



Headquarters Air Cadets Examination

588

Leading Cadet

33/2 Principles of Flight

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Serial: 58

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 _____

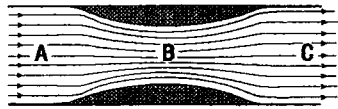
Date of Birth _____

Squadron/Unit _____

Wing _____

1 In the diagram, air is flowing past a constriction. What has happened to the air pressure at point B?

- a It is greater than at point C
- b It is lower than at point C
- c It is the same as at point C
- d It is greater than at point A



4 Which of these wing sections are for high lift?

- a X
- b Y
- c Z
- d W

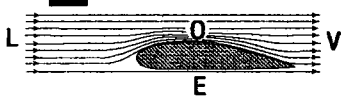


8 Which of these gives an aircraft stability in the yawing plane?

- a Anhedral
- b High centre of gravity
- c Sufficient fin area
- d Dihedral

2 Where is the airflow fastest in this diagram of an aerofoil in an airflow?

- a V
- b L
- c E
- d O



5 Which of the following will increase the stalling speed of an aircraft?

- a Putting it into a turn
- b Reducing the weight
- c Lowering the flaps
- d Increasing the power setting

6 To slow an aircraft from straight and level flight which of the following statements is true?

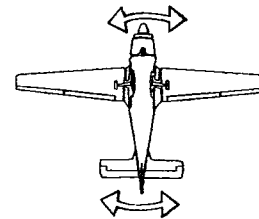
- a Thrust must equal drag
- b Drag must be half thrust
- c Thrust must exceed drag
- d Drag must exceed thrust

7 A well designed aircraft that is disturbed from level flight (say, by bumpy air) will tend to go back to level flight of its own accord, without the pilot having to make adjustments. This property is called?

- a Stability
- b Instability
- c Damping
- d Inertia

9 What sort of movement is shown in the diagram?

- a Diving
- b Yawing
- c Pitching
- d Rolling



3 The centre of pressure on an aerofoil is?

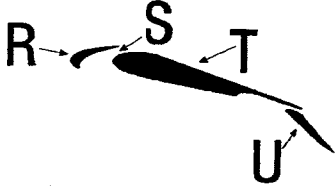
- a The point at which all the lift is said to act
- b Two thirds of the way along the chord line, measured from the leading edge
- c The point at which all the weight is said to act
- d Half way along the chord line

10 A pilot selects full flap when coming into land. This will?

- a Reduce the angle of approach and improve the forward vision
- b Increase the angle of approach and increase the landing run
- c Increase the angle of approach and improve forward vision
- d Decrease the angle of approach and reduce the landing run

11 On this cross-section of a wing, which arrow points to a slat?

- a U
- b T
- c R
- d S



12 When slats are open on a wing what effect will this have on the stalling angle and stalling speed?

- a Increase Reduce
- b Reduce Increase
- c Reduce Reduce
- d Increase Increase

13 A glider with a gliding angle of 1 in 30 is in still air and flying over level ground. What distance will the aircraft travel from a height of 1640 feet (0.5 kilometre) before reaching the ground.

- a 30 kms
- b 60 kms
- c 25 kms
- d 15 kms

14 A helicopter generates lift by:

- a Spinning aerofoil shaped blades
- b Spinning an aerofoil shaped tail rotor
- c Using the torque reaction
- d Use of the engine exhaust

15 What is the purpose of a helicopter's tail rotor?

- a Counter torque reaction
- b Provide thrust
- c Control the aircraft in the rolling plane
- d Reduce drag

16 Tilting the rotor disc of a helicopter forward will make the helicopter:

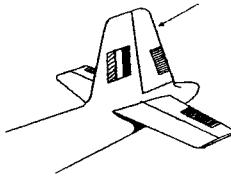
- a Travel forwards
- b Climb
- c Hover
- d Travel backwards

17 Which of the following is true? A particular wing will stall:

- a Only when its nose is well above the horizon
- b Only below a particular airspeed
- c Always at the same airspeed
- d Always at the same angle of attack

18 On this diagram what does the arrow point to ?

- a Fin
- b Rudder
- c Fuselage
- d Aileron



19 The pitch angle of a helicopters rotor blades can be altered individually, as each one traverses the plane of rotation. This is called?

- a Pitching
- b Collective pitch
- c Torque reaction
- d Cyclic pitch

20 The point on a wing at which all the lift is said to act is called:

- a Static point
- b Dynamic centre
- c Pressure point
- d Centre of pressure

21 The movement of an aircraft about its normal axis is called:

- a Rolling
- b Pitching
- c Yawing
- d Damping

22 A helicopter pilot uses the yaw pedals to control:

- a Vertical flight
- b Forward speed
- c The tail rotor
- d The pitch angle of the main rotor blades

23 In steady straight and level flight at constant height and speed, the amount of lift produced by the aircraft must be:

- a Greater than the aircraft's weight
- b Equal to the aircraft's weight
- c Equal to the aircraft's thrust
- d Greater than the aircraft's drag

24 Which of these is used by the pilot to make the aircraft roll?

- a Fin
- b Aileron
- c Elevator
- d Rudder

25 A helicopter pilot uses the collective pitch control mainly to control:

- a Movement of the nose in the yawing plane
- b Horizontal flight
- c Vertical flight
- d Movement of the nose in the rolling plane