



# Headquarters Air Cadets Examination

Staff Cadet  
33/4 Airframes  
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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 Which major airframe unit contains an aircraft's fixed vertical fin:

- a  The fuselage
- b  The horizontal stabilizer
- c  The canards
- d  The tail unit

2 When designing an aircraft an increase in weight in one area which leads to other areas being strengthened, and therefore made more heavy, is called the:

- a  Weight spiral deflect
- b  Weight spinning effect
- c  Weight increase system
- d  Weight spiral effect

3 If the wing of a high-speed aircraft deflects too much, damage and loss of control can be caused by an aerodynamic phenomenon known as:

- a  MUTTER
- b  TUTTER
- c  FLATTER
- d  FLUTTER

4 A SHOCK WAVE is generated in front of an aircraft as its speed approaches:

- a  The speed of sound
- b  The speed of light
- c  Stalling speed
- d  The speed of the surrounding air

5 If a metal chosen for airframe construction has the same properties throughout it is said to be:

- a  HOMOGENIOUS
- b  AN ALLOY
- c  AL-CLAD
- d  HOMOGENEOUS

6 What is the main advantage of composite materials when used in airframe construction:

- a  Very high SWR and low weight
- b  Available in a wide colour range
- c  Low resistance to radio and radar signals
- d  Subject to galvanic action

7 What are fitted to most RAF aircraft to record g loadings:

- a  Monitor meters
- b  Fatigue meters
- c  Stress recorders
- d  Mach meters

8 Which of these is the best material for a radome:

- a  Carbon steel
- b  Magnesium alloy
- c  High tensile steel
- d  Fibre-glass

9 One of the two main components of an aircraft wing is its skin, the other is its:

- a  Fabric
- b  External structure
- c  Internal structure
- d  Ribs

10 Most modern aircraft have 2 main spars in their wing construction, with stressed skin between them. This type of construction is known as:

- a  TENSION BOX
- b  TORSION BOX
- c  TORQUE BLOCKS
- d  TENSION BLOCKS

11 Foreplanes, or canards, are almost always all-flying, this means that:

- a  They are always producing lift
- b  The entire surface moves to provide control movements
- c  They are the only surfaces to produce control movements
- d  They are placed over the main wing sections

12 What is used to counter the yaw which results from engine failure on a large four-engined aircraft?

- a  A large fin
- b  Canards
- c  Assymetric power
- d  A large rudder

13 Where are the engines mounted on a Jetstream aircraft:

- a  In pods under the wings
- b  At the rear of the fuselage
- c  On the wings
- d  In the fuselage

14 An undercarriage should be as light as possible because:

- a  It is difficult to retract
- b  It places high loads on the wing mountings
- c  It is dead weight when airborne
- d  Heavy undercarriages damage runways

15 What is an OLEO LEG:

- a  A Spanish undercarriage
- b  A spring steel shock absorber
- c  A telescopic shock absorber
- d  A gas-filled telescope

16 Where are an aircraft's main wheels often stowed during flight:

- a  In the wings
- b  In the ailerons
- c  In the tail
- d  In the oleos

17 The two main types of aircraft brakes are:

- a  Air and nitrogen
- b  Cable and disc
- c  Drum and disc
- d  Drum and cable

18 Which plane of movement is controlled by the rudder:

- a  YAW
- b  SLIP
- c  ROLL
- d  PITCH

19 The big advantage of fly-by-wire systems is that they eliminate the need for:

- a  Wire connections
- b  Cables and linkages
- c  Control surfaces
- d  Computers

20 Where a hydraulic actuator is used to move a jack to a specific position, rather than to the end of its travel, we use:

- a  A servo actuator
- b  A servo accumulator
- c  Several accumulators
- d  Several actuators

21 Control surfaces which combine the functions of elevators and ailerons are called:

- a  ELEFLAPS
- b  ELEVONS
- c  AILERONS
- d  RUDDERATORS

22 What is the name given to the equipment which controls the initial stages of flight when an F-14 takes-off from a carrier deck:

- a  CATAPULT
- b  AUTOPILOT
- c  FLIGHT RECORDER
- d  AILERONS

23 De-icing of leading edges, tailplanes and engine intakes is often performed by using:

- a  Compressor bleed air
- b  Compressor pump air
- c  Conditioning air
- d  Pneumatic bleed air

24 The most common electrical power supplies in aircraft provide:

- a  115 volt AC and 28 volt DC
- b  115 volt DC and 28 volt AC
- c  28 volt DC and 115 volt DS
- d  28 volt DC and 115 volt DC

25 What instrument is represented in this diagram

- a  HVI
- b  SVI
- c  VSI
- d  HIS

