ft

c ☐ Visibility better than 10km, no cloud below 5,000ft

d ☐ Combat all-terrain vehicles ok

20 What causes the air pressure at sea level:

a ☐ All the aircraft flying around

b ☐ Depression

c ☐ The movement of highs and lows on the weather chart

d ☐ The weight of the air above it

21 When choosing natural (rather than man-made) features for map reading, what charatceristic is most important:

a ☐ Their contrast and colour

b ☐ Whether they are frozen or not

c ☐ How they are shown on the map

d ☐ Their size

22 The best passive navigation system is:

a ☐ Twin inertial with omega

b ☐ Loran with astro

c ☐ Astro alone

d ☐ Triple inertial with GPS

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

a ☐ 3 position line fix

b ☐ VOR/DME fix

c ☐ Astro heading fix

d ☐ Tacan fix

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

a ☐ It tells the pilot where the a/c is

b ☐ It records the instrument readings every 6 minutes

c ☐ It is an accurate record of the flight for squadron statistics

d ☐ It enables the pilot to plan the flight

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:

a ☐ Miss the hill by 1000 metres

b ☐ Miss the hill by 1000ft

c ☐ Hit the hill more than half way up the slope

d ☐ Hit the hill near the peak