Headquarters Air Cadets
Examination

Leading Cadet
32/2 Basic Navigation
Generated 18-Jul-00
Serial: 271

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 The difference between true north and grid north arises because:

a ☐ Lines of latitude are not parallel
b ☐ Lines of latitude and longitude do not match grid lines exactly
c ☐ Lines of latitude and longitude match grid lines exactly
d ☐ Grid lines get closer together near the poles of the Earth

2 Orientating a map can also be called:

a ☐ Ranging a map
b ☐ Organising a map
c ☐ Sighting a map
d ☐ Setting a map

3 Correctly orientating your map will help you to:

a ☐ Read place names more easily
b ☐ Read the numbers on contour lines more easily
c ☐ Measure distances more accurately
d ☐ Determine your approximate location more easily

4 Which star group can be used to find the Pole Star:

a ☐ The Great Bear
b ☐ Orion's Belt
c ☐ The Crab Nebula
d ☐ The Milky Way

5 A freely-suspended magnetic needle will point:

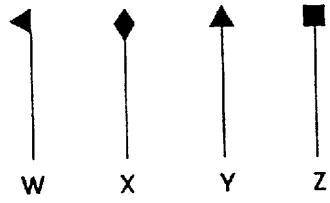
a ☐ To grid north
b ☐ Straight down to the ground
c ☐ To the magnetic north pole
d ☐ To the geographical north pole

6 Which of the following statements about the direction of magnetic north from locations in the UK, is true?

a ☐ It differs from both true and grid north
b ☐ It is the same as true north
c ☐ It is the same as grid north
d ☐ It is the same as both true and grid north

7 Which of these symbols represents magnetic north?

a ☐ Y
b ☐ X
c ☐ Z
d ☐ W



8 The angular difference between magnetic north and grid north on a map is known as:

a ☐ Grid deviation angle
b ☐ Compass deviation angle
c ☐ Grid magnetic angle
d ☐ Magnetic deviation angle

9 Where on an M726 OS map is the information on magnetic variation located:

a ☐ On the back of the map
b ☐ On the extreme left of the map
c ☐ At the bottom of the map
d ☐ At the top of the map

10 When using a magnetic compass, why is it particularly important to hold it horizontal when taking a reading?

a ☐ To improve damping
b ☐ To eliminate compass errors
c ☐ To ensure that the needle floats freely
d ☐ To minimise the effect of local magnetic attraction (eg. from wire fences, electric cables, etc)

11 Which of the following would be most likely to cause magnetic deviation if close to a compass:

a ☐ Aluminium tent pole
b ☐ A cattle grid
c ☐ A plastic water bottle
d ☐ A tree

12 The final step in setting a map with a compass is to:

a ☐ Turn the map and compass together until the needle is pointing south
b ☐ Turn the map only until it is pointing north
c ☐ Turn the compass only until it is pointing at north
d ☐ Turn the map and compass together until the needle is inside the orientating arrow

13 To take a bearing between 2 features on a map you would first place the compass on the map so that its longest edge runs through both features and its direction of travel arrow points in your intended direction of travel. You would then:

a ☐ Turn the capsule on the compass to deduct the grid magnetic angle

b ☐ Turn the capsule on the compass until the needle falls into the orienting arrow

c ☐ Turn the map and compass together until the needle falls into the orienting arrow

d ☐ Turn the capsule on the compass so that its orienting lines are parallel to the north-south grid lin

14 A grid bearing from a M726 series OS map on which the magnetic variation is westerly, can be converted to a magnetic bearing by:

a ☐ Subtracting the angular difference between magnetic north and grid north

b ☐ Adding the angular difference between magnetic north and grid north

c ☐ Adding the angular difference between grid north and true north

d ☐ Subtracting the angular difference between grid north and true north

15 A Roamer would be used in finding:

a ☐ The grid reference point

b ☐ A relative bearing

c ☐ The average gradient

d ☐ The direction of a track

16 You are at a point where variation is 1 degree W, and Grid Magnetic Angle is 6 degrees W. If the compass bearing of a trig point is 150 degrees what is its Grid bearing?

a ☐ 156 degrees

b ☐ 157 degrees

c ☐ 143 degrees

d ☐ 144 degrees

17 A cadet is able to walk 1km over reasonably flat ground in 20 mins. How long would it take him to cover a distance of 4.5km over similar terrain?

a ☐ 60 mins

b ☐ 90 mins

c ☐ 120 mins

d ☐ 40 mins

18 Measuring distances accurately whilst out walking helps you particularly to:

a ☐ Calculate the gradient

b ☐ Reduce the area of uncertainty in your position

c ☐ Calculate magnetic variation

d ☐ Choose the shortest route

19 A cadet decides to follow a stream down from the hill-side because she knows that the stream runs close to her campsite. The cadet is using a navigational technique known as:

a ☐ Handrailing

b ☐ Contouring

c ☐ Aiming off

d ☐ Resection

20 Which air mass originates in Siberia and brings to the UK warm weather in summer and cold weather in winter?

a ☐ Polar continental

b ☐ Arctic maritime

c ☐ Tropical continental

d ☐ Tropical maritime

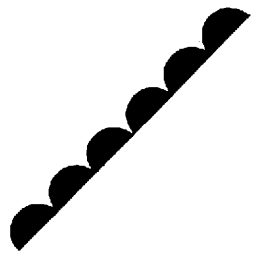
21 The diagram shows:

a ☐ Cold front

b ☐ Warm front

c ☐ Occluded front

d ☐ Depression



22 Generally, an area of high pressure will tend to bring:

a ☐ Fast moving wet weather systems

b ☐ Fast moving fine weather systems

c ☐ Long periods of fine weather

d ☐ Long periods of poor weather

23 Isobars are lines drawn on a weather map joining points of equal:

a ☐ Pressure

b ☐ Humidity

c ☐ Windspeed

d ☐ Temperature

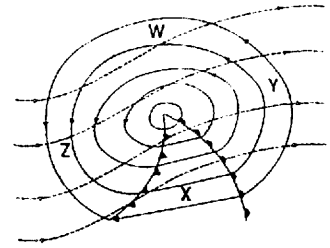
24 In the diagram the dotted lines represent the upper wind and the solid lines the lower wind. if you stood at Y with your back to the lower wind and the upper wind is moving from left to right:

a ☐ The weather is likely to improve

b ☐ There will be no change in the weather for a while

c ☐ The weather is likely to deteriorate

d ☐ You'll feel a warm wind in your face



25 When alto is used as a prefix in a name of a type of cloud, that cloud may be found at:

a ☐ Medium level

b ☐ Low level

c ☐ Any level

d ☐ High level