Headquarters Air Cadets

Examination

Senior Cadet

Air Navigation

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Serial: 48

1. Use black or dark blue pen, NOT pencil.

2. Write only on the answer sheet. Add your personal details.

1 Dundee is due north of Abergavenny. If their latitudes are 56 27N and 51 50N, how far apart are they:

a 277nms
b 277kms
c 323nms
d 323kms

2 The Air Speed Indicator (ASI) calculates speed by:

a Measuring the pitot pressure
b Measuring the static pressure
c Measuring the pressure difference between pitot and static pressures
d Multiplying pitot pressure by static pressure

3 A Tornado flies from its base to a target in 30 minutes. If the distance is 250nms, what speed is it flying at:

a 500kts
b 750kts
c 125kts
d 800kts

4 Universal Time (UT) is used as the standard in military and commercial aviation. What other name is this known as:

a Local time
b European daylight saving time
c British summer time
d Greenwich meantime

5 A Vector is a representation, on paper of:

a Direction
b Direction and speed
c Time
d Speed

6 In the Air Triangle, the heading vector includes 2 components. They are:-

a Heading and wind velocity
b Heading and true air speed
c Heading and drift
d Heading and Groundspeed

7 You are flying at 120knots groundspeed. How long will it take to fly 20nms:

a 6 minutes
b 2 minutes
c 60 minutes
d 10 minutes

8 An aircraft departs from base, but does not arrive at the destination, on its Estimated Time of Arrival. What action will Air Traffic Control take:

a Initiate overdue action
b Contact the departure base
c Close down
d No immediate action is required

9 An aircraft is flying from Point A to Point B. A pinpoint fix shows it to be off track. A line from the pinpoint fix, to point B would be known as:

a Track made good
b Heading required
c Revised track
d Track required

10 Using the 1 in 60 rule, calculate how many miles off track an aircraft will be, if it flies 60nms with a track error of 2 degrees:

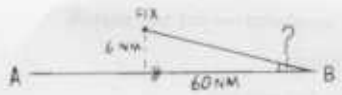
a 60nms
b 2nms
c 6nms
d 4nms

11 An aircraft flies from A to B. After flying 30nms, a fix shows the aircraft to have a track error of 10 degrees. How far is the aircraft off track at the time of the fix:

a 3nms
b 2nms
c 6nms
d 5nms

12 An aircraft flying from A to B finds itself 6nms off track. It has a further 60nm to travel. What is the required closing angle:

a 3 degrees
b 2 degrees
c 10 degrees
d 6 degrees



13 An aircraft is flying from A to B, a distance of 120nms. Halfway, a fix shows the aircraf to be 4nm right off track. What leading change does the pilot require to reach point B:

a 4 degrees to the left
b 8 degrees to the left
c 4 degrees to the right
d 8 degrees to the right

14 An aircraft flying from A to B finds that after 40nm it is 4nm off track. If it has a further 60nm to travel by how much does the pilot need to turn to regain the intended track at B:

a 4 degrees
b 6 degrees
c 10 degrees
d 12 degrees

15 An aircraft flying from A to B finds that after 40nm it is 6nm right off track. If it has a further 30nm to travel, by how much does the pilot need to turn, to regain the intended track at B:

a 24 degrees right
b 18 degrees left
c 21 degrees left
d 12 degrees left

16 When would a Direct Indicating Compass be most accurate:

a In unaccelerated flight
b In a steady descent
c In a turn
d In a steady climb

17 Which of the folowing, is not a component within a Gyro-magnetic system:

a A turn/acceleration cut out switch
b A gyroscope
c A suspended magnet
d A flux valve magnetic detector

18 A gyroscope cannot be perfect, and so over a period of time it becomes inaccurate, this is called:

a Variation
b Gyro rigidity
c Turn/acceleration error
d Gyro wander

19 Where are variation values at their greatest:

a In the Southern hemisphere
b In polar regions
c At the equator
d In the Northern hemisphere

20 Within an Inertial Navigation System, the movement of the aircraft is measured by sensors called:

a Axis
b Inertials
c Accelerometers
d Accelerators

21 Beginners may only fly in good weather conditions. The conditions are called:

a Visual Meteorological Conditions
b Runway Visual Range
c Instrument Meteorological Conditions
d Visual Circuits

22 The wind is blowing directly down the length of a runway. What is the crosswind component:

a Zero crosswind component
b Equal to 3/4 of wind strength
c Equal to half the winds strength
d Equal to the winds strength

23 The airfield has a covering of shallow fog. A pilot circling directly overhead, sees the runway lights clearly. However, on the approach to land, he may have great difficulty in seeing some lights. Why is this:

a Fog will appear thicker when on the glide path, because the pilot is looking at a shallower angle
b The thickest fog always settles at the end of the runway
c Fog is more dense, closer to the ground
d Runway lights are designed to be seen from high level only

24 The collective noun for rain, sleet, snow and hail is:

a VMC
b Precipitation
c Participation
d IMC

25 What can be the effects of heavy icing, on an aircraft's performance:

a It will fly much slower
b Loss of aerodynamics only
c Loss of aerodynamics and reduced engine performance
d There is no adverse effect on the aircraft's performance