



Headquarters Air Cadets Examination

Senior Cadet
32/3 Air Navigation
Generated 19-Jul-04

Serial: 763

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 One degree of latitude is equal to:
- a 60nms
 - b 360nms
 - c 60km
 - d 1/10,000 part of the distance from the North Pole to the Equator

- 2 Oslo Airport (Norway) is due north of Braunschweig airfield, near Hannover (Germany). If their latitudes are 59 53N and 52 20N respectively, how far are they apart:
- a 453nms
 - b 445nms
 - c 554nms
 - d 454nms

- 3 Rectified Air Speed (RAS) is:
- a Always less than IAS
 - b Pilot pressure minus static pressure
 - c Always the same as IAS
 - d IAS after correction for pressure error and instrument error

- 4 How fast must an aircraft fly to cover 1200nm in 3 hours:
- a 400kts
 - b 3600kts
 - c 800kts
 - d 400mph

- 5 What time is used as standard in military and commercial aviation:
- a The time of the country over which the aircraft is flying
 - b European daylight saving time
 - c British summer time
 - d Greenwich mean time (Universal time)

- 6 A single line, drawn on paper, representing speed and direction, is known as:
- a A vector
 - b A vector triangle
 - c A velocity
 - d A vertical

- 7 The Air Triangle of velocities can be used to calculate flight data. There are 6 elements in total. How many elements are needed to calculate those missing:
- a 4
 - b 5
 - c 6
 - d 2

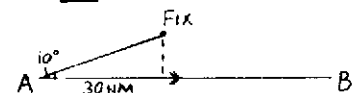
- 8 You fly between 2 features on the ground, and note that it takes 3 minutes. If the features are 18nm apart, what is your groundspeed:
- a 280kts
 - b 54kts
 - c 180kts
 - d 360kts

- 9 Aircrew are always aware of their Estimated Time of Arrival (ETA). Why is this:
- a ETA is important for fuel calculations and air traffic control purposes
 - b It is the Easiest calculation to do
 - c Fuel flow rate depends on ETA
 - d A revised ETA tells them that the wind has changed

- 10 The track drawn on a map, between the departure airfield and the destination is known as:
- a Track required
 - b Track made good
 - c Revised track
 - d Heading required

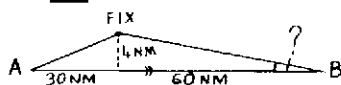
- 11 An aircraft flies a track made good, 3 degrees in error from the required track. Using the 1 in 60 rule, how many miles will the aircraft be off track after 60 miles of flying:
- a 2nms
 - b 3nms
 - c 6nms
 - d 1nm

- 12 An aircraft flying 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



13 An aircraft flying from A to B finds that after 30nms, it is 4nms off track. It has a further 60nms to travel. What is the required closing angle:

- a 2 degrees
- b 3 degrees
- c 4 degrees
- d 6 degrees



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

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

15 An aircraft flying from A to B finds that after 20nms, it is 2nms right of track. If it has a further 40nms to travel, by how much does the pilot need to turn, to regain the intended track at B:

- a 12 degrees left
- b 6 degrees left
- c 9 degrees left
- d 6 degrees right

16 Which of the following statements is true, concerning the Direct Indicating Compass:

- a The DIC needs only a small power supply
- b The DIC is not affected by turns and accelerations
- c The DIC only reads magnetic headings
- d The DIC gives a reading of aircraft true heading

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

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

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

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

19 As a compass nears the Magnetic North Pole, the compass detector will try to point at the magnetic material inside the Earth. This tilting is called:

- a Variation
- b Dip
- c Drop
- d Wander

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

- a Axis
- b Accelerometers
- c Inertials
- d Accelerators

21 In order to fly in a Visual Circuit, a trainee pilot requires:

- a No wind
- b Good visibility, and no cloud in the sky
- c Good visibility and no wind
- d Visibility and cloudbase conditions to meet the aerodrome controller's requirements

22 A wind is blowing at 90 degrees angle off the runway direction. If the wind speed is 20 kts. What is the crosswind component:

- a 10kts
- b 20 kts
- c 12 kts
- d 2 kts

23 During periods of poor visibility due to fog, Air Traffic Control will advise the pilot of the slant visibility along the runway. This visibility is measured carefully, and is called:

- a Glide Slope Visibility
- b Radar Visual Range
- c Runway Visual Range
- d Runway Range

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

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

25 Which way does the Earth revolve on its axis:

- a North to South
- b West to East
- c South to North
- d East to West