

## **Module 11 B. Aeroplane Aerodynamics, Structures & Systems**

### **11B.01.1. Theory of Flight - Aeroplane Aerodynamics and Flight Controls.**

Question Number. 1. As a subsonic aircraft speeds-up, its Centre of Pressure.

Option A. moves forward.

Option B. moves aft.

Option C. is unaffected.

Correct Answer is. moves aft.

Explanation. Assuming that the aircraft is to remain at constant altitude, it must reduce its angle of attack as it speeds-up. This alone will move the CofP rearwards, in accordance with the sub-sonic angle of attack change theory.

Question Number. 2. Wing spoilers, when used asymmetrically, are associated with.

Option A. ailerons.

Option B. rudder.

Option C. elevators.

Correct Answer is. ailerons.

Explanation. Pallett Automatic Flight Control 4th Edition Page 51. Jeppesen A&P Technician Airframe Textbook Page 1-12.

Question Number. 3. If an aircraft is yawing to the left, where would you position the trim tab on the rudder?.

Option A. To the centre.

Option B. To the right.

Option C. To the left.

Correct Answer is. To the left.

Explanation. Automatic flight control, Pallett, 4th Edition Page 43.

Question Number. 4. If an aircraft is flying with a left wing low, where would you move the left aileron trim tab?.

Option A. Down.

Option B. Up.

Option C. Moving the aileron trim tab will not correct the situation.

Correct Answer is. Up.

Explanation. Automatic flight control, Pallett, 4th Edition Page 43.

Question Number. 5. When a leading edge flap is fully extended, what is the slot

in the wing for?.

Option A. To allow the flap to retract into it when it retracts.

Option B. To re-energise the boundary layer.

Option C. To increase the lift.

Correct Answer is. To re-energise the boundary layer.

Explanation. Pallett Automatic Flight Control 2nd Edition Page 50. Jeppesen A&P Technician Airframe Textbook Page 1-32.

Question Number. 6. With respect to differential aileron control, which of the following is true?.

Option A. The up going Aileron moves through a smaller angle than the down going aileron.

Option B. The up going and down going ailerons both deflect to the same angle.

Option C. The down going aileron moves through a smaller angle than the up going aileron.

Correct Answer is. The down going aileron moves through a smaller angle than the up going aileron.

Explanation. Mechanics of Flight, Kermode, Page 301. The down going aileron moves less, to reduce the induced drag which causes adverse aileron yaw.

Question Number. 7. The aeroplane fin is of symmetrical aerofoil section and will therefore provide a side-load.

Option A. if a suitable angle of attack develops due either yaw or rudder movement.

Option B. only if a suitable angle of attack develops due to yaw.

Option C. only when the rudder is moved.

Correct Answer is. if a suitable angle of attack develops due either yaw or rudder movement.

Explanation. Rudder deflection or yaw.

Question Number. 8. An aircraft left wing is flying low. The aileron trimmer control to the left aileron trim tab in the cockpit would be.

Option A. moved up causing the left aileron to move up.

Option B. moved up causing the left aileron to move down.

Option C. moved down causing the left aileron to move down.

Correct Answer is. moved up causing the left aileron to move down.

Explanation. Down aileron required - which requires up trim.

Question Number. 9. The purpose of a slot in a wing is to.

Option A. speed up the airflow and increase lift.

Option B. act as venturi, accelerate the air and re-energise boundary layer.

Option C. provide housing for the slat.

Correct Answer is. act as venturi, accelerate the air and re-energise boundary layer.

Explanation. A slot is to act as venturi, accelerate the air and re-energise boundary layer.

Question Number. 10. Large flap deployment.

Option A. has no effect on spanwise flow.

Option B. causes increased spanwise flow towards tips on wing upper surface.

Option C. causes increased spanwise flow towards tips on wing lower surface.

Correct Answer is. causes increased spanwise flow towards tips on wing lower surface.

Explanation. Flaps increase the pressure differential between top and bottom surfaces, increase tip vortices and spanwise flow.

Question Number. 11. Which part of the wing of a swept-wing aircraft stalls first?.

Option A. Tip stalls first.

Option B. Root stalls first.

Option C. Both stall together.

Correct Answer is. Tip stalls first.

Explanation. The tip of a swept wing stalls first.

Question Number. 12. During flight, an aircraft is yawing to the right. The aircraft would have a tendency to fly.

Option A. right wing low.

Option B. nose up.

Option C. left wing low.

Correct Answer is. right wing low.

Explanation. The leading wing (left wing) has increased lift, causing it to rise.

Question Number. 13. With a drop in ambient temperature, an aircraft service ceiling will.

Option A. not be affected.

Option B. lower.

Option C. rise.

Correct Answer is. rise.

Explanation. As ambient temperature drops, density increases and aircraft performance increases.

Question Number. 14. Extending a leading edge slat will have what effect on the angle of attack of a wing?.

Option A. Increase the angle of attack.

Option B. Decrease the angle of attack.

Option C. No effect on angle of attack.  
Correct Answer is. Decrease the angle of attack.  
Explanation. NIL.

Question Number. 15. To ensure that a wing stalls at the root first, stall wedges are.

Option A. installed at the wing trailing edge at the wing root.  
Option B. installed at the wing trailing edge at the wing root.  
Option C. installed on the wing leading edge at the wing root.  
Correct Answer is. installed on the wing leading edge at the wing root.  
Explanation. NIL.

Question Number. 16. With reference to differential aileron control.

Option A. drag increases on the inner wing.  
Option B. drag decreases on the outer wing.  
Option C. drag increases on the outer wing.  
Correct Answer is. drag increases on the inner wing.  
Explanation. Automatic Flight Control, Pallett 4th Edition Page 41. A+P Technician Airframe Textbook Page 1-11.

Question Number. 17. Dutch roll is movement in.

Option A. yaw and roll.  
Option B. yaw and pitch.  
Option C. pitch and roll.  
Correct Answer is. yaw and roll.  
Explanation. Avionic Fundamentals Jeppesen page 291.

Question Number. 18. If an aircraft is aerodynamically stable.

Option A. aircraft becomes too sensitive.  
Option B. aircraft returns to trimmed attitude.  
Option C. C of P moves back.  
Correct Answer is. aircraft returns to trimmed attitude.  
Explanation. NIL.

Question Number. 19. Ailerons control the aircraft in the.

Option A. longitudinal plane.  
Option B. directional plane.  
Option C. lateral plane.  
Correct Answer is. lateral plane.  
Explanation. Ailerons control the aircraft 'IN' the lateral axis, which is 'ABOUT' the longitudinal axis.

Question Number. 20. An anti-balance tab is used.  
Option A. for trimming the aircraft.  
Option B. to give more feel to the controls.  
Option C. to relieve stick loads.  
Correct Answer is. to give more feel to the controls.  
Explanation. Jeppesen A&P Technician Airframe Textbook 1-29.

Question Number. 21. Slats.  
Option A. act as an air brake.  
Option B. keep the boundary layer from separating for longer.  
Option C. increase the overall surface area and lift effect of wing.  
Correct Answer is. keep the boundary layer from separating for longer.  
Explanation. Jeppesen A & P technician airframe textbook page 1-32.

Question Number. 22. Due to the change of lift forces resulting from the extension of flaps in flight.  
Option A. nose should be lowered, reducing AoA.  
Option B. nose should remain in the same position, maintaining same AoA.  
Option C. nose should be raised, increasing AoA.  
Correct Answer is. nose should be lowered, reducing AoA.  
Explanation. The main purpose of flaps is to increase lift so that the pilot can lower the nose, increase decent angle and get a better view of the runway.

Question Number. 23. Flight spoilers.  
Option A. can be used to decrease lift to allow controlled decent without reduction of airspeed.  
Option B. can be deployed on the down going wing in a turn to increase lift on that wing.  
Option C. can be used with differential ailerons to reduce adverse yaw in a turn.  
Correct Answer is. can be used to decrease lift to allow controlled decent without reduction of airspeed.  
Explanation. NIL.

Question Number. 24. If the aircraft is flying nose heavy, which direction would you move the elevator trim tab?  
Option A. Up to move elevator up.  
Option B. Down to move elevator up.  
Option C. Up to move elevator down.  
Correct Answer is. Down to move elevator up.  
Explanation. NIL.

Question Number. 25. Wing tip vortices are strongest when.

Option A. flying high speed straight and level flight.

Option B. flying slowly at high angles of attack.

Option C. flying into a headwind.

Correct Answer is. flying slowly at high angles of attack.

Explanation. NIL.

Question Number. 26. An example of a secondary flight control is a.

Option A. elevator.

Option B. flap.

Option C. spoiler.

Correct Answer is. spoiler.

Explanation. Some would consider a Flap to be a secondary flight control. It is discounted in this question as it is technically a Lift Augmentation Device, rather than a 'control'.

Question Number. 27. A balance tab.

Option A. assists the pilot to move the controls.

Option B. is used to trim the appropriate axis of the aircraft.

Option C. effectively increases the area of the control surface.

Correct Answer is. assists the pilot to move the controls.

Explanation. Jeppesen A & P Technician Textbook pg 1-29.

Question Number. 28. Which wing increases drag when the ailerons are moved?.

Option A. Both wings have an equal increase in drag.

Option B. Both wings increase drag but the wing with the down-going aileron increases more.

Option C. Both wings increase drag but the wing with the up-going aileron increases more.

Correct Answer is. Both wings increase drag but the wing with the down-going aileron increases more.

Explanation. Jeppesen A & P Technician Airframe Textbook page 1-26.

Question Number. 29. Which flap will increase wing area and camber?.

Option A. Split.

Option B. Slot.

Option C. Fowler.

Correct Answer is. Fowler.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 20.

Question Number. 30. An automatic slat will lift by itself when the angle of attack is.

Option A. low.

Option B. high or low.

Option C. high.

Correct Answer is. high.

Explanation. NIL.

Question Number. 31. On aircraft fitted with spoilers for lateral control, roll to the right is caused by.

Option A. left and right spoilers extending.

Option B. right spoilers extending, left spoilers remaining retracted.

Option C. left spoilers extending, right spoilers remaining retracted.

Correct Answer is. right spoilers extending, left spoilers remaining retracted.

Explanation. NIL.

Question Number. 32. A split flap increases lift by increasing.

Option A. the surface area.

Option B. the camber of the top surface.

Option C. the angle of attachment of the lower hinged portion.

Correct Answer is. the angle of attachment of the lower hinged portion.

Explanation. Jeppesen A & P Technician Airframe Textbook page 1-30.

Question Number. 33. When the trailing edge flaps are lowered, the aircraft will.

Option A. sink.

Option B. pitch nose down.

Option C. pitch nose up.

Correct Answer is. pitch nose down.

Explanation. Due to the centre of pressure moving aft.

Question Number. 34. Dutch roll is.

Option A. a type of slow roll.

Option B. primarily a pitching instability.

Option C. a combined yawing and rolling motion.

Correct Answer is. a combined yawing and rolling motion.

Explanation. NIL.

Question Number. 35. On an aircraft with an all-moving tailplane, pitch up is

caused by.

Option A. increasing tailplane incidence.

Option B. decreasing tailplane incidence.

Option C. up movement of the elevator trim tab.

Correct Answer is. decreasing tailplane incidence.

Explanation. NIL.

Question Number. 36. A leading edge slat is a device for.

Option A. increasing the stalling angle of the wing.

Option B. decreasing wing drag.

Option C. decreasing the stalling angle of the wing.

Correct Answer is. increasing the stalling angle of the wing.

Explanation. NIL.

Question Number. 37. A Krueger flap is.

Option A. a leading edge slat which extends forward.

Option B. a flap which extends rearwards but does not lower.

Option C. a leading edge flap which hinges forward.

Correct Answer is. a leading edge flap which hinges forward.

Explanation. Jeppesen A & P Airframe Technician Textbook page 1-37 figure 1-64.

Question Number. 38. The layer of air over the surface of an aerofoil which is slower moving, in relation to the rest of the airflow, is known as.

Option A. camber layer.

Option B. none of the above are correct.

Option C. boundary layer.

Correct Answer is. boundary layer.

Explanation. NIL.

Question Number. 39. When airflow velocity over an upper cambered surface of an aerofoil decreases, what takes place?.

Option A. Pressure increases, lift decreases.

Option B. Pressure decreases, lift increases.

Option C. Pressure increases, lift increases.

Correct Answer is. Pressure increases, lift decreases.

Explanation. NIL.

Question Number. 40. What is a controlling factor of turbulence and skin friction?.

Option A. Countersunk rivets used on skin exterior.

Option B. Aspect ratio.

Option C. Fineness ratio.

Correct Answer is. Countersunk rivets used on skin exterior.

Explanation. NIL.

Question Number. 41. Changes in aircraft weight.

Option A. will only affect total drag if the lift is kept constant.

Option B. will not affect total drag since it is dependant only upon speed.

Option C. cause corresponding changes in total drag due to the associated lift change.

Correct Answer is. cause corresponding changes in total drag due to the associated lift change.

Explanation. NIL.

Question Number. 42. When an aircraft stalls.

Option A. lift decreases and drag increases.

Option B. lift and drag increase.

Option C. lift and drag increase.

Correct Answer is. lift decreases and drag increases.

Explanation. NIL.

Question Number. 43. The aircraft stalling speed will.

Option A. increase with an increase in weight.

Option B. increase with an increase in weight.

Option C. be unaffected by aircraft weight changes since it is dependant upon the angle of attack.

Correct Answer is. increase with an increase in weight.

Explanation. NIL.

Question Number. 44. In a bank and turn.

Option A. extra lift is not required.

Option B. extra lift is required.

Option C. extra lift is not required if thrust is increased.

Correct Answer is. extra lift is required.

Explanation. NIL.

Question Number. 45. The angle of attack at which stall occurs.

Option A. depends on the weight of the aircraft.

Option B. cannot be varied, it is always constant.

Option C. can be varied by using flaps and slats.

Correct Answer is. can be varied by using flaps and slats.

Explanation. NIL. corrected

Question Number. 46. The primary function of a flap is.

Option A. to alter the position of the centre of gravity.

Option B. to trim the aircraft longitudinally.

Option C. to alter the lift of an aerofoil.

Correct Answer is. to alter the lift of an aerofoil.

Explanation. Jeppesen A & P Technician Airframe Textbook page 1-30.

Question Number. 47. The stalling speed of an aircraft.

Option A. is increased when it is lighter.

Option B. does not change.

Option C. is increased when it is heavier.

Correct Answer is. is increased when it is heavier.

Explanation. NIL.

Question Number. 48. A wing flap which has dropped or partially extended on one wing in flight will lead to.

Option A. a steady rolling tendency which would be corrected by use of the ailerons.

Option B. a fixed banked attitude which would be corrected by use of the rudder.

Option C. a pitching moment which would be corrected by used of the elevators.

Correct Answer is. a steady rolling tendency which would be corrected by use of the ailerons.

Explanation. NIL.

Question Number. 49. With an increase in the amount of flap deployment, the stalling angle of a wing.

Option A. increases.

Option B. remains the same.

Option C. decreases.

Correct Answer is. decreases.

Explanation. NIL.

Question Number. 50. Downward displacement of an aileron.

Option A. decreases the angle at which its wing will stall.

Option B. increases the angle at which its wing stalls.

Option C. has no effect on its wing stalling angle, it only affects the stalling speed on that wing.

Correct Answer is. decreases the angle at which its wing will stall.

Explanation. NIL.

Question Number. 51. Due to the tailplane angle of attack change, the flap-induced downwash on the tailplane.

Option A. may cause a nose-down or nose-up pitch depending upon the initial tailplane load.

Option B. will tend to cause an aircraft nose down pitch.

Option C. will tend to cause an aircraft nose-up pitch.

Correct Answer is. will tend to cause an aircraft nose-up pitch.

Explanation. NIL.

Question Number. 52. Due to the change in lift coefficient accompanying extension of the flaps, to maintain the lift constant it would be necessary to.

Option A. lower the nose.

Option B. keep the pitch attitude constant.

Option C. raise the nose.

Correct Answer is. lower the nose.

Explanation. NIL.

Question Number. 53. Which leading edge device improves the laminar flow over the wing?.

Option A. Flap and slat.

Option B. Flap.

Option C. Slat.

Correct Answer is. Slat.

Explanation. NIL.

Question Number. 54. The tropopause exists at about.

Option A. 18,000 ft.

Option B. 36,000 ft.

Option C. 30,000 ft.

Correct Answer is. 36,000 ft.

Explanation. NIL.

Question Number. 55. Induced drag curve characteristics of a slender delta wing are such that there is.

Option A. an increase in gradient with wing speed.

Option B. decrease in gradient with wing speed.

Option C. no change in gradient with wing speed.

Correct Answer is. decrease in gradient with wing speed.

Explanation. NIL.

Question Number. 56. If an aircraft is yawing left, the trim tab on the rudder would be positioned.

Option A. to the left, moving the rudder right.

Option B. to the centre.

Option C. to the right, moving the rudder left.

Correct Answer is. to the left, moving the rudder right.

Explanation. NIL.

Question Number. 57. Instability giving roll and yaw.

Option A. is longitudinal stability.

Option B. is lateral stability.

Option C. is dutch roll.

Correct Answer is. is dutch roll.

Explanation. NIL.

Question Number. 58. Vortex generators are fitted to.

Option A. move transition point forwards.

Option B. move transition point rearwards.

Option C. advance the onset of flow separation.

Correct Answer is. move transition point forwards.

Explanation. NIL.

Question Number. 59. Leading edge flaps.

Option A. decrease stalling angle of the wing.

Option B. do not change the stalling angle.

Option C. increase stalling angle of the wing.

Correct Answer is. increase stalling angle of the wing.

Explanation. NIL.

Question Number. 60. Krueger flaps are on.

Option A. the leading edge.

Option B. the trailing edge.

Option C. either the leading or training edge.

Correct Answer is. the leading edge.

Explanation. NIL.

Question Number. 61. Sweepback will.

Option A. increase lateral stability.

Option B. not affect lateral stability.

Option C. decrease lateral stability.

Correct Answer is. increase lateral stability.

Explanation. NIL.

Question Number. 62. A plain flap.

Option A. is attached to the leading edge of the wing.

Option B. forms part of lower trailing edge.

Option C. does not increase the wing area on deployment.

Correct Answer is. does not increase the wing area on deployment.

Explanation. NIL.

Question Number. 63. A split flap, when deployed.

Option A. increases drag with little lift coefficient increase, from intermediate to fully down.

Option B. is used only on high speed aircraft.

Option C. increases lift without a corresponding increase in drag.

Correct Answer is. increases drag with little lift coefficient increase, from intermediate to fully down.

Explanation. NIL.

### **11B.02a. Airframe Structures - General Concepts.**

Question Number. 1. Zone 320 under the ATA system is.

Option A. central fuselage.

Option B. vertical stabiliser.

Option C. horizontal stabiliser.

Correct Answer is. vertical stabiliser.

Explanation. Maintenance and Repair Kroes/Watkins/Delp Page 22.

Question Number. 2. When doing a bonding check the maximum resistance between component and earth is.

Option A. 0.005ohms.

Option B. 1/50 ohms.

Option C. 50 milliohms.

Correct Answer is. 50 milliohms.

Explanation. CAIPs EEL/1-6 3.8.

Question Number. 3. How is damage to the nose cone of an aircraft prevented during a lightning strike?.

Option A. Earthing Strap.

Option B. Bonding Strip.

Option C. Bonding Strip.

Correct Answer is. Bonding Strip.

Explanation. Aircraft Electricity and Avionics (5th Edition) Eismin Page 343.

Question Number. 4. Tension is the stress of.

Option A. crush or compression.

Option B. elongating or stretch.

Option C. twisting.

Correct Answer is. elongating or stretch.

Explanation. Tension is the stress of elongation or stretch.

Question Number. 5. A Fuselage Station is a.

Option A. lateral point on aircraft wing.

Option B. lateral point on aircraft fuse.

Option C. longitudinal point on the aircraft fuselage.

Correct Answer is. longitudinal point on the aircraft fuselage.

Explanation. Fuselage Stations are longitudinal measurements on the fuselage.

Question Number. 6. Composite materials are bonded by.

Option A. aluminium wire.

Option B. special paint.

Option C. copper wire.

Correct Answer is. special paint.

Explanation. CAAIPs Leaflet 9-1 3.4.4.

Question Number. 7. ATA Zone 100 is.

Option A. upper fuselage.

Option B. lower fuselage.

Option C. Wing.

Correct Answer is. lower fuselage.

Explanation. ATA Zone 100 is lower fuselage (below floor).

Question Number. 8. The bonding lead to a remote aircraft component must be.

Option A. 0.5 in wide.

Option B. 22 AWG.

Option C. 0.25 in wide and 22 AWG.

Correct Answer is. 0.5 in wide.

Explanation. CAAIPs Leaflet 9-1 Para. 3.3.1 (a).

Question Number. 9. at force is an I-Beam subjected to?.

Option A. Tension.

Option B. Bending.

Option C. Shear.

Correct Answer is. Bending.

Explanation. An I beam is subject to Bending, although different parts of it are subject to tension (upper boom) and shear (the web).

Question Number. 10. A radome is protected from static electricity build-up by.

Option A. bonding strips.

Option B. special conductive grease.

Option C. conductive paint.

Correct Answer is. conductive paint.

Explanation. CAIPs RL/2-5 Para 3.5.

Question Number. 11. Precise points are located on an aircraft by a system of.

Option A. frame stations, vertical lines and lateral lines.

Option B. longitudinal, vertical and lateral lines.

Option C. frame stations, water lines and buttock lines.

Correct Answer is. frame stations, water lines and buttock lines.

Explanation. CAIPs AL/7-2 para 6.

Question Number. 12. Which of the following is an example of a fail safe structure?.

Option A. Spar.

Option B. Longeron.

Option C. Stringer.

Correct Answer is. Stringer.

Explanation. Answer chosen due to a stringer's duplicity.

Question Number. 13. Damage tolerant design.

Option A. is applied only to secondary structure.

Option B. allows for certain damage to the structure to go un-repaired between scheduled maintenance.

Option C. allows for damage to structure by distributing loads to other structure.

Correct Answer is. allows for certain damage to the structure to go un-repaired between scheduled maintenance.

Explanation. NIL.

Question Number. 14. In the ATA 100 zonal system the passenger entry door will have a designation of.

Option A. 800.

Option B. 600.

Option C. 400.

Correct Answer is. 800.

Explanation. Checkout most modern aircraft Maintenance Manuals for zonal locations.

Question Number. 15. Which area of the aircraft is subject to hoop stress?.

Option A. Control surfaces.

Option B. Pressure cabin.

Option C. Wings.

Correct Answer is. Pressure cabin.

Explanation. CAIPs AL/7-2 2.7.

Question Number. 16. Shear stress is described as.

Option A. pulling forces.

Option B. compressing forces.

Option C. slip away under the action of forces.

Correct Answer is. slip away under the action of forces.

Explanation. The keyword is 'slip', but it is a terrible definition of shear stress.

Question Number. 17. The ground cable must be.

Option A. single strand copper wire 0.5 in. cross sectional area.

Option B. copper stranded 0.5 in. cross sectional area.

Option C. single strand 18 AWG.

Correct Answer is. single strand copper wire 0.5 in. cross sectional area.

Explanation. CAIPs EEL/1-6 3.3.1 a (i).

Question Number. 18. Where on the aircraft is FS245, RWS45?.

Option A. 245 inches from the nose of the aircraft and 45 inches from the tip of the right wing.

Option B. 245 inches from the datum line of the aircraft and 45 inches from the centreline of the right wing.

Option C. 245 inches from the nose of the aircraft and 45 inches from the centreline of the right wing.

Correct Answer is. 245 inches from the datum line of the aircraft and 45 inches from the centreline of the right wing.

Explanation. CAIPs AL/7-2 fig 15.

Question Number. 19. How is the radome protected from lightning strike?.

Option A. Special grease on the hinges.

Option B. Diverter strips.

Option C. Special paint.

Correct Answer is. Diverter strips.

Explanation. CAIPs RL/2-5 3.4.2.

Question Number. 20. If you short the two prongs with the single prong of a bonding tester together, what would the gauge read?.

Option A. Full scale deflection.

Option B. Centre scale.

Option C. Zero.

Correct Answer is. Zero.

Explanation. CAIPs EEL/1-6 3.10.2 B.

Question Number. 21. A condition after which a permanent deformation of a material is caused, is known as.

Option A. strain.

Option B. shear.

Option C. shear.

Correct Answer is. strain.

Explanation. Strain is 'best' of the answers. Strain is 'deformation' but does not necessarily cause a permanent deformation.

Question Number. 22. Semi-monocoque construction.

Option A. utilizes the safe-life design concept.

Option B. is used only for the fuselage.

Option C. offers good damage resistance.

Correct Answer is. offers good damage resistance.

Explanation. Jepessen A & P Technician Airframe textbook page 1-3.

Question Number. 23. Most radio aerials are.

Option A. not bonded.

Option B. bonded.

Option C. insulated from the fuselage.

Correct Answer is. bonded.

Explanation. Jepsesen A&P Technician Airframe Textbook 12-56.

Question Number. 24. Secondary bonding is usually provided with.

Option A. stranded copper 0.25 inch.

Option B. single strand 0.25 inch.

Option C. 18 AWG.

Correct Answer is. 18 AWG.

Explanation. CAAIPs Leaflet 9-1 3.3.1 (a) (ii).

Question Number. 25. Water Lines (WLs) are measured points on a.

Option A. vertical line.

Option B. wing line.

Option C. horizontal line.

Correct Answer is. vertical line.

Explanation. AL/7.2 Page 6.2 Fig 15.

Question Number. 26. The various parts of the aircraft airframe are maintained at the same potential by.

Option A. bonding.

Option B. earthing.

Option C. static wicks.

Correct Answer is. bonding.

Explanation. NIL.

Question Number. 27. The cross sectional area of a secondary conductor must be not less than.

Option A. 18 SWG for a single wire.

Option B. 22 SWG x 0.25.

Option C. 22 SWG x 0.5.

Correct Answer is. 18 SWG for a single wire.

Explanation. CAAIPs Leaflet 9-1 3.3.1 (ii).

Question Number. 28. What governs the ultimate fatigue life of an aircraft?.

Option A. Pressure Cycles.

Option B. Flying Hours.

Option C. Landings.

Correct Answer is. Flying Hours.

Explanation. NIL.

Question Number. 29. The main forces on an aircraft structure are.

Option A. tension, compression, torsion and shear.

Option B. tension, compression, torsion and strain.  
Option C. tension, compression, twisting and shear.  
Correct Answer is. tension, compression, torsion and shear.  
Explanation. NIL.

Question Number. 30. The life of the structure is counted by.  
Option A. landings.  
Option B. pressurization cycle.  
Option C. flying hours.  
Correct Answer is. pressurization cycle.  
Explanation. NIL.

Question Number. 31. What are buttock lines?.  
Option A. Measurements from the centre line.  
Option B. Horizontal measurement lines.  
Option C. Vertical measurement lines.  
Correct Answer is. Measurements from the centre line.  
Explanation. CAIPs AL/7.2 Page 17 Para 6.2.

Question Number. 32. Aircraft fibreglass panels are protected against lightning strikes, partially by.  
Option A. non-conductive paint.  
Option B. bonding.  
Option C. conductive paint.  
Correct Answer is. conductive paint.  
Explanation. NIL.

Question Number. 33. A member taking a compression load is called a.  
Option A. beam.  
Option B. cable.  
Option C. strut.  
Correct Answer is. strut.  
Explanation. NIL.

Question Number. 34. Stringers are used in which of the following types of aircraft fuselage construction?.  
Option A. Semi-monocoque.  
Option B. Truss type.  
Option C. Monocoque.  
Correct Answer is. Semi-monocoque.  
Explanation. NIL.

Question Number. 35. Wing stations are measured.  
Option A. outboard from the wing root.  
Option B. outboard from the fuselage centreline.  
Option C. inboard from the wing upper surface.  
Correct Answer is. outboard from the fuselage centreline.  
Explanation. NIL.

Question Number. 36. What load is a tie rod designed to accept?.  
Option A. Bending.  
Option B. Tensile.  
Option C. Torsion.  
Correct Answer is. Tensile.  
Explanation. NIL.

Question Number. 37. If a colour is used to identify primary structure, it will be.  
Option A. red.  
Option B. green.  
Option C. yellow.  
Correct Answer is. red.  
Explanation. NIL.

Question Number. 38. Which of the following is primary structure?.  
Option A. Frame.  
Option B. Skin.  
Option C. Stringer.  
Correct Answer is. Skin.  
Explanation. NIL.

Question Number. 39. Fuselage station numbers are measured from the front of the aircraft in.  
Option A. feet.  
Option B. inches.  
Option C. feet and inches.  
Correct Answer is. inches.  
Explanation. NIL.

Question Number. 40. Which parts of the aircraft are classified secondary structures?.

Option A. These parts of the airframe are highly stressed but if damaged will not cause failure of the aircraft.

Option B. These parts of the airframe are highly stressed and if damaged may cause failure of the aircraft and loss of life.

Option C. These are lightly stressed parts such as fairings, wheel shields and minor component brackets etc.

Correct Answer is. These parts of the airframe are highly stressed but if damaged will not cause failure of the aircraft.

Explanation. NIL.

Question Number. 41. Structure with built- in redundancy is called.

Option A. double safe.

Option B. failsafe.

Option C. safe life.

Correct Answer is. failsafe.

Explanation. NIL.

Question Number. 42. Stress.

Option A. is the property of a material to resist fracture.

Option B. is the load per unit area acting on a material.

Option C. is the deformation of a material caused by applied load.

Correct Answer is. is the load per unit area acting on a material.

Explanation. AL/7-2 2.2.

Question Number. 43. A piece of structure which must be replaced at a specified number of cycles, flying hours or years, regardless of its physical condition is what type of item?.

Option A. Safe-life.

Option B. Fail-safe.

Option C. Condition monitored.

Correct Answer is. Safe-life.

Explanation. NIL.

Question Number. 44. If you are unable to identify a structure classification as either Primary or Secondary, what action should you adopt?.

Option A. Upgrade it to primary.

Option B. Grade it as secondary.

Option C. Paint it red and stamp it as tertiary.

Correct Answer is. Upgrade it to primary.

Explanation. NIL.

Question Number. 45. Safe-life is.

Option A. the sharing of loads between adjacent members.

Option B. the minimum number of flying hours that should elapse before a major structural failure occurs.

Option C. the maximum number of flying hours that should elapse before a major structural failure occurs.

Correct Answer is. the maximum number of flying hours that should elapse before a major structural failure occurs.

Explanation. NIL.

Question Number. 46. Bending stresses are a combination of.

Option A. torsional and compression stresses.

Option B. tension and shear stresses.

Option C. tension and compression stresses.

Correct Answer is. tension and compression stresses.

Explanation. NIL.

Question Number. 47. The Airworthiness Notice that refers to structural surveys is.

Option A. Notice 65.

Option B. Notice 79.

Option C. Notice 89.

Correct Answer is. Notice 89.

Explanation. These AWNs are now transferred to CAP747.

Question Number. 48. Structural survey inspections are normally called up by the.

Option A. operator.

Option B. maintenance engineer.

Option C. manufacturer.

Correct Answer is. manufacturer.

Explanation. AWN 89.

Question Number. 49. Where are wing stations measured from?.

Option A. Water Line (WL).

Option B. Zone Line (ZL).

Option C. Butt Line (BL).

Correct Answer is. Butt Line (BL).

Explanation. Obscure question, but the fuselage centreline is 'technically' a buttock line of sorts.

Question Number. 50. Where is Zone 323?  
Option A. Between rear spar and trailing edge.  
Option B. Between front and rear spar.  
Option C. Tip of vertical stabiliser.  
Correct Answer is. Tip of vertical stabiliser.  
Explanation. See zonal locations in any Maintenance Manual.

Question Number. 51. To prevent a system being affected by high current flows after a lightning strike to a composite aircraft, electricity is discharged through.  
Option A. a sprayed coat of conductive paint.  
Option B. a sprayed coat of non-conductive paint.  
Option C. electrically connected primary conductors.  
Correct Answer is. electrically connected primary conductors.  
Explanation. NIL.

Question Number. 52. A structural member intended to resist compression is a.  
Option A. web.  
Option B. tie.  
Option C. strut.  
Correct Answer is. strut.  
Explanation. NIL.

Question Number. 53. An aircraft structure, having multiple load paths, is known as a.  
Option A. monocoque design.  
Option B. fail-safe design.  
Option C. safe-life design.  
Correct Answer is. fail-safe design.  
Explanation. NIL.

Question Number. 54. Wrinkling of the skin on the upper surface of the fuselage indicates.  
Option A. hogging.  
Option B. shedding.  
Option C. sagging.  
Correct Answer is. sagging.  
Explanation. NIL.

Question Number. 55. If a redundant structure fails it becomes.  
Option A. safe-life.

Option B. fatigued.  
Option C. failsafe.  
Correct Answer is. failsafe.  
Explanation. NIL.

Question Number. 56. A redundant structure is.  
Option A. on-condition structure.  
Option B. a safe-life structure.  
Option C. a failsafe structure.  
Correct Answer is. a failsafe structure.  
Explanation. NIL.

Question Number. 57. The measurement of the fuselage perpendicular to horizontal plane measured in inches from bottom of the fuselage is.  
Option A. butt line.  
Option B. water line.  
Option C. fuselage station.  
Correct Answer is. water line.  
Explanation. NIL.

Question Number. 58. What are the four stresses to be considered when building an aircraft?.  
Option A. Compression, Tension, Torsion, Stress.  
Option B. Compression, Torsion, Stress, Strain.  
Option C. Compression, Torsion, Tension, Shear.  
Correct Answer is. Compression, Torsion, Tension, Shear.  
Explanation. NIL.

Question Number. 59. A structure that has a high designed reserve strength would be classified as.  
Option A. secondary.  
Option B. tertiary.  
Option C. primary.  
Correct Answer is. primary.  
Explanation. NIL.

Question Number. 60. An example of primary stress is.  
Option A. tension.  
Option B. bending.  
Option C. shear.  
Correct Answer is. tension.

Explanation. NIL.

Question Number. 61. What is the water line?.

Option A. The zero datum from which all lateral locations are measured.

Option B. The datum from which vertical locations refer.

Option C. A line below which redux bonding can not be used.

Correct Answer is. The datum from which vertical locations refer.

Explanation. NIL.

Question Number. 62. Lateral stations have station zero at the.

Option A. nose.

Option B. left wing tip.

Option C. centre line.

Correct Answer is. centre line.

Explanation. NIL.

Question Number. 63. Airworthiness requirements for large aircraft are found in.

Option A. JAR 25.

Option B. ANO 25.

Option C. CS 25.

Correct Answer is. CS 25.

Explanation. JAR 25 is replaced by EASA Certification Specification CS 25.

Question Number. 64. An Anthropomorphic Test Dummy (ATD) is strapped into a large aircraft forward facing seat. It is put through a series of crash tests. This is to.

Option A. to measure the amount of force applied to the abdomen of the ATD to ensure it is not above 236 kg.

Option B. test the aircraft structure and seating mount points for structural integrity.

Option C. to determine whether or not the ATD's head comes into contact with any structure or seat, and if so to measure the force applied to the head in line with a specific Head Injury Criterion (HIC).

Correct Answer is. to determine whether or not the ATD's head comes into contact with any structure or seat, and if so to.

Explanation. JAR 25.562 (b) para 5.

### **11B.02b. Airframe Structures - General Concepts.**

Question Number. 1. What kind of seal is used on firewall bulkheads?.

Option A. None is required.  
Option B. Fire-proof grommets.  
Option C. Soft rubber.  
Correct Answer is. Fire-proof grommets.  
Explanation. NIL.

Question Number. 2. The two stages in a good adhesive bond are.  
Option A. wetting and gripping.  
Option B. wetting and Setting.  
Option C. spreading and setting.  
Correct Answer is. wetting and Setting.  
Explanation. A module 7 questions. The two processes in adhesive bonding is 'wetting and setting'.

Question Number. 3. Prior to aluminium alloy bonding, we use.  
Option A. acid etch.  
Option B. alkaline etch.  
Option C. solvent etch.  
Correct Answer is. acid etch.  
Explanation. Phosphoric acid and chromic acid wash.

Question Number. 4. The purpose of a primer is to.  
Option A. provide flexible surface for the top coat.  
Option B. help bonding of the topcoat.  
Option C. provide shiny surface for the topcoat.  
Correct Answer is. help bonding of the topcoat.  
Explanation. CAIPs BL/6-20 PAra.2.1.

Question Number. 5. In semi-monocoque construction, compression loads are taken by.  
Option A. stringers.  
Option B. bulkheads.  
Option C. frames.  
Correct Answer is. stringers.  
Explanation. CAIP AL/7-2 para 2.6 (last sentence).

Question Number. 6. Most large transport aircraft skins are.  
Option A. 7075.  
Option B. 5056.  
Option C. 2024.  
Correct Answer is. 2024.

Explanation. Jeppesen A&P Technician Airframe Textbook 2-8.

Question Number. 7. Which of the following statements is correct, in relation to PLI washers used in critical bolted joints?.

Option A. PLI washers can only be used with self locking nuts and the washers should be used once.

Option B. PLI washers can be affected by thread or nut friction or by lubrication.

Option C. PLI washers can be used more than once, providing they are used in critical bolted joints.

Correct Answer is. PLI washers can only be used with self locking nuts and the washers should be used once.

Explanation. CAIPs AL/7-8 Para 4.5.4.

Question Number. 8. What opposes buckling in a semi-monocoque structure?.

Option A. Bulkheads.

Option B. Frames.

Option C. Stringers.

Correct Answer is. Stringers.

Explanation. CAIPs AL/7.2 para 3.3.

Question Number. 9. In a monocoque structure, which component carries the majority of the loads?.

Option A. Longerons.

Option B. Stringers.

Option C. Skin.

Correct Answer is. Skin.

Explanation. A&P Mechanic Handbook Page 25-28.

Question Number. 10. Which anti-corrosive treatment is found on alloy steels?.

Option A. Nickel plating.

Option B. Zinc plating.

Option C. Cadmium plating.

Correct Answer is. Cadmium plating.

Explanation. CAIPs BL/7-2.

Question Number. 11. What material can be chromated as a protection against corrosion?.

Option A. Aluminium alloys.

Option B. Ferrous alloys.

Option C. Magnesium alloys.  
Correct Answer is. Magnesium alloys.  
Explanation. CAIPs BL/7-3.

Question Number. 12. When carrying out a symmetry check on a large aircraft, what method of measurement is normally used?.

Option A. Lateral alignment method.  
Option B. Longitudinal alignment method.  
Option C. Steel tape and spring balance.  
Correct Answer is. Steel tape and spring balance.  
Explanation. CAIPs AL/7-12 3.3.5 i.

Question Number. 13. Paint remover substances.

Option A. are not damaging to any aircraft parts.  
Option B. are damaging to some aircraft parts.  
Option C. should only be used once.  
Correct Answer is. are damaging to some aircraft parts.  
Explanation. CAIPs BL/6-20 11.1.

Question Number. 14. To remove a rivet.

Option A. chisel off the rivet head, and remove the shank with a metal punch.  
Option B. drill the head with a drill bit the same size as the rivet shank, chisel off the rivet head, and remove the shank with a metal punch.  
Option C. drill the head with a drill bit slightly smaller than the rivet shank, chisel off the rivet head, and remove the shank with a metal punch.  
Correct Answer is. drill the head with a drill bit the same size as the rivet shank, chisel off the rivet head, and remove the.  
Explanation. CAAIPs Leaflet 6-4 3.7.1 says 'drill equal in diameter than that of the rivet', but CAIPs BL/6-29 para 10.1 says 'slightly smaller'. We chose the former, because it is current.

Question Number. 15. Battery trays are.

Option A. absorbent to soak up electrolyte.  
Option B. metal for earthing purposes.  
Option C. metal with PVC coating and anti corrosive paint.  
Correct Answer is. metal with PVC coating and anti corrosive paint.  
Explanation. Aircraft Electrical Systems. Pallett Page 24.

Question Number. 16. The primary purpose of sealant in use in pressurised aircraft is.

Option A. to seal the cabin.

Option B. to prevent corrosion.

Option C. to provide external streamlining.

Correct Answer is. to seal the cabin.

Explanation. CAIP AL/7-2 para. 3.7.

[http://www.tpub.com/content/aviation/14022/css/14022\\_156.htm](http://www.tpub.com/content/aviation/14022/css/14022_156.htm)

Question Number. 17. When installing a 'Hi-lock' bolt, it is necessary to.

Option A. lubricate the collar.

Option B. lubricate the shank and threads.

Option C. simply fit the bolt as they are prelubricated.

Correct Answer is. simply fit the bolt as they are prelubricated.

Explanation. NIL. <http://www.hi-shear.com/fasteners>

Question Number. 18. Sealant or levelling compound is installed during structure repair.

Option A. according to separate manufacturer's documentations such as BAC.

Option B. according to SB instructions.

Option C. according to AMM and SRM chapter 51.

Correct Answer is. according to AMM and SRM chapter 51.

Explanation. Chapter 51 is General Practices.

Question Number. 19. A bonded waffle doubler, as well as acting as a skin strengthener, also acts as a.

Option A. tear stopper.

Option B. jury strut.

Option C. shear tie.

Correct Answer is. tear stopper.

Explanation. CAIPs AL/7-2 (crack stopper band fig.4).

Question Number. 20. What are the faying surfaces of a repair?.

Option A. Middle of repair.

Option B. Material under repair.

Option C. Edges of repair metal.

Correct Answer is. Material under repair.

Explanation. Open to interpretation. We have gone for 'material under repair' as the surfaces joined together.

Question Number. 21. Why is a joggle joint used?.

Option A. Smooth contour of surface.

Option B. Added strength.

Option C. So countersunk rivets do not need to be used.

Correct Answer is. Smooth contour of surface.  
Explanation. NIL.

Question Number. 22. Dissimilar metal fusion bonding is best for.

Option A. low strength high toughness.

Option B. high strength high ductility.

Option C. high strength high toughness.

Correct Answer is. high strength high ductility.

Explanation. NIL. <http://www.user.lasercom.net/normajean/normajean/newpage1.htm>

Question Number. 23. The ideal conditions for paint spraying an aircraft are.

Option A. 15°C to 25°C and humidity below 75%.

Option B. 20°C to 30°C and humidity below 70%.

Option C. 15°C to 25°C and humidity above 60%.

Correct Answer is. 15°C to 25°C and humidity below 75%.

Explanation. BL/6-20 5.

Question Number. 24. What are the types of true bonded joints?.

Option A. Cemented and specific.

Option B. Mechanical and specific.

Option C. Mechanical and cemented.

Correct Answer is. Mechanical and specific.

Explanation. Nil.

Question Number. 25. Why is a joggle joint used?.

Option A. To provide a flush fit.

Option B. To provide a smooth contour to surface.

Option C. To add strength.

Correct Answer is. To provide a flush fit.

Explanation. Arguably c also, but the joggle does not provide the 'contour'.

Question Number. 26. When both sides of a structural repair are not easily reached, which type of fastener would you use?.

Option A. Blind rivet.

Option B. Hi lock bolt.

Option C. Pop rivet.

Correct Answer is. Blind rivet.

Explanation. Pop rivet is not a blind fastener because the broken stem must be retrieved.

Question Number. 27. With regard to extraneous spilt fluids.  
Option A. they may be harmful to the aircraft structure.  
Option B. they can be ignored, they provide extra protection.  
Option C. they should only be cleaned up if they are on the external surface of the aircraft.  
Correct Answer is. they may be harmful to the aircraft structure.  
Explanation. NIL.

Question Number. 28. Skin panels may be strengthened by.  
Option A. stringers.  
Option B. struts.  
Option C. cleats.  
Correct Answer is. stringers.  
Explanation. NIL.

Question Number. 29. What is the normal form of construction of a spar?.  
Option A. One boom mounted under a web.  
Option B. Two webs separated by a boom.  
Option C. Two booms separated by a web.  
Correct Answer is. Two booms separated by a web.  
Explanation. NIL.

Question Number. 30. A crack stopper is fitted.  
Option A. after a crack starts, to slow its rate of propagation.  
Option B. before a crack starts, to prevent its initiation.  
Option C. before a crack starts, to slow its rate of propagation.  
Correct Answer is. before a crack starts, to slow its rate of propagation.  
Explanation. NIL.

Question Number. 31. Which of the following should be accomplished before jacking an aircraft?.  
Option A. Install critical stress panels or plates.  
Option B. Remove all optional equipment.  
Option C. Determine the fuel tanks are empty.  
Correct Answer is. Install critical stress panels or plates.  
Explanation. NIL.

Question Number. 32. Synthetic resins are made from nylon, vinyl and.

Option A. asphalt.  
Option B. cellulose.  
Option C. acrylics.  
Correct Answer is. acrylics.  
Explanation. NIL.

Question Number. 33. One of the advantages of the semi-monocoque construction is that it.

Option A. is easier to manufacture.  
Option B. shares the loads.  
Option C. takes all the loads in the skin.  
Correct Answer is. shares the loads.  
Explanation. NIL.

Question Number. 34. In a fully monocoque fuselage, all the loads are carried by the.

Option A. frames.  
Option B. skin.  
Option C. longerons.  
Correct Answer is. skin.  
Explanation. NIL.

Question Number. 35. Intercostals are.

Option A. vertical struts joining the upper and lower wings of a biplane.  
Option B. longitudinal fuselage members attached at each end to adjacent frames.  
Option C. compression ribs in cantilever wings.  
Correct Answer is. longitudinal fuselage members attached at each end to adjacent frames.  
Explanation. NIL.

Question Number. 36. Joints that are designed to stop the propagation of cracks are known as.

Option A. crack limiting joints.  
Option B. secondary joints.  
Option C. failsafe joints.  
Correct Answer is. failsafe joints.  
Explanation. NIL.

Question Number. 37. If an aircraft has alkaline batteries, the battery compartment drain pipes will be.

Option A. aluminium alloy.

Option B. stainless steel.  
Option C. plastic.  
Correct Answer is. stainless steel.  
Explanation. NIL.

Question Number. 38. An overweight landing is one in which the aircraft has.

Option A. a missed placed centre of gravity on landing.  
Option B. too much kinetic energy on landing.  
Option C. an excessive fuel load on take-off.  
Correct Answer is. too much kinetic energy on landing.  
Explanation. NIL.

Question Number. 39. Symmetry checks should be carried out.

Option A. in the hangar with the aircraft on its wheels.  
Option B. on the ramp with the aircraft on its wheels.  
Option C. in the hangar with the aircraft on jacks.  
Correct Answer is. in the hangar with the aircraft on jacks.  
Explanation. CAAIPs Leaflet 6-5 para 2.

Question Number. 40. The purpose of a wash primer and primer is to.

Option A. help bonding for top-coat.  
Option B. provide more aerodynamic finish for top-coat.  
Option C. provide a flexible surface for top-coat.  
Correct Answer is. help bonding for top-coat.  
Explanation. Jeppesen A&P Airframe Textbook. page 6-8.

Question Number. 41. Dents are generally not permitted in a tubular member.

Option A. if the major axis of the dent is parallel to the tube axis irrespective of the location.  
Option B. if they are located in the middle third of the length of the member.  
Option C. if they are located in the end thirds of the length of the member.  
Correct Answer is. if they are located in the end thirds of the length of the member.  
Explanation. NIL.

Question Number. 42. When an item is cocooned, the visual indicator will indicate.

Option A. humidity.  
Option B. toxic gases.  
Option C. temperature.

Correct Answer is. humidity.

Explanation. NIL.

Question Number. 43. The maximum permissible bow in a steel tube is.

Option A. 1 in 400.

Option B. 1 in 600.

Option C. 1 in 200.

Correct Answer is. 1 in 600.

Explanation. CAAIPs Leaflet 6-4 p13.

Question Number. 44. Buckling in a semi-monocoque structure is prevented by.

Option A. longerons.

Option B. bulkheads.

Option C. stringers.

Correct Answer is. stringers.

Explanation. NIL.

Question Number. 45. Which loads do longerons resist?.

Option A. Bending, compression and tensile.

Option B. Torsional only.

Option C. Bending, compression, tensile and torsion.

Correct Answer is. Bending, compression and tensile.

Explanation. NIL.

### **11B.03.1. Airframe Structures - Aeroplanes - Fuselage (ATA 52/53/56).**

Question Number. 1. What kind of seal is used on firewall bulkheads?.

Option A. Soft rubber.

Option B. Fire-proof grommets.

Option C. None is required.

Correct Answer is. Fire-proof grommets.

Explanation. NIL.

Question Number. 2. The two stages in a good adhesive bond are.

Option A. wetting and Setting.

Option B. wetting and gripping.

Option C. spreading and setting.

Correct Answer is. wetting and Setting.

Explanation. A module 7 questions. The two processes in adhesive bonding is 'wetting and setting'.

Question Number. 3. Prior to aluminium alloy bonding, we use.

Option A. acid etch.

Option B. alkaline etch.

Option C. solvent etch.

Correct Answer is. acid etch.

Explanation. Phosphoric acid and chromic acid wash.

Question Number. 4. The purpose of a primer is to.

Option A. provide shiny surface for the topcoat.

Option B. provide flexible surface for the top coat.

Option C. help bonding of the topcoat.

Correct Answer is. help bonding of the topcoat.

Explanation. CAIPs BL/6-20 PAra.2.1.

Question Number. 5. In semi-monocoque construction, compression loads are taken by.

Option A. stringers.

Option B. bulkheads.

Option C. frames.

Correct Answer is. stringers.

Explanation. CAIP AL/7-2 para 2.6 (last sentence).

Question Number. 6. Most large transport aircraft skins are.

Option A. 2024.

Option B. 7075.

Option C. 5056.

Correct Answer is. 2024.

Explanation. Jeppesen A&P Technician Airframe Textbook 2-8.

Question Number. 7. Which of the following statements is correct, in relation to PLI washers used in critical bolted joints?.

Option A. PLI washers can be affected by thread or nut friction or by lubrication.

Option B. PLI washers can only be used with self locking nuts and the washers should be used once.

Option C. PLI washers can be used more than once, providing they are used in critical bolted joints.

Correct Answer is. PLI washers can only be used with self locking nuts and the washers should be used once.

Explanation. CAIPs AL/7-8 Para 4.5.4.

Question Number. 8. What opposes buckling in a semi-monocoque structure?.

Option A. Stringers.

Option B. Bulkheads.

Option C. Frames.

Correct Answer is. Stringers.

Explanation. CAIPs AL/7.2 para 3.3.

Question Number. 9. In a monocoque structure, which component carries the majority of the loads?.

Option A. Longerons.

Option B. Stringers.

Option C. Skin.

Correct Answer is. Skin.

Explanation. A&P Mechanic Handbook Page 25-28.

Question Number. 10. Which anti-corrosive treatment is found on alloy steels?.

Option A. Zinc plating.

Option B. Cadmium plating.

Option C. Nickel plating.

Correct Answer is. Cadmium plating.

Explanation. CAIPs BL/7-2.

Question Number. 11. What material can be chromated as a protection against corrosion?.

Option A. Aluminium alloys.

Option B. Magnesium alloys.

Option C. Ferrous alloys.

Correct Answer is. Magnesium alloys.

Explanation. CAIPs BL/7-3.

Question Number. 12. When carrying out a symmetry check on a large aircraft, what method of measurement is normally used?.

Option A. Lateral alignment method.

Option B. Longitudinal alignment method.

Option C. Steel tape and spring balance.

Correct Answer is. Steel tape and spring balance.

Explanation. CAIPs AL/7-12 3.3.5 i.

Question Number. 13. Paint remover substances.  
Option A. are damaging to some aircraft parts.  
Option B. should only be used once.  
Option C. should only be used once.  
Correct Answer is. are damaging to some aircraft parts.  
Explanation. should only be used once.

Question Number. 14. To remove a rivet.  
Option A. drill the head with a drill bit slightly smaller than the rivet shank, chisel off the rivet head, and remove the shank with a metal punch.  
Option B. chisel off the rivet head, and remove the shank with a metal punch.  
Option C. drill the head with a drill bit the same size as the rivet shank, chisel off the rivet head, and remove the shank with a metal punch.  
Correct Answer is. drill the head with a drill bit the same size as the rivet shank, chisel off the rivet head, and remove the shank with a metal punch.  
Explanation. CAAIPs Leaflet 6-4 3.7.1 says 'drill equal in diameter than that of the rivet', but CAIPs BL/6-29 para 10.1 says 'slightly smaller'. We chose the former, because it is current.

Question Number. 15. Battery trays are.  
Option A. absorbent to soak up electrolyte.  
Option B. metal for earthing purposes.  
Option C. metal with PVC coating and anti corrosive paint.  
Correct Answer is. metal with PVC coating and anti corrosive paint.  
Explanation. Aircraft Electrical Systems. Pallett Page 24.

Question Number. 16. The primary purpose of sealant in use in pressurised aircraft is.  
Option A. to seal the cabin.  
Option B. to prevent corrosion.  
Option C. to provide external streamlining.  
Correct Answer is. to seal the cabin.  
Explanation. CAIP AL/7-2 para. 3.7 and [http://www.tpub.com/content/aviation/14022/css/14022\\_156.htm](http://www.tpub.com/content/aviation/14022/css/14022_156.htm).

Question Number. 17. When installing a 'Hi-lock' bolt, it is necessary to.  
Option A. simply fit the bolt as they are prelubricated.  
Option B. lubricate the collar.  
Option C. lubricate the shank and threads.  
Correct Answer is. simply fit the bolt as they are prelubricated.  
Explanation. NIL. <http://www.hi-shear.com/fasteners>

Question Number. 18. Sealant or levelling compound is installed during structure repair:

Option A. according to AMM and SRM chapter 51.

Option B. according to SB instructions.

Option C. according to separate manufacturer's documentations such as BAC.

Correct Answer is. according to AMM and SRM chapter 51.

Explanation. Chapter 51 is General Practices.

Question Number. 19. A bonded waffle doubler, as well as acting as a skin strengthener, also acts as a.

Option A. jury strut.

Option B. tear stopper.

Option C. shear tie.

Correct Answer is. tear stopper.

Explanation. CAIPs AL/7-2 (crack stopper band fig.4).

Question Number. 20. What are the faying surfaces of a repair?.

Option A. Middle of repair.

Option B. Edges of repair metal.

Option C. Material under repair.

Correct Answer is. Material under repair.

Explanation. Open to interpretation. We have gone for 'material under repair' as the surfaces joined together.

Question Number. 21. Why is a joggle joint used?.

Option A. So countersunk rivets do not need to be used.

Option B. Smooth contour of surface.

Option C. Added strength.

Correct Answer is. Smooth contour of surface.

Explanation. NIL.

Question Number. 22. Dissimilar metal fusion bonding is best for.

Option A. high strength high toughness.

Option B. high strength high stiffness.

Option C. low strength high toughness.

Correct Answer is. high strength high stiffness.

Explanation. NIL.

Question Number. 23. The ideal conditions for paint spraying an aircraft are.

Option A. 20°C to 30°C and humidity below 70%.  
Option B. 15°C to 25°C and humidity below 75%.  
Option C. 15°C to 25°C and humidity above 60%.  
Correct Answer is. 15°C to 25°C and humidity below 75%.  
Explanation. BL/6-20 5.

Question Number. 24. What are the types of true bonded joints?.  
Option A. Mechanical and specific.  
Option B. Mechanical and cemented.  
Option C. Mechanical and cemented.  
Correct Answer is. Mechanical and specific.  
Explanation. NIL.

Question Number. 25. Why is a joggle joint used?.  
Option A. To provide a smooth contour to surface.  
Option B. To add strength.  
Option C. To provide a flush fit.  
Correct Answer is. To provide a flush fit.  
Explanation. Arguably c also, but the joggle does not provide the 'contour'.

Question Number. 26. When both sides of a structural repair are not easily reached, which type of fastener would you use?.  
Option A. Pop rivet.  
Option B. Hi lock bolt.  
Option C. Blind rivet.  
Correct Answer is. Blind rivet.  
Explanation. Pop rivet is not a blind fastener because the broken stem must be retrieved.

Question Number. 27. With regard to extraneous spilt fluids.  
Option A. they may be harmful to the aircraft structure.  
Option B. they should only be cleaned up if they are on the external surface of the aircraft.  
Option C. they can be ignored, they provide extra protection.  
Correct Answer is. they may be harmful to the aircraft structure.  
Explanation. NIL.

Question Number. 28. Skin panels may be strengthened by.  
Option A. cleats.  
Option B. struts.  
Option C. stringers.  
Correct Answer is. stringers.

Explanation. NIL.

Question Number. 29. What is the normal form of construction of a spar?.

Option A. Two webs separated by a boom.

Option B. One boom mounted under a web.

Option C. Two booms separated by a web.

Correct Answer is. Two booms separated by a web.

Explanation. NIL.

Question Number. 30. A crack stopper is fitted.

Option A. before a crack starts, to prevent its initiation.

Option B. before a crack starts, to slow its rate of propagation.

Option C. after a crack starts, to slow its rate of propagation.

Correct Answer is. before a crack starts, to slow its rate of propagation.

Explanation. NIL.

Question Number. 31. Which of the following should be accomplished before jacking an aircraft?.

Option A. Install critical stress panels or plates.

Option B. Determine the fuel tanks are empty.

Option C. Remove all optional equipment.

Correct Answer is. Install critical stress panels or plates.

Explanation. NIL.

Question Number. 32. Synthetic resins are made from nylon, vinyl and.

Option A. asphalt.

Option B. cellulose.

Option C. acrylics.

Correct Answer is. acrylics.

Explanation. NIL.

Question Number. 33. One of the advantages of the semi-monocoque construction is that it.

Option A. is easier to manufacture.

Option B. shares the loads.

Option C. takes all the loads in the skin.

Correct Answer is. shares the loads.

Explanation. NIL.

Question Number. 34. In a fully monocoque fuselage, all the loads are carried by

the.

Option A. longerons.

Option B. frames.

Option C. skin.

Correct Answer is. skin.

Explanation. NIL.

Question Number. 35. Intercostals are.

Option A. vertical struts joining the upper and lower wings of a biplane.

Option B. compression ribs in cantilever wings.

Option C. longitudinal fuselage members attached at each end to adjacent frames.

Correct Answer is. longitudinal fuselage members attached at each end to adjacent frames.

Explanation. NIL.

Question Number. 36. Joints that are designed to stop the propagation of cracks are known as.

Option A. failsafe joints.

Option B. secondary joints.

Option C. crack limiting joints.

Correct Answer is. failsafe joints.

Explanation. NIL.

Question Number. 37. If an aircraft has alkaline batteries, the battery compartment drain pipes will be.

Option A. plastic.

Option B. aluminium alloy.

Option C. stainless steel.

Correct Answer is. stainless steel.

Explanation. NIL.

Question Number. 38. An overweight landing is one in which the aircraft has.

Option A. too much kinetic energy on landing.

Option B. a missed placed centre of gravity on landing.

Option C. an excessive fuel load on take-off.

Correct Answer is. too much kinetic energy on landing.

Explanation. NIL.

Question Number. 39. Symmetry checks should be carried out.

Option A. in the hangar with the aircraft on its wheels.

Option B. on the ramp with the aircraft on its wheels.  
Option C. in the hanger with the aircraft on jacks.  
Correct Answer is. in the hanger with the aircraft on jacks.  
Explanation. NIL.

Question Number. 40. The purpose of a wash primer and primer is to.  
Option A. help bonding for top-coat.  
Option B. provide a flexible surface for top-coat.  
Option C. provide more aerodynamic finish for top-coat.  
Correct Answer is. help bonding for top-coat.  
Explanation. Jeppesen A&P Airframe Textbook. page 6-8.

Question Number. 41. Dents are generally not permitted in a tubular member.  
Option A. if they are located in the end thirds of the length of the member.  
Option B. if the major axis of the dent is parallel to the tube axis irrespective of the location.  
Option C. if they are located in the middle third of the length of the member.  
Correct Answer is. if they are located in the end thirds of the length of the member.  
Explanation. NIL.

Question Number. 42. When an item is cocooned, the visual indicator will indicate.  
Option A. humidity.  
Option B. temperature.  
Option C. toxic gases.  
Correct Answer is. humidity.  
Explanation. NIL.

Question Number. 43. The maximum permissible bow in a steel tube is.  
Option A. 1 in 600.  
Option B. 1 in 200.  
Option C. 1 in 400.  
Correct Answer is. 1 in 600.  
Explanation. CAAIPs Leaflet 6-4 p13.

Question Number. 44. Buckling in a semi-monocoque structure is prevented by.  
Option A. stringers.  
Option B. longerons.  
Option C. bulkheads.

Correct Answer is. stringers.

Explanation. NIL.

Question Number. 45. Which loads do longerons resist?.

Option A. Torsional only.

Option B. Bending, compression, tensile and torsion.

Option C. Bending, compression and tensile.

Correct Answer is. Bending, compression and tensile.

Explanation. NIL.

### **11B.03.2. Airframe Structures - Aeroplanes - Wings (ATA 57).**

Question Number. 1. A spar web will take loads in.

Option A. bending.

Option B. tension.

Option C. shear.

Correct Answer is. shear.

Explanation. The spar as a whole, takes bending and shear. The bending is taken by the booms (as compression-top and tension - bottom) and the web takes the shear.

(Sometimes called a 'shear' web).

Question Number. 2. Wing bending and shear loads are taken by.

Option A. spar cap.

Option B. skin.

Option C. main spar.

Correct Answer is. main spar.

Explanation. The main spar takes the wing bending and shear loads.

Question Number. 3. An aspect ratio of 8 could mean.

Option A. span 64 ft., mean chord 8 ft.

Option B. span squared 64 ft., chord 8 ft.

Option C. mean chord 64 ft., span 8 ft.

Correct Answer is. span 64 ft., mean chord 8 ft.

Explanation. Aspect Ratio = span/mean chord.

Question Number. 4. A cantilever wing is a.

Option A. usual airliner wing.

Option B. top wing of a biplane.

Option C. swept-back wing.

Correct Answer is. usual airliner wing.

Explanation. CAIPs AL/7-2 fig 2.

Question Number. 5. On a mono-spar wing, what gives the wing its profile contour?.

Option A. Milled stringers.

Option B. The position of the spars.

Option C. Ribs.

Correct Answer is. Ribs.

Explanation. AL/7-2 para 4.2.

Question Number. 6. A wing's leading edge would have provisions and linkages for slats and.

Option A. leading edge flaps.

Option B. trailing edge flaps.

Option C. slots.

Correct Answer is. leading edge flaps.

Explanation. Slots are fixed features - no linkages, or are produced when the slats open.

Question Number. 7. The mid-spar is fitted in large aircraft to.

Option A. support fitting the engine mount & landing gear mount.

Option B. assist the main spar with operational loads.

Option C. provide redundant design.

Correct Answer is. assist the main spar with operational loads.

Explanation. NIL.

Question Number. 8. The main undercarriage is attached to the.

Option A. aircraft structure.

Option B. rear main spar.

Option C. front main spar.

Correct Answer is. aircraft structure.

Explanation. The only wholly correct answer.

Question Number. 9. The final coat of sealing in a integral fuel tank is called.

Option A. fillet.

Option B. interfay.

Option C. brush coat.

Correct Answer is. brush coat.

Explanation. B737 ANN 28-11-00 page 811, the 3 coats of sealant for repair fuel tanks leak are termed as fillet, injection and prepack. Fillet seal is the first coat.

Question Number. 10. The principle load bearing members of the wing are.

Option A. spars.  
Option B. struts.  
Option C. ribs.  
Correct Answer is. spars.  
Explanation. NIL.

Question Number. 11. One purpose of a rib is to.  
Option A. support the bending loads on a fuselage.  
Option B. form the main lateral member in an aerofoil.  
Option C. maintain the correct contour of an aerofoils covering.  
Correct Answer is. maintain the correct contour of an aerofoils covering.  
Explanation. NIL.

Question Number. 12. What is a cantilever wing?.  
Option A. One that folds for access to limited space.  
Option B. One that has external supporting struts.  
Option C. One that has no external supporting struts.  
Correct Answer is. One that has no external supporting struts.  
Explanation. NIL.

Question Number. 13. A spar is tapered from root to tip because.  
Option A. shear forces are greatest at the root.  
Option B. bending moment is greatest at the root.  
Option C. centre of lift occurs close to the root.  
Correct Answer is. bending moment is greatest at the root.  
Explanation. AL/7-2 para 4.1.

Question Number. 14. A spar web is.  
Option A. a member between the spar and wing/fuselage connection.  
Option B. an area between two spar caps.  
Option C. a rib/spar joint.  
Correct Answer is. a member between the spar and wing/fuselage connection.  
Explanation. NIL.

Question Number. 15. A leading edge slat is attached to the.  
Option A. slat track.  
Option B. wing upper skin.  
Option C. front spar.  
Correct Answer is. slat track.  
Explanation. NIL. <http://www.b737.org.uk/flightcontrols.htm>

**11B.03.3. Airframe Structures - Aeroplanes - Stabilisers (ATA 55).**

Question Number. 1. The web of an 'I' beam takes mainly which type of load?.

Option A. Shear.

Option B. Tension.

Option C. Bending.

Correct Answer is. Shear.

Explanation. A 'web' always takes shear loads.

Question Number. 2. The term 'empennage' incorporates.

Option A. rudder, ailerons, spoilers.

Option B. elevators, stabiliser, ailerons.

Option C. elevators, stabiliser, rudder.

Correct Answer is. elevators, stabiliser, rudder.

Explanation. NIL.

Question Number. 3. The four main structural items making up a horizontal stabiliser are.

Option A. spar, rib, bulkheads, skin panels.

Option B. spar, rib, stringers, skin panels.

Option C. spar, rib, longerons, skin panels.

Correct Answer is. spar, rib, stringers, skin panels.

Explanation. NIL.

Question Number. 4. To correct for nose heaviness on an aircraft fitted with a variable incidence tailplane, the incidence of the tailplane would be.

Option A. decreased, which is done by lowering the leading edge.

Option B. decreased, which is done by lowering the trailing edge.

Option C. increased, which is done by lowering the leading edge.

Correct Answer is. decreased, which is done by lowering the leading edge.

Explanation. NIL.

Question Number. 5. An upward elevator deflection on the reverse camber tailplane.

Option A. may increase or decrease download depending upon the aircraft C of G position.

Option B. will decrease tailplane download.

Option C. will increase tailplane download.

Correct Answer is. will increase tailplane download.

Explanation. NIL.

Question Number. 6. Variable incidence tailplanes.

Option A. move rapidly when trimming the aircraft during climb.

Option B. out and landing approach and slowly during cruise always move slowly.

Option C. move rapidly when trimming the aircraft during the landing approach and slowly at all other times.

Correct Answer is. move rapidly when trimming the aircraft during climb out and landing approach and slowly during cruise.

Explanation. B737-400, AMM 27-41-00 PAGE 5 para 1.c, trim speed is depend on the flap position. Trim rate with flaps retracted is 1/3 the trim rate with flaps extended.

Question Number. 7. The direction of travel of an electrically operated variable incidence tailplane is determined by.

Option A. a gearbox.

Option B. solenoid operated clutches.

Option C. direction of rotation of the electric motor.

Correct Answer is. solenoid operated clutches.

Explanation. NIL.

Question Number. 8. On an aircraft with a variable incidence trimming tailplane, the tailplane incidence changes.

Option A. if the control column is moved back or forward.

Option B. automatically if the elevator moves.

Option C. if the trim wheel is turned back or forward.

Correct Answer is. if the trim wheel is turned back or forward.

Explanation. NIL.

#### **11B.03.4. Airframe Structures - Aeroplanes - Flight Control Surfaces (ATA 55/57).**

Question Number. 1. Construction such as horn balance and inset hinge balance installed on control surface assembly.

Option A. serves as a 'servo' system of balance.

Option B. has same effect of the balance tab.

Option C. is meant to trim CG of control surfaces.

Correct Answer is. has same effect of the balance tab.

Explanation. A&P Technician Airframe Textbook. Jeppesen 1-24 fig 1-59, balance tab 1-23 -para 3.

Question Number. 2. The fin helps to give.

Option A. directional stability about the normal axis.

Option B. longitudinal stability about the normal axis.

Option C. directional stability about the longitudinal axis.  
Correct Answer is. directional stability about the normal axis.  
Explanation. Jeppesen A&P Technician Airframe Textbook 1-22.

Question Number. 3. Which of the following are primary control surfaces?.

Option A. Roll spoilers, elevators, tabs.  
Option B. Elevators, roll spoilers, tabs.  
Option C. Elevators, ailerons, rudder.  
Correct Answer is. Elevators, ailerons, rudder.  
Explanation. NIL.

Question Number. 4. Aerodynamic balance.  
Option A. will reduce aerodynamic loading.  
Option B. will cause CP to move towards the trailing edge and cause instability.  
Option C. will cause CP to move towards the trailing edge and cause instability.  
Correct Answer is. will reduce aerodynamic loading.  
Explanation. NIL.

Question Number. 5. Flutter can be reduced by using.  
Option A. servo tabs.  
Option B. mass balancing.  
Option C. a horn balance.  
Correct Answer is. mass balancing.  
Explanation. NIL.

Question Number. 6. An elevator provides control about the.  
Option A. horizontal stabilizer.  
Option B. longitudinal axis.  
Option C. lateral axis.  
Correct Answer is. lateral axis.  
Explanation. NIL.

Question Number. 7. The outboard ailerons on some large aircraft.  
Option A. are isolated at low speeds.  
Option B. are isolated to improve sensitivity.  
Option C. are isolated at high speeds.  
Correct Answer is. are isolated at high speeds.  
Explanation. NIL.

Question Number. 8. An excess of aerodynamic balance would move the control surface centre of pressure.

Option A. rearwards, resulting in too much assistance.

Option B. rearwards, resulting in loss of assistance.

Option C. forwards, resulting in an unstable overbalance.

Correct Answer is. forwards, resulting in an unstable overbalance.

Explanation. NIL.

Question Number. 9. A flying control mass balance weight.

Option A. keeps the control surface C of G as close to the trailing edge as possible.

Option B. tends to move the control surface C of G close to the hinge line.

Option C. ensures that the C of G always acts to aid the pilot thus relieving control column load.

Correct Answer is. tends to move the control surface C of G.close to the hinge line.

Explanation. NIL.

Question Number. 10. What is attached to the rear of the vertical stabilizer?.

Option A. Elevator.

Option B. Aileron.

Option C. Rudder.

Correct Answer is. Rudder.

Explanation. NIL.

Question Number. 11. The method employed to mass balance control surfaces is to.

Option A. attach weights forward of the hinge line.

Option B. allow the leading edge of the surface to project into the airflow.

Option C. fit bias strips to the trailing edge of the surfaces.

Correct Answer is. attach weights forward of the hinge line.

Explanation. NIL.

Question Number. 12. Control surface flutter may be caused by.

Option A. excessive play in trim tab attachments.

Option B. high static friction in trim tab control tabs.

Option C. incorrect angular movement of trim tabs.

Correct Answer is. excessive play in trim tab attachments.

Explanation. NIL.

Question Number. 13. A 'frise' aileron is incorporated to.

Option A. provide aerodynamic balancing so assisting the pilot to move the control.

Option B. ensure aileron control is retained at high angles of attack.

Option C. equalize aileron drag in a turn.

Correct Answer is. equalize aileron drag in a turn.

Explanation. NIL.

Question Number. 14. Aerodynamic balance of a control surface may be achieved.

Option A. by a horn at the extremity of the surface forward of the hinge line.

Option B. by a trimming strip at the trailing edge of the surface.

Option C. by weights added to the control surface aft of the hinge line.

Correct Answer is. by a horn at the extremity of the surface forward of the hinge line.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 24 Para 7.

Question Number. 15. A control surface is provided with aerodynamic balancing to.

Option A. decrease the drag when the control is deflected.

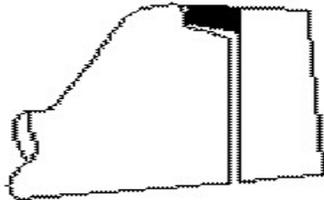
Option B. assist the pilot in moving the control.

Option C. increase stability.

Correct Answer is. assist the pilot in moving the control.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 24 Para 7.

Question Number. 16. The extension to the rudder (shaded portion shown on the diagram), is provided to.



Option A. prevent control surface flutter.

Option B. provide aerodynamic assistance for the pilot when moving the rudder.

Option C. make the pilot aware of the aerodynamic forces encountered when moving the control.

Correct Answer is. Provide aerodynamic assistance for the pilot when moving the rudder.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 25 Para 7.

Question Number. 17. The balance tab is an auxiliary surface fitted to a main control surface.

Option A. operating automatically to provide feel to the controls.  
Option B. operated independently at which point in the length of cable the tensiometer is applied.  
Option C. operating automatically to assist the pilot in moving the controls.  
Correct Answer is. operating automatically to assist the pilot in moving the controls.  
Explanation. NIL.

Question Number. 18. Aerodynamic balancing of flight controls is achieved by.

Option A. placing a weight ahead of the hinge point.  
Option B. providing a portion of the control surface ahead of the hinge point.  
Option C. placing a weight in the leading edge of the control surface.  
Correct Answer is. providing a portion of the control surface ahead of the hinge point.  
Explanation. AL/3-24 para 4.2

Question Number. 19. Aerodynamic balance is used to.

Option A. make the flying controls easier to move.  
Option B. prevent flutter of the flying controls.  
Option C. reduce the control load to zero.  
Correct Answer is. make the flying controls easier to move.  
Explanation. NIL.

Question Number. 20. A horn balance is.

Option A. a rod projecting forward from the control surface with a weight on the end.  
Option B. a rod projecting upward from the main control surface to which the control cables are attached.  
Option C. a projection of the outer edge of the control surface forward of the hinge line.  
Correct Answer is. a projection of the outer edge of the control surface forward of the hinge line.  
Explanation. Jeppesen A&P Technician Airframe Textbook Page 16

Question Number. 21. A control surface is mass balanced by.

Option A. the attachment of weights acting forward of the hinge line.  
Option B. the attachment of weights acting on the hinge line.  
Option C. fitting a balance tab.  
Correct Answer is. the attachment of weights acting forward of the hinge line.  
Explanation. NIL.

Question Number. 22. The purpose of anti-balance tabs is to.

Option A. relieve stick loads.

Option B. trim the aircraft.  
Option C. give more feel to the control column.  
Correct Answer is. give more feel to the control column.  
Explanation. NIL.

Question Number. 23. A flying control mass balance weight.  
Option A. tends to move the control surface C of G forward of the hinge line.  
Option B. tends to move the control surface C of G close to the hinge line.  
Option C. keeps the control surface C of G as close to the trailing edge as possible.  
Correct Answer is. tends to move the control surface C of G close to the hinge line.  
Explanation. NIL.

Question Number. 24. An elevator controls the aircraft motion in.  
Option A. yaw.  
Option B. pitch.  
Option C. roll.  
Correct Answer is. pitch.  
Explanation. NIL.

### **11B.03.5. Airframe Structures - Aeroplanes - Nacelles/Pylons (ATA 54).**

Question Number. 1. Jet engines are usually mounted by.  
Option A. aluminium castings.  
Option B. forged mounts and bolted to aircraft forged structure.  
Option C. welded steel tubing.  
Correct Answer is. forged mounts and bolted to aircraft forged structure.  
Explanation. NIL.

Question Number. 2. A pylon structural member supports the.  
Option A. centre section.  
Option B. engine.  
Option C. empennage.  
Correct Answer is. engine.  
Explanation. NIL.

Question Number. 3. Wing mounted podded engines and integral fuel tanks.  
Option A. provide wing bending relief.  
Option B. provide increased safety if the undercarriage collapses on landing.  
Option C. reduce tailplane download.  
Correct Answer is. provide wing bending relief.

Explanation. NIL.

### **11B.04. Air Conditioning and Cabin Pressurisation (ATA 21).**

Question Number. 1. As an aircraft descends from cruising altitude (34,000ft), the cabin altitude must.

Option A. stay the same.

Option B. increase.

Option C. decrease.

Correct Answer is. decrease.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 14-22. CAIPs AL/3-23.

Question Number. 2. A refrigerant is used in which of the following?.

Option A. Vapour cycle.

Option B. Air cycle machine.

Option C. Pneumatic pump.

Correct Answer is. Vapour cycle.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 14-34.

Question Number. 3. The signal line between the controller and discharge valve is leaking. This will cause.

Option A. the cabin pressure to increase.

Option B. the cabin pressure to decrease.

Option C. it will not effect on cabin pressure.

Correct Answer is. the cabin pressure to increase.

Explanation. The discharge valve is opened by vacuum in the signal line. If line leaks, valve will close, and cabin pressure will increase. Jeppesen A&P Airframe Technician Textbook Page 14-22.

Question Number. 4. A spill valve opens.

Option A. to control the flow to the cabin.

Option B. to control the air from the cabin to outside.

Option C. to prevent an excessive pressure difference.

Correct Answer is. to control the flow to the cabin.

Explanation. CAIPs AL/3-23.

Question Number. 5. A cabin altitude is protected against reaching an altitude of 13,000 ft. by.

Option A. altitude sensor.

Option B. cabin over pressure relief valve.

Option C. bellows in the outflow valve.

Correct Answer is. altitude sensor.

Explanation. CAIP AL/3-23 para 7.

Question Number. 6. The basic system of cabin pressurisation is to arrange a constant.

Option A. inlet and vary the outlet.

Option B. outlet and vary the inlet.

Option C. inlet and outlet.

Correct Answer is. inlet and vary the outlet.

Explanation. Jeppesen A&P technician Airframe Textbook Page 14-20.

Question Number. 7. The purpose of the differential capsule in a pressure controller is to control.

Option A. cabin differential pressure.

Option B. the rate of pressurisation.

Option C. cabin air flow.

Correct Answer is. cabin differential pressure.

Explanation. Jeppesen A&P technician Airframe Textbook Page 14-22. CAIPs AL/3-23.

Question Number. 8. Control of rate of change of cabin pressure is.

Option A. more important in ascent.

Option B. equally important in ascent and descent.

Option C. more important in descent.

Correct Answer is. more important in descent.

Explanation. Jeppesen A&P technician Airframe Textbook Page 14-20 onwards. CAIPs AL/3-23.

Question Number. 9. With a pressurised aircraft at maximum differential pressure and a cabin pressure increase occurs, the differential capsule in the pressure controller will.

Option A. let pressurisation to be switched off until leaks cause a drop in pressure.

Option B. let all pressurising air to be spilled overboard.

Option C. have a constant mass flow.

Correct Answer is. let all pressurising air to be spilled overboard.

Explanation. CAIPs AL/3-23 para 4.3.13.

Question Number. 10. If the cabin altitude increases above the normal maximum.

Option A. a warning light comes on in the cockpit.

Option B. compressor delivery is automatically boosted.

Option C. an inward relief valve opens.

Correct Answer is. a warning light comes on in the cockpit.

Explanation. CAIPs AL/3-23 para 4.4.4.

Question Number. 11. A water separator is located.

Option A. downstream of heat exchanger.

Option B. downstream of turbine.

Option C. upstream of the turbine.

Correct Answer is. downstream of turbine.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 16-30 or CAIPs AL/3-24 4.2.3 fig 3.

Question Number. 12. A comfortable rate of cabin altitude climb for passengers is.

Option A. 500 ft. per min.

Option B. 300 ft. per min.

Option C. 100 ft. per min.

Correct Answer is. 500 ft. per min.

Explanation. CAIPs AL/3-23.

Question Number. 13. Before carrying out a ground pressure check,.

Option A. set altimeter to QNH.

Option B. check all pitot and static lines are fitted.

Option C. turn on all instruments.

Correct Answer is. check all pitot and static lines are fitted.

Explanation. CAIPs AL/3-23 Para 12.2.5.

Question Number. 14. On touch-down of aircraft.

Option A. the outflow valve will be shut.

Option B. the cabin pressure will be zero.

Option C. the outflow valve will be fully open.

Correct Answer is. the outflow valve will be fully open.

Explanation. NIL.

Question Number. 15. The velocity of air from the cabin ventilation system should not exceed.

Option A. 40 feet per second.

Option B. 120 feet per second.

Option C. 20 feet per second.

Correct Answer is. 120 feet per second.

Explanation. BCAR Section D6.

Question Number. 16. On an aircraft employing a heater system on the air conditioning system, after an overheat, how is the heater reset?.

Option A. After it cools the pilot resets.

Option B. On ground only by engineer.

Option C. After cooling below 300°C it auto resets.

Correct Answer is. On ground only by engineer.

Explanation. A&P Technician Airframe pg 14-30 under Safety Features.

Question Number. 17. Ditching control is used to.

Option A. achieve rapid depressurisation.

Option B. close the outflow valves.

Option C. maintain cabin pressure at sea level.

Correct Answer is. close the outflow valves.

Explanation. CAIPs AL/3-2 fig 5 item Y, CAAIPs Leaflet 5-2.

Question Number. 18. When pressurising the aircraft on the ground for test purposes, internal doors, cupboards etc. must be.

Option A. all closed.

Option B. all open.

Option C. removed.

Correct Answer is. all open.

Explanation. AL/3-23 12.3.4.

Question Number. 19. Prior to conducting a ground pressurisation test, it is necessary to.

Option A. set QFE.

Option B. disconnect the emergency pressure relief valve.

Option C. reset/disable the pressure controller.

Correct Answer is. reset/disable the pressure controller.

Explanation. The pressurisation system must be controlled manually. Setting QFE is for the automatic control of the valves.

Question Number. 20. In typical vapour cycle system, the sub-cooler.

Option A. is a heat exchanger to superheat the vapour.

Option B. delivers extra cooling effect when the aircraft is on ground.

Option C. cools the vapour further to prevent slugging.

Correct Answer is. is a heat exchanger to superheat the vapour.

Explanation. NIL. [http://www.tpub.com/content/aviation/14020/css/14020\\_106.htm](http://www.tpub.com/content/aviation/14020/css/14020_106.htm)

Question Number. 21. In an air conditioning system, heat is added to air by.

Option A. restricting compressor outlet.

Option B. restricting compressor inlet.

Option C. restricting duct outlets.

Correct Answer is. restricting compressor outlet.

Explanation. Best answer we can get to a bad question. Heat is added by varying the amount of compressor outlet air that bypasses the heat exchanger.

Question Number. 22. Which of the following can be used on the ground?.

Option A. Turbo fan.

Option B. Turbo compressor.

Option C. Turbo brake.

Correct Answer is. Turbo fan.

Explanation. Used on air conditioning systems to supply air on ground.

Question Number. 23. Air conditioning systems.

Option A. increase and decrease the temperature of air.

Option B. increase the temperature of air.

Option C. decrease the temperature of air.

Correct Answer is. decrease the temperature of air.

Explanation. CAIPs AL/3-24 Para 2.2.

Question Number. 24. An air cycle machine turbine.

Option A. drives compressor to increase temperature.

Option B. drives compressor to decrease temperature.

Option C. drives compressor to pressurise aircraft.

Correct Answer is. drives compressor to increase temperature.

Explanation. The compressor is to INCREASE the temperature to increase the rate at which heat energy can be extracted.

Question Number. 25. In the flightdeck of a pressurised aircraft, there is a gauge that shows.

Option A. cabin differential pressure.

Option B. cabin pressure altitude.

Option C. aircraft altitude.

Correct Answer is. cabin differential pressure.

Explanation. Jeppesen A&P Technician Airframe Textbook Page 14-23.

Question Number. 26. Air exiting the compressor side of an ACM.

Option A. will have decreased pressure and temperature.  
Option B. no change in temperature or pressure as it is a centrifugal compressor.  
Option C. will have increased pressure and temperature.  
Correct Answer is. will have increased pressure and temperature.  
Explanation. NIL.

Question Number. 27. Cabin differential pressure is the pressure difference between.

Option A. 8,000ft and standard barometric pressure.  
Option B. sea level air pressure and indicated dynamic pressure in the cabin.  
Option C. the pressure inside the aircraft and the ambient air pressure.  
Correct Answer is. the pressure inside the aircraft and the ambient air pressure.  
Explanation. NIL.

Question Number. 28. If the pressure controller is set to 0 ft.

Option A. maximum differential is reached immediately after take-off.  
Option B. cabin will not pressurise.  
Option C. cabin remains at sea level until maximum differential.  
Correct Answer is. cabin will not pressurise.  
Explanation. NIL.

Question Number. 29. During a pressurisation check at maximum differential, if the engines are shut-down.

Option A. cabin ROC indicator gives indication of cabin seal efficiency.  
Option B. aircraft remains pressurised until the dump valve opens.  
Option C. outflow valve opens immediately.  
Correct Answer is. cabin ROC indicator gives indication of cabin seal efficiency.  
Explanation. NIL.

Question Number. 30. Where is the water trap located in a bootstrap compressor?.

Option A. At the outlet of the compressor.  
Option B. At the inlet of the turbine.  
Option C. At the inlet of the compressor.  
Correct Answer is. At the inlet of the turbine.  
Explanation. CAIPs shows it at the outlet of the turbine (not one of the answers). B757 has an additional water trap at the inlet of the turbine.

Question Number. 31. Where is the silencer located in a 'blower' air conditioning system?.

Option A. At the inlet to the cabin.

Option B. At the outlet of the blower.  
Option C. At the inlet of the blower.  
Correct Answer is. At the outlet of the blower.  
Explanation. AL/3-24 Figure 3.

Question Number. 32. When does a 'blower' air conditioning system produce the most air?  
Option A. At high altitudes.  
Option B. At low altitudes.  
Option C. It is not affected by altitude.  
Correct Answer is. It is not affected by altitude.  
Explanation. AL/3-24 Figure 3 (effect of the Spill Valve).

Question Number. 33. In an air conditioning system, before distribution, the air goes through the.  
Option A. flow control valve.  
Option B. TCV.  
Option C. TCV and mixer valve.  
Correct Answer is. TCV.  
Explanation. NIL.

Question Number. 34. What is the minimum cabin air mass flow?  
Option A. 0.5 lbs per minute per person.  
Option B. 10 lbs per minute per person.  
Option C. 1 lbs per minute per person.  
Correct Answer is. 0.5 lbs per minute per person.  
Explanation. BCAR Section D.

Question Number. 35. The function of an air mass flow control valve is to.  
Option A. ensure that system differential pressure is not exceeded.  
Option B. maintain a reasonably constant air mass flow into the cabin at all altitudes.  
Option C. control the airflow out of the cabin.  
Correct Answer is. maintain a reasonably constant air mass flow into the cabin at all altitudes.  
Explanation. NIL.

Question Number. 36. In a cabin air recirculation system, recirculated air and fresh air are supplied in the proportions.  
Option A. 50% of fresh air, 50% of recirculated air.  
Option B. 60% of fresh air, 40% of recirculated air.  
Option C. 40% of fresh air, 60% of recirculated air.

Correct Answer is. 60% of fresh air, 40% of recirculated air.  
Explanation. NIL.

Question Number. 37. Cabin pressure is maintained by.  
Option A. controlling the output of the compressor.  
Option B. controlling the amount of air discharged from the cabin.  
Option C. controlling the supply of air to the cabin.  
Correct Answer is. controlling the amount of air discharged from the cabin.  
Explanation. NIL.

Question Number. 38. Control of rate of change of cabin pressure is.  
Option A. most important in ascent.  
Option B. most important in descent.  
Option C. equally important in descent and ascent.  
Correct Answer is. most important in descent.  
Explanation. CAIPs AL/3-23.

Question Number. 39. Air supplied for pressurisation and conditioning is.  
Option A. hottest from an engine compressor bleed.  
Option B. hottest from a compressor driven by an engine gear box.  
Option C. the same for both the above sources.  
Correct Answer is. hottest from an engine compressor bleed.  
Explanation. AL/3-24 2.3/2.5.

Question Number. 40. The mass flow delivery from engine driven blowers is controlled by.  
Option A. automatic control devices.  
Option B. engine speed variations.  
Option C. spill valves.  
Correct Answer is. spill valves.  
Explanation. AL/3-24 Fig. 3.

Question Number. 41. An air-to-air heat exchanger is provided to.  
Option A. reduce the air supply temperature.  
Option B. increase the air supply temperature.  
Option C. provide an emergency ram air supply.  
Correct Answer is. reduce the air supply temperature.  
Explanation. AL/3-24 4.2.

Question Number. 42. Temperature control of cabin air is achieved by.

Option A. controlling the water vapour in the supply.  
Option B. regulating the amount of air by-passing the cooling system.  
Option C. varying the ambient airflow to the heat exchanger.  
Correct Answer is. regulating the amount of air by-passing the cooling system.  
Explanation. CAIPs AL/3-24 Fig 3.

Question Number. 43. Inward vent valves are fitted to.  
Option A. limit negative differentials.  
Option B. increase ventilation.  
Option C. limit positive differentials.  
Correct Answer is. limit negative differentials.  
Explanation. CAIPs AL/3-23 6.2.

Question Number. 44. Cabin rate of climb is shown by.  
Option A. warning lights.  
Option B. a special instrument.  
Option C. a double scale on the aircraft.  
Correct Answer is. a double scale on the aircraft.  
Explanation. CAIPs AL/3-23 Fig 3.

Question Number. 45. During normal pressurized climb following take-off.  
Option A. the cabin R.O.C. is less than ambient R.O.C.  
Option B. the cabin R.O.C. is more than ambient R.O.C.  
Option C. the differential pressure is constant.  
Correct Answer is. the cabin R.O.C. is less than ambient R.O.C.  
Explanation. CAIPs AL/3-23 fig 2.

Question Number. 46. Inward vent valves will operate when.  
Option A. depressurising after descent.  
Option B. cabin altitude exceeds aircraft altitude.  
Option C. aircraft altitude exceeds cabin altitude.  
Correct Answer is. cabin altitude exceeds aircraft altitude.  
Explanation. CAIPs AL/3-23 6.2.

Question Number. 47. Cabin differential pressure is the difference between.  
Option A. cabin pressure and ambient pressure.  
Option B. 8,000 ft and sea level.  
Option C. I.S.A. conditions and aircraft altitude.  
Correct Answer is. cabin pressure and ambient pressure.

Explanation. CAIPs AL/3-23 fig 2.

Question Number. 48. Cabin altitude in pressurized flight is the.

Option A. altitude at which cabin altitude equals outside air pressure.

Option B. pressure altitude of the cabin as corrected to mean sea level I.S.A. conditions.

Option C. altitude corresponding to cabin pressure irrespective of the altitude for the aircraft.

Correct Answer is. altitude corresponding to cabin pressure irrespective of the altitude for the aircraft.

Explanation. CAIPs AL/3-23 fig 2.

Question Number. 49. In pressurized aircraft, temperature conditioning is mainly achieved by.

Option A. adding heat to the pressurising air.

Option B. varying cabin pressure.

Option C. extracting heat from the pressurising air.

Correct Answer is. extracting heat from the pressurising air.

Explanation. CAIPS AL/3-24 4.

Question Number. 50. If pressurisation air supplies come from an engine compressor, an internal oil leak will.

Option A. contaminate the air.

Option B. not affect the issue as it is automatically detected and vented overboard.

Option C. not contaminate the air.

Correct Answer is. contaminate the air.

Explanation. NIL.

Question Number. 51. A cold air unit produces a drop in temperature by.

Option A. reducing pressure and driving the units compressor.

Option B. driving the units compressor.

Option C. reducing pressure.

Correct Answer is. reducing pressure and driving the units compressor.

Explanation. AL/3-24 4.2.2.

Question Number. 52. Heating for pressure cabins is obtained from.

Option A. air supply heated by the pressurising process.

Option B. only by adding heat electrically to the air supplies.

Option C. driving the units compressor.

Correct Answer is. air supply heated by the pressurising process.

Explanation. CAIPs AL/3-24 4.

Question Number. 53. A cold air unit allows for cabin temperatures to be.  
Option A. same as ambient temperature, despite compression heating.  
Option B. lower than ambient air temperature despite compression heating.  
Option C. a little more than ambient air temperature.  
Correct Answer is. a little more than ambient air temperature.  
Explanation. NIL.

Question Number. 54. When an aircraft has reached max. diff. and is at constant level (altitude) the system allows for.  
Option A. pressurisation to be switched off until leaks cause a drop in pressure.  
Option B. constant mass flow.  
Option C. all pressurising air to be spilled overboard.  
Correct Answer is. constant mass flow.  
Explanation. NIL.

Question Number. 55. The control of ventilating and pressurising air released to atmosphere is achieved by a.  
Option A. discharge valve/inwards relief valve combination.  
Option B. pressure controller/dump valve combination.  
Option C. pressure controller/discharge valve combination.  
Correct Answer is. pressure controller/discharge valve combination.  
Explanation. CAIPs AL/3-23 9.

Question Number. 56. Rate of change of cabin pressure is most noticeably shown on a.  
Option A. cabin V.S.I.  
Option B. cabin altimeter.  
Option C. cabin pressure gauge.  
Correct Answer is. cabin V.S.I.  
Explanation. CAIPs AL/3-23 fig 3.

Question Number. 57. Inwards relief valves usually open at a negative differential pressure not exceeding.  
Option A. 0.5 p.s.i.  
Option B. 1.2 p.s.i.  
Option C. 0.16 p.s.i.  
Correct Answer is. 0.5 p.s.i.  
Explanation. NIL.

Question Number. 58. Failure of the normal maximum pressure differential control is allowed for by fitting.

Option A. airport altitude selectors.

Option B. inwards relief valves.

Option C. safety relief valve.

Correct Answer is. safety relief valve.

Explanation. CAIPs AL/3-23 6.1.

Question Number. 59. A cold air unit produces a drop in temperature by.

Option A. expanding hot air across a turbine which is driving a compressor.

Option B. directing compressed air into a heat exchanger.

Option C. air supply to the cabin.

Correct Answer is. expanding hot air across a turbine which is driving a compressor.

Explanation. CAIPs AL/3-24 4.2.

Question Number. 60. The function of spill valves is to control.

Option A. air supply to the cabin.

Option B. cabin pressure differential.

Option C. the rate of pressurisation.

Correct Answer is. air supply to the cabin.

Explanation. CAIPs AL/3-24 fig 3.

Question Number. 61. Pressurisation control ensures that.

Option A. at operational altitude the cabin altitude is below 10,000 ft.

Option B. pressurisation does not start before aircraft is above 8,000 ft.

Option C. the cabin is always maintained at sea level.

Correct Answer is. at operational altitude the cabin altitude is below 10,000 ft.

Explanation. CAIPs AL/3-23.

Question Number. 62. Pitot' and 'Static' lines during a cabin pressure test should be.

Option A. cross connected.

Option B. disconnected.

Option C. connected.

Correct Answer is. connected.

Explanation. CAIPs AL/3-23 12.2.5.

Question Number. 63. If the cabin pressure fails to reach its maximum cabin pressure differential the.

Option A. discharge valve should be adjusted.

Option B. pressure controller should be adjusted.

Option C. outward relief valve is inoperative.  
Correct Answer is. pressure controller should be adjusted.  
Explanation. CAIPs AL/3-23 Para 10.2.2 iv.

Question Number. 64. When the aircraft has reached its maximum cabin pressure differential the.

Option A. discharge valve closes.  
Option B. discharge valve opens.  
Option C. mass flow ceases through the cabin.  
Correct Answer is. discharge valve opens.

Explanation. NIL.

Question Number. 65. The purpose of a 'Spill' valve in a cabin air supply system is.

Option A. to spill overboard excess air delivered at S.L. and lower altitudes.  
Option B. to relieve the pressure in the air supply ducting to atmosphere.  
Option C. to give a heating effect.  
Correct Answer is. to spill overboard excess air delivered at S.L. and lower altitudes.  
Explanation. CAIPs AL/3-24 fig 3.

Question Number. 66. Would you operate the flying controls during a cabin pressure ground test?.

Option A. Yes.  
Option B. No.  
Option C. Occasionally.  
Correct Answer is. Yes.  
Explanation. AL/3-23 12.3.9.

Question Number. 67. Which component must be isolated when carrying out a ground cabin pressure test?.

Option A. Pressure relief valve.  
Option B. Pressure discharge valve.  
Option C. Pressure regulator controller.  
Correct Answer is. Pressure discharge valve.  
Explanation. AL/3-23 12.3.10.

Question Number. 68. To what position is the inward relief valve spring loaded?.

Option A. Closed.  
Option B. Both position.  
Option C. Open.

Correct Answer is. Closed.  
Explanation. NIL.

Question Number. 69. A cabin pressure air leak from the front of the fuselage is.

Option A. most desirable because it increases the air-flow.  
Option B. most undesirable because of the drag created.  
Option C. not effective in any way.  
Correct Answer is. most undesirable because of the drag created.  
Explanation. AL/7-11 3.2.2.

Question Number. 70. When a 'muff' or air ducting is built around the engine exhaust system and air is directed around inside the muffler, this is an.

Option A. thermal heater.  
Option B. exhaust heater.  
Option C. combustion heater.  
Correct Answer is. exhaust heater.  
Explanation. AL/3-24 3.3.

Question Number. 71. Inward relief valves are interconnected in pressurized aircraft.

Option A. to achieve maximum pressure differential.  
Option B. to allow controlled pressure during descent.  
Option C. to relieve cabin pressure and allow outside pressure to be greater.  
Correct Answer is. to allow controlled pressure during descent.  
Explanation. CAIPs AL/3-23 Para 5.

Question Number. 72. In a turbo fan cold air system, the heat exchanger cooling air is.

Option A. air bled directly from engine or through blower.  
Option B. ram air from ambient conditions.  
Option C. bled from cabin air supply duct.  
Correct Answer is. ram air from ambient conditions.  
Explanation. NIL.

Question Number. 73. A safety valve will normally relieve at.

Option A. negative differential pressure.  
Option B. higher differential pressure than the discharge valve.  
Option C. lower differential pressure than the discharge valve.  
Correct Answer is. higher differential pressure than the discharge valve.  
Explanation. NIL.

Question Number. 74. Conditioned air is.  
Option A. oxygen added.  
Option B. moisture removed.  
Option C. temperature and pressure adjusted.  
Correct Answer is. temperature and pressure adjusted.  
Explanation. NIL.

Question Number. 75. The principle of cabin pressurisation is.  
Option A. whilst the aircraft climbs to altitude, the cabin climbs to a lower altitude.  
Option B. cabin altitude will always maintain a constant differential to that of aircraft altitude.  
Option C. cabin altitude climbs eventually to that of the aircraft.  
Correct Answer is. whilst the aircraft climbs to altitude, the cabin climbs to a lower altitude.  
Explanation. NIL.

Question Number. 76. When the cabin differential pressure has reached the required value and the height is maintained.  
Option A. constant mass airflow is permitted through the cabin.  
Option B. the pressure system ceases to function until the cabin pressure is reduced.  
Option C. all pressurized air is spilled to atmosphere.  
Correct Answer is. constant mass airflow is permitted through the cabin.  
Explanation. NIL.

Question Number. 77. The function of the mass airflow control valve is to.  
Option A. ensure that constant airflow out of the cabin is dictated by cabin altitude.  
Option B. maintain a reasonable mass flow of air into the cabin irrespective of aircraft altitude.  
Option C. ensure system operating pressure is not exceeded.  
Correct Answer is. maintain a reasonable mass flow of air into the cabin irrespective of aircraft altitude.  
Explanation. NIL.

Question Number. 78. Cabin pressure controller maintains a pre-set cabin altitude by.  
Option A. regulating the mass flow into the cabin.  
Option B. regulating the position of the inward relief valve.  
Option C. regulating the position of the outflow valve.  
Correct Answer is. regulating the position of the outflow valve.  
Explanation. NIL.

Question Number. 79. If cabin height is set lower than airfield height when the aircraft is on the ground with squat switches overridden, then the outflow valve will normally.

Option A. remain closed.

Option B. open.

Option C. not operate.

Correct Answer is. remain closed.

Explanation. NIL.

Question Number. 80. Which of the following sometimes inhibits an air conditioning pack?.

Option A. Flap position switches.

Option B. Throttle switches.

Option C. Undercarriage switches.

Correct Answer is. Throttle switches.

Explanation. NIL.

Question Number. 81. When carrying out a ground pressure test, you should use.

Option A. a G.P.U. and A.P.U. combination.

Option B. the aircraft engines because you can test the whole system.

Option C. ground trolley and clean air.

Correct Answer is. the aircraft engines because you can test the whole system.

Explanation. NIL.

Question Number. 82. The ventilation air in the aircraft cabin must have a minimum humidity of.

Option A. 20 percent.

Option B. 60 percent.

Option C. 30 percent.

Correct Answer is. 30 percent.

Explanation. NIL.

Question Number. 83. In a Boot-Strap Air Conditioning supply system the source of compressed air is from.

Option A. ram air at the wing leading edge.

Option B. gas turbine intake ram air.

Option C. gas turbine compressor bleed air.

Correct Answer is. gas turbine compressor bleed air.

Explanation. NIL.

Question Number. 84. The temperature within the cabin of the aircraft is normally maintained at.

Option A. 20°C to 24°C.

Option B. 12°C to 18°C.

Option C. 18°C to 24°C.

Correct Answer is. 18°C to 24°C.

Explanation. NIL.

Question Number. 85. In a Bleed Air air-conditioning system, the warm air supply is provided by.

Option A. the gas turbine exhaust.

Option B. the compressor of the gas turbine engine.

Option C. the engine exhaust heat.

Correct Answer is. the compressor of the gas turbine engine.

Explanation. NIL.

Question Number. 86. The cabin altitude is.

Option A. the actual height of the aircraft above sea level.

Option B. the equivalent height of the aircraft above sea level.

Option C. the difference between cabin pressure and atmospheric pressure.

Correct Answer is. the equivalent height of the aircraft above sea level.

Explanation. NIL.

Question Number. 87. The cabin differential pressure is.

Option A. the difference between cabin pressure and atmospheric pressure.

Option B. the equivalent height of the aircraft above sea level.

Option C. the actual height of the aircraft above sea level.

Correct Answer is. the difference between cabin pressure and atmospheric pressure.

Explanation. NIL.

Question Number. 88. The outflow of air from the cabin is regulated by.

Option A. the outflow valves.

Option B. the vent valves.

Option C. the dump control valves.

Correct Answer is. the outflow valves.

Explanation. NIL.

Question Number. 89. When air is pressurized, the oxygen content.

Option A. decreases.

Option B. remains constant.

Option C. increases.

Correct Answer is. increases.

Explanation. Oxygen content increases as mass per unit volume, but NOT as a percentage of the other gases in air. Your interpretation of the question may differ.

Question Number. 90. Cabin pressure differential is the difference between.

Option A. ISA conditions and aircraft altitude.

Option B. 8000 ft. and sea level.

Option C. cabin pressure and ambient pressure.

Correct Answer is. cabin pressure and ambient pressure.

Explanation. NIL.

Question Number. 91. In a 'bootstrap' cooling system the supply of air is first.

Option A. passed across an expansion turbine, then compressed and passed through a heat exchanger.

Option B. compressed then passed through a heat exchanger and across an expansion turbine.

Option C. passes across an expansion turbine, then directly to the heat exchanger.

Correct Answer is. compressed then passed through a heat exchanger and across an expansion turbine.

Explanation. NIL.

Question Number. 92. If an altitude of 8000 feet is selected on the cabin pressure controller and provided maximum cabin pressure differential is not exceeded.

Option A. sea level cabin conditions will be maintained to 8000 feet aircraft altitude.

Option B. 8000 feet cabin conditions will be maintained at aircraft altitudes above 8000 feet.

Option C. 8000 feet cabin conditions will be maintained at all aircraft altitudes from sea level.

Correct Answer is. 8000 feet cabin conditions will be maintained at aircraft altitudes above 8000 feet.

Explanation. NIL.

Question Number. 93. If cabin pressure is increasing, the cabin rate of change indicator will show.

Option A. zero, provided the rate of change is within the normally accepted limits.

Option B. a rate of climb.

Option C. a rate of descent.

Correct Answer is. a rate of descent.

Explanation. NIL.

Question Number. 94. A negative differential pressure is prevented by.

Option A. a blow off valve.

Option B. a spill valve.

Option C. an inward relief valve.

Correct Answer is. an inward relief valve.

Explanation. NIL.

Question Number. 95. During a normal climb from aerodrome level with the pressurization system 'ON'.

Option A. the cabin differential pressure is maintained constant.

Option B. the atmospheric pressure decreases more quickly than the cabin pressure.

Option C. the pressurization system does not control pressure until 10,000 ft is reached.

Correct Answer is. the atmospheric pressure decreases more quickly than the cabin pressure.

Explanation. AL/3-23 Fig 2 Pg 3.

Question Number. 96. The inward relief valve is usually set to operate at a cabin differential of.

Option A. +0.5 PSI.

Option B. -0.5 PSI.

Option C. +9.25 PSI.

Correct Answer is. -0.5 PSI.

Explanation. NIL.

Question Number. 97. The humidity within a passenger cabin should.

Option A. not be greater than 40%.

Option B. be between 30% and 70%.

Option C. not be less than 60%.

Correct Answer is. be between 30% and 70%.

Explanation. NIL.

Question Number. 98. One of the principles of cooling employed in an air cycle system is.

Option A. by compression of ambient air across a turbine.

Option B. by surface heat exchange in the C.A.U.

Option C. conversion of heat energy to mechanical energy in the C.A.U.

Correct Answer is. conversion of heat energy to mechanical energy in the C.A.U.

Explanation. A&P Technician Airframe Textbook Page 770 Fig 16-34.

Question Number. 99. Rate of change of cabin pressure is.

Option A. selected by the pilot and controlled by the pressure controller.

Option B. selected by the pilot and controlled by the spill valve.

Option C. automatic.

Correct Answer is. selected by the pilot and controlled by the pressure controller.

Explanation. NIL.

Question Number. 100. An aircraft has a maximum differential pressure of 8.5 PSI at cruising altitude. If the ambient pressure is 2.9 PSI, the pressure inside the cabin at cruising altitude would be.

Option A. 11.4 PSI.

Option B. 5.6 PSI.

Option C. 8.5 PSI.

Correct Answer is. 11.4 PSI.

Explanation. NIL.

Question Number. 101. Before filling a vapour cycle cooling system.

Option A. flush the system with a solvent.

Option B. apply suction to remove air and moisture.

Option C. pre-heat the system to 100°F.

Correct Answer is. apply suction to remove air and moisture.

Explanation. NIL.

Question Number. 102. Cabin differential is determined only by.

Option A. the selected cabin height.

Option B. the height at which the aircraft is flying.

Option C. the height at which the aircraft is flying and by the selected cabin height.

Correct Answer is. the height at which the aircraft is flying and by the selected cabin height.

Explanation. NIL.

Question Number. 103. The rate of flow of air from the punkha louvers should not be less than.

Option A. 300 ft/min.

Option B. 200 ft/min.

Option C. 25 ft/min.

Correct Answer is. 25 ft/min.

Explanation. BCAR Section D.

Question Number. 104. An aircraft cabin is air conditioned and pressurized in order to.

Option A. maintain human efficiency and comfort during flights at high altitudes.

Option B. ensure that the pressure within the fuselage is always less than the ambient pressure, thus increasing the fatigue life of the fuselage.

Option C. ensure that the air density within the cabin is maintained at a lower figure than outside the cabin in order to prevent moisture precipitation during rapid decompression.

Correct Answer is. maintain human efficiency and comfort during flights at high altitudes.

Explanation. NIL.

Question Number. 105. An aircraft cabin is air conditioned and pressurized in order to. If the pilot selected a cabin height of 8000 ft. whilst taxiing and activated the pressurization system, the cabin pressure would.

Option A. decrease to a pressure equivalent to about 500 ft.

Option B. remain at ground level pressure.

Option C. decrease to a pressure equivalent to 8000 ft.

Correct Answer is. remain at ground level pressure.

Explanation. NIL.

Question Number. 106. A silencer is installed in a pressurization system to reduce.

Option A. the noise from the high speed of airflow within the system.

Option B. engine noise coming through the ventilators.

Option C. the noise from the blowers and/or compressors in the system.

Correct Answer is. the noise from the blowers and/or compressors in the system.

Explanation. AL/3-24 fig 3 and para 2.5.

Question Number. 107. To avoid discomfort, the rate of change of pressure should be low, particularly.

Option A. when cabin pressure is decreasing.

Option B. during descent.

Option C. during ascent.

Correct Answer is. during descent.

Explanation. NIL.

Question Number. 108. In the case of a vapour cycle cooling, system heat is removed from the charge air by.

Option A. changing a liquid into a vapour.

Option B. reducing the pressure of a vapour.

Option C. changing a vapour into a liquid.

Correct Answer is. changing a liquid into a vapour.

Explanation. AL/3-24 para 13.3.2.

Question Number. 109. An inward relief valve will operate.

Option A. when cabin pressure is lower than ambient pressure.

Option B. when climbing with pressurization OFF.

Option C. after an aircraft has landed, to restore ground level conditions in the cabin.

Correct Answer is. when cabin pressure is lower than ambient pressure.

Explanation. AL/3-23 6.2.

Question Number. 110. If an aircraft is operating at 40,000 ft. the pressurization ensures that.

Option A. the cabin pressure is equivalent to an altitude of less than 10,000 ft.

Option B. the cabin pressure is progressively increased until the operational height is reached.

Option C. sea level pressure is maintained in the cabin.

Correct Answer is. the cabin pressure is equivalent to an altitude of less than 10,000 ft.

Explanation. NIL.

Question Number. 111. The pressure controller activates.

Option A. the blower or compressor.

Option B. the cabin discharge valve.

Option C. the spill valve.

Correct Answer is. the cabin discharge valve.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 1h column last para.

Question Number. 112. When cruising near the operational ceiling, the flight altitude set on the pressurization control panel may be 500 ft. more than the actual flight altitude so as to prevent.

Option A. safety valve operation.

Option B. inward relief valve operation.

Option C. pressure controller hunting.

Correct Answer is. pressure controller hunting.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 1h column last para.

Question Number. 113. The cabin rate of climb is shown.

Option A. as being inside or outside limits by green and red lights, a gauge being used.

Option B. by a differential scale on the aircraft rate of climb indicator.

Option C. on a specific indicator.

Correct Answer is. on a specific indicator.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 114. A water separator would be installed in a pressurization system to.

Option A. collect any rain accompanying the ram air.

Option B. extract surplus water from the charge air.

Option C. extract water from the cabin air before it is discharged to atmosphere.

Correct Answer is. extract surplus water from the charge air.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 115. Subsequent to passing through the primary heat exchanger, the supply air in a turbo-fan cold air system flows to the.

Option A. inter cooler or secondary heat exchanger.

Option B. fan.

Option C. turbine.

Correct Answer is. fan.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 116. The heat exchanger in a turbo-fan system is cooled by.

Option A. engine bleed air or blower air.

Option B. air bled from the main cabin supply duct.

Option C. ambient ram air.

Correct Answer is. ambient ram air.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 117. The effective temperature of a cabin is given by.

Option A. temperature, humidity, thermal inertia and heat load.

Option B. temperature and humidity.

Option C. temperature only.

Correct Answer is. temperature and humidity.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 118. An inward relief valve is installed in a pressurization system to ensure that the pressure hull of an aircraft is not subjected to.

Option A. too high an internal pressure.

Option B. forces which would cause the aircraft to explode.

Option C. a high negative differential pressure.

Correct Answer is. a high negative differential pressure.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 119. In most pressurization systems, the amount of compressed air delivered to the cabin is.

Option A. constant at any particular altitude but varies for different altitudes.

Option B. variable, depending on the amount selected by the cabin rate of change selector.

Option C. reasonably constant irrespective of altitude.

Correct Answer is. reasonably constant irrespective of altitude.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 120. When dissipating heat in a vapour cycle system.

Option A. vapour converts to a liquid.

Option B. liquid converts to a vapour.

Option C. the liquid sublimates.

Correct Answer is. vapour converts to a liquid.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 121. International markings for air conditioning pipelines are.

Option A. triangles.

Option B. rectangles.

Option C. dots.

Correct Answer is. dots.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 122. Cabin pressure controller maintains a particular cabin altitude by control of.

Option A. outflow valve position.

Option B. cabin mass air flow.

Option C. inward relief valve position.

Correct Answer is. outflow valve position.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 123. A cabin humidifier is operated.

Option A. on the ground.

Option B. at low altitudes.

Option C. at high altitudes.

Correct Answer is. at high altitudes.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 124. In an air conditioning system, heat is added to the air by.

Option A. restricting duct outlets.

Option B. restricting compressor outlet.

Option C. restricting compressor inlet.

Correct Answer is. restricting compressor outlet.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 125. Ditching control is used for.

Option A. rapid aircraft depressurisation.

Option B. closing all valves and inlets.

Option C. deploying life rafts.

Correct Answer is. closing all valves and inlets.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 126. The purpose of a mass flow controller is to.

Option A. ensure that a constant mass of air is delivered to cabin at all times.

Option B. allow pilot to select the desired cabin altitude.

Option C. ensure the cabin altitude remains constant during cruise at all altitudes.

Correct Answer is. ensure that a constant mass of air is delivered to cabin at all times.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 127. Failure of the normal maximum differential pressure control is catered for by.

Option A. inwards relief valve.

Option B. spill valves.

Option C. cabin safety relief valves.

Correct Answer is. cabin safety relief valves.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 128. A turbo fan CAU used for air cycle cooling will.

Option A. decrease pressure and temperature of the charge air.

Option B. not affect the charge air pressure.

Option C. increase the pressure but decrease the temperature.

Correct Answer is. decrease pressure and temperature of the charge air.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 lh column last para.

Question Number. 129. How much air is required for the Flight Deck?.

Option A. 10 lbs/minute.

Option B. Whatever the captain sets.

Option C. 10 cubic feet/minute.

Correct Answer is. 10 cubic feet/minute.

Explanation. A&P Technician Airframe Textbook Chapter 14-20 1h column last para.

**11B.05.1. Instruments/Avionic Systems - Instrument Systems (ATA 31).**

Question Number. 1. Which of these barometric instruments uses a restrictor to compute its output?.

Option A. Machmeter.

Option B. VSI.

Option C. ASI.

Correct Answer is. VSI.

Explanation. NIL.

Question Number. 2. Track altitude in a radio altimeter system begins at.

Option A. 2 500 ft radio alt.

Option B. 1 000 ft radio alt.

Option C. 10 000 ft radio alt.

Correct Answer is. 2 500 ft radio alt.

Explanation. Jeppesen Avionics Fundamentals Page 223.

Question Number. 3. What is the maximum radio altimeter track altitude?.

Option A. 500 ft.

Option B. 2,500 ft.

Option C. 10,000 ft.

Correct Answer is. 2,500 ft.

Explanation. Aircraft Electricity and Electronics, Eismin p323-324.

Question Number. 4. An ECAM system is tested under the following conditions:-.

Option A. Aircraft on the ground with one engine running.

Option B. Aircraft in the air with both engines running.

Option C. Aircraft on the ground with parking brake set/on.

Correct Answer is. Aircraft on the ground with parking brake set/on.

Explanation. Pallett Aircraft Instruments and Integrated Systems Page 391.

Question Number. 5. Which instrument are most likely to damage if you have a rapid drop in pressure, when carrying out a pitot-static leak check?.

Option A. Altimeter.

Option B. vertical speed indicator.

Option C. Air speed indicator.

Correct Answer is. Altimeter.

Explanation. Altimeter is most sensitive to rapid pressure changes.

Question Number. 6. The runway heading is.

Option A. QFU.

Option B. QDM.

Option C. QDR.

Correct Answer is. QFU.

Explanation. NIL. <http://www2.tky.3web.ne.jp/~jahfa/kokuningen/Q.html>

Question Number. 7. Apparent drift of a vertical gyro is a function of.

Option A. tan of latitude.

Option B. cos of latitude.

Option C. sin of latitude.

Correct Answer is. cos of latitude.

Explanation. Pallett Aircraft Instruments and Integrated Systems Page 103.

Question Number. 8. A machmeter works.

Option A. always.

Option B. above 10,000 ft.

Option C. always except on the ground.

Correct Answer is. always.

Explanation. Pallett Aircraft Instruments and Integrated Systems Page 45.

Question Number. 9. Radio marker information is displayed on.

Option A. ADI.

Option B. EICAS.

Option C. HIS.

Correct Answer is. ADI.

Explanation. Aircraft Electricity and Avionics (5th Edition) Eismen Page 358.

Question Number. 10. Angle of Attack alarm is sounding too close to stall.

Rectification is to.

Option A. move probe down.

Option B. move probe up.

Option C. move probe laterally.

Correct Answer is. move probe up.

Explanation. Move probe up, closer to the Leading Edge stagnation point, so it operates sooner.

Question Number. 11. Where is alpha angle used?.

Option A. IRS.  
Option B. Accelerometer.  
Option C. Angle of attack.  
Correct Answer is. Angle of attack.  
Explanation. Aircraft Instrument and Integrated Systems - Pallett Page 73.

Question Number. 12. Where is the spinup/rundown brake on a gyro instrument?.

Option A. Outer gimbal.  
Option B. Rotating vane.  
Option C. Inner gimbal.  
Correct Answer is. Inner gimbal.  
Explanation. NIL.

Question Number. 13. On replacing a pre-indexed flux valve you would.  
Option A. align the aircraft onto its A coefficient so that no error is induced.  
Option B. fit the serviceable pre indexed flux valve into the same position as the unserviceable pre-indexed flux valve was removed from.  
Option C. carry out a check swing after fitment.  
Correct Answer is. fit the serviceable pre indexed flux valve into the same position as the unserviceable pre-indexed flux valve was removed from.  
Explanation. NIL.

Question Number. 14. In Airways flying, what is the barometric scale of the altimeter set to?.

Option A. 1013.25.  
Option B. QNH.  
Option C. QFE.  
Correct Answer is. 1013.25.  
Explanation. 1013.25 mb or QNE. A & P Technician Airframe Textbook Chap III page 592.

Question Number. 15. Vibration monitoring signals are sent.

Option A. via a signal conditioner to the gauge.  
Option B. via a half-wave rectifier to the gauge.  
Option C. direct to the gauge.  
Correct Answer is. via a signal conditioner to the gauge.  
Explanation. Jeppesen Aircraft Instruments and Avionics Page 90.

Question Number. 16. The vacuum system gauge reads 5 inches of mercury. This is from.

Option A. zero and minus.

Option B. ambient and minus.

Option C. zero and positive.

Correct Answer is. ambient and minus.

Explanation. The 5 inches Hg refers to the 'suction' from ambient.

Question Number. 17. A direct reading Bourdon gauge has a restriction in the inlet. This is to.

Option A. prevent FOD ingestion.

Option B. dampen sudden pressure changes.

Option C. allow for calibration.

Correct Answer is. dampen sudden pressure changes.

Explanation. The restriction is to damp out surges in pressure.

Question Number. 18. The hot junction of thermocouple is.

Option A. in the combustion chamber.

Option B. in the instrument.

Option C. aft of combustion chamber.

Correct Answer is. aft of combustion chamber.

Explanation. The hot junction is the sensor, aft of the combustion chamber.

Question Number. 19. When a rad. alt. reaches 2,500 ft. what happens to the display?.

Option A. Rad. alt. flag in view.

Option B. Rad. alt. goes out of view.

Option C. Error warning in view.

Correct Answer is. Rad. alt. goes out of view.

Explanation. Jeppesen Aircraft Radio Systems Page 195.

Question Number. 20. Pitot tubes are heated.

Option A. by compressed bleed air.

Option B. electrically.

Option C. by kinetic heating.

Correct Answer is. electrically.

Explanation. CAIPs AL/10-1 Para 3.2.

Question Number. 21. The suction gauge reads 5 inches of mercury. This is.

Option A. above zero pressure.

Option B. below ambient pressure.

Option C. above ambient pressure.

Correct Answer is. below ambient pressure.

Explanation. The 5 inches Hg refers to the 'suction' from ambient.

Question Number. 22. What are the primary colours for use in CRT displays?.

Option A. Yellow, cyan, magenta.

Option B. Red, blue, green.

Option C. Red, blue, yellow.

Correct Answer is. Red, blue, green.

Explanation. Aircraft Instruments and Integrated Systems, Pallett Page 290.

Question Number. 23. Alpha vane signal could be fed to \_\_\_\_\_  
\_\_\_\_\_ when close to stall.

Option A. flap position.

Option B. fast/slow switch.

Option C. thrust levers.

Correct Answer is. thrust levers.

Explanation. NIL.

Question Number. 24. When performing maintenance operations on an aircraft equipped with RVSM system, and a quick release disconnect connection is disturbed.

Option A. a full test of the system should be carried out.

Option B. a full test of the system should be carried out only if the aircraft manufacturer recommends to do so.

Option C. the allowances for the system should be halved.

Correct Answer is. a full test of the system should be carried out.

Explanation. NIL. <http://www2.eur-rvsm.com/library.htm> PArA.8.3

Question Number. 25. For aircraft certificated after 1997 and with RVSM, the maximum tolerance for the system would be.

Option A. +/- 300 feet plus +/- 50 feet for instrument errors.

Option B. +/- 500 feet for the system overall.

Option C. +/- 200 feet plus +/- 50 feet for instrument error.

Correct Answer is. +/- 200 feet plus +/- 50 feet for instrument error.

Explanation. NIL. <http://www2.eur-rvsm.com/library.htm> PArA.8.3

Question Number. 26. The HSI provides information on.

Option A. VOR, ILS, map, radar, attitude.

Option B. VOR, plan, map, ILS, radar.

Option C. VOR, ILS, plan, attitude.

Correct Answer is. VOR, plan, map, ILS, radar.

Explanation. Attitude is on the EADI.

Question Number. 27. The sensing element of the flux valve.

Option A. aligns itself to the new heading as the aircraft turns.

Option B. remains in the same position attached to the aircraft structure.

Option C. aligns itself to the new heading of the aircraft after it has stabilised.

Correct Answer is. remains in the same position attached to the aircraft structure.

Explanation. Jeppesen - Avionics Fundamentals Page 106-110.

Question Number. 28. In a compass swing: North error -2 degrees, South error - 2 degrees. The coefficient C is.

Option A. +2 degrees.

Option B. -2 degrees.

Option C. 0 degrees.

Correct Answer is. 0 degrees.

Explanation. AL/10-5 page 6 table 1  $(-2)-(-2)/2 = 0$ .

Question Number. 29. When aligning an aircraft for a compass swing, the maximum allowable error is.

Option A. 5 degrees.

Option B. 1 degrees.

Option C. 3 degrees.

Correct Answer is. 5 degrees.

Explanation. CAIPs AL/10-5 9 note.

Question Number. 30. The pitot head is fitted on the aircraft. The alignment of pitot head is carried out with.

Option A. spirit level.

Option B. an inclinometer.

Option C. micrometer.

Correct Answer is. an inclinometer.

Explanation. NIL.

Question Number. 31. What kind of gyro is a rate gyro?.

Option A. Tied down.

Option B. Displacement.

Option C. Space.

Correct Answer is. Tied down.

Explanation. AL/10-2 A rate gyro has only 2 axis of freedom. Aircraft Instruments & Integrated Systems Pallett page 129.

Question Number. 32. A radio altimeter system can be self tested.

Option A. both on the ground only and in the air.

Option B. on the ground only.

Option C. in the air only.

Correct Answer is. both on the ground only and in the air.

Explanation. NIL.

Question Number. 33. The apparent wander for directional gyros is.

Option A. compensated by applying a constant torque.

Option B. maximum at the pole.

Option C. dependant on longitude.

Correct Answer is. compensated by applying a constant torque.

Explanation. NIL.

Question Number. 34. The Directional Gyro is checked every 15 minutes for.

Option A. erection.

Option B. toppling.

Option C. drift.

Correct Answer is. drift.

Explanation. Aircraft Instruments and Integrated Systems Pallett Page 192.

Question Number. 35. Random drift of a gyro is caused by.

Option A. error in roll when aircraft is turning.

Option B. aircraft turning with an error in roll.

Option C. gyro friction and unbalance.

Correct Answer is. gyro friction and unbalance.

Explanation. Automatic Flight Control Pallett and Coyle Page 104.

Question Number. 36. Standby Compass adjusting magnets (Flinders Bars) exert the most amount of influence.

Option A. when 90 degrees apart.

Option B. when parallel to each other.

Option C. when 45 degrees apart.

Correct Answer is. when 90 degrees apart.

Explanation. Angle between flinders bars determines their correcting influence.

Question Number. 37. With engine static and engine blanks fitted, EPR gauge reads just above 1.

Option A. Gauge requires re-calibration.  
Option B. Transmitter is unserviceable.  
Option C. This is normal.  
Correct Answer is. Gauge requires re-calibration.  
Explanation. NIL.

Question Number. 38. Coefficient A is adjusted.  
Option A. at 360 degrees.  
Option B. at 270 degrees.  
Option C. on any heading.  
Correct Answer is. on any heading.  
Explanation. AL/10-5 9.2.7.

Question Number. 39. With an aircraft which has more than one compass system.  
Option A. master adjusted, slave adjusted, each having a corrected compass card.  
Option B. both are adjusted on each heading.  
Option C. master and slave adjusted, correction card for master only.  
Correct Answer is. master adjusted, slave adjusted, each having a corrected compass card.  
Explanation. Al/10-5 9.2 Note.

Question Number. 40. A DC electrical cable must be positioned how far away from a compass?  
Option A. 20 inches.  
Option B. 24 inches.  
Option C. So as to give no more than 2 degrees deflection of compass.  
Correct Answer is. 24 inches.  
Explanation. AL/10-5 9.2.

Question Number. 41. Which pitot probe provides information to the captains instruments?  
Option A. Upper.  
Option B. Lower.  
Option C. Both.  
Correct Answer is. Upper.  
Explanation. NIL. <http://www.b737.org.uk/probes.htm>

Question Number. 42. On the CWP, what does amber indicate?  
Option A. Present status.  
Option B. Cautionary info.

Option C. Warning.  
Correct Answer is. Cautionary info.  
Explanation. NIL.

Question Number. 43. Which instrument shows Decision Height?  
Option A. ECAM.  
Option B. HIS.  
Option C. ADI.  
Correct Answer is. ADI.  
Explanation. Avionics Fundamentals Page 185.

Question Number. 44. Where does the HSI receive GND speed information from?  
Option A. Pitot static probes.  
Option B. INS.  
Option C. EICAS.  
Correct Answer is. INS.  
Explanation. Avionics Fundamentals Page 128.

Question Number. 45. When power is switched off, the gimbal brake.  
Option A. stops outer gimbal.  
Option B. restricts outer gimbal.  
Option C. restricts inner gimbal.  
Correct Answer is. restricts inner gimbal.  
Explanation. Used for gimbal lock prevention. Energised off.

Question Number. 46. On an EADI the command bars show the.  
Option A. required flight path compared with horizon.  
Option B. required flight path compared with aircraft position.  
Option C. required flight path compared to planned flight path.  
Correct Answer is. required flight path compared with aircraft position.  
Explanation. Aircraft Instruments and Integrated Systems Pallett Page 212/213.

Question Number. 47. The airdata computer inputs to.  
Option A. altimeter, FMC, secondary radar.  
Option B. mach meter, standby altimeter, ASI.  
Option C. cabin rate sensors, mach-meters, ASI, altimeter.  
Correct Answer is. altimeter, FMC, secondary radar.  
Explanation. FMC for nav. Secondary Radar is ATC transponder encoder.

Question Number. 48. What deviation is indicated by 2 dots in a VOR system?.

Option A. 6°.

Option B. 2.5°.

Option C. 10°.

Correct Answer is. 10°.

Explanation. (Note: VOR is 5° per dot. ILS is 2 1/2° per dot).

<http://www.allstar.fiu.edu/aero/FltDirS.htm>

Question Number. 49. How may the basic principle of the radio altimeter be described?.

Option A. As a series of radio pulses to the ground their frequency depending on the expansion or contraction of an evacuated capsule and the deflection of an E and I bar transducer.

Option B. As a comparison of radio altitude against a barometric altitude referenced to ISA sea level (1013.25mb).

Option C. As a measure of the time between a RF pulse transmission and the reception of its echo from the ground directly below the aircraft.

Correct Answer is. As a measure of the time between a RF pulse transmission and the reception of its echo from the ground directly below the aircraft.

Explanation. NIL.

Question Number. 50. In a compass system, what senses the horizontal component of the earths magnetic field and where is it normally fitted?.

Option A. Directional gyro mounted on the roll axis of the aircraft.

Option B. A precession device mounted on the yaw axis of the aircraft.

Option C. Flux detectors fitted in the wing tips.

Correct Answer is. Flux detectors fitted in the wing tips.

Explanation. Aircraft Instruments and Integrated Systems Pallett Page 182.

Question Number. 51. An RMI has inputs from VOR and.

Option A. a remote compass input.

Option B. an azimuth gyro.

Option C. no other sources.

Correct Answer is. an azimuth gyro.

Explanation. Aircraft Instruments and Integrated Systems Pallett Page 194.

Question Number. 52. In a modern HSI, the displays are.

Option A. course and direction.

Option B. course and attitude.

Option C. direction and attitude.

Correct Answer is. course and direction.

Explanation. Aircraft Instruments and Integrated Systems Pallett page 303.

Question Number. 53. At what height does the rising runway appear?.

Option A. 300 ft.

Option B. 500 ft.

Option C. 200 ft.

Correct Answer is. 200 ft.

Explanation. Aircraft Radio Systems Powell Page 199.

Question Number. 54. An H on the EHSI indicates.

Option A. ILS approach.

Option B. DME hold.

Option C. VOR hold.

Correct Answer is. DME hold.

Explanation. Aircraft Electricity and Electronics Eismin Page 358.

Question Number. 55. Compared to air driven gyros, the electric gyro runs.

Option A. faster.

Option B. slower.

Option C. same speed.

Correct Answer is. faster.

Explanation. NIL.

Question Number. 56. A pneumatic indicator takes its indications from.

Option A. compressor outlet.

Option B. compressor inlet.

Option C. reservoir.

Correct Answer is. reservoir.

Explanation. NIL. <http://www.gage-technique.demon.co.uk/instruments/readout-pneumatic.html>

Question Number. 57. What is apparent drift due to?.

Option A. Errors when aircraft banking.

Option B. Earths rotation.

Option C. Gyro pivot friction.

Correct Answer is. Earths rotation.

Explanation. Aircraft Instruments and Integrated Systems Pallett Page 102.

Question Number. 58. An aircraft airspeed indicator has.

Option A. pitot to the capsule.

Option B. static to the capsule.

Option C. pitot to the capsule and static to the out side of the capsule.

Correct Answer is. pitot to the capsule and static to the out side of the capsule.

Explanation. NIL.

Question Number. 59. Above 2500 ft. the rad. Alt.

Option A. pointer is hidden behind a mask with off flag out of view.

Option B. continues to indicate but with a warning flag.

Option C. pointer goes to zero to show system is being monitored.

Correct Answer is. pointer is hidden behind a mask with off flag out of view.

Explanation. Avionic Systems: Operation and Maintenance Page 189.

Question Number. 60. How does a machmeter work?.

Option A. Indicated airspeed / temperature.

Option B. True airspeed and speed of sound.

Option C. True airspeed / indicated airspeed.

Correct Answer is. True airspeed and speed of sound.

Explanation. Kermode Mechanics of Flight 10th edition p339, and Flight Instruments and Automatic Flight Control, Harris Page 20.

Question Number. 61. When changing a pitot static instrument with quick release couplings.

Option A. a leak check is not required.

Option B. a leak check is always required.

Option C. a leak check is only required if stated by manufacturer.

Correct Answer is. a leak check is only required if stated by manufacturer.

Explanation. NIL.

Question Number. 62. The flux detector element.

Option A. gives heading with respect to magnetic north.

Option B. changes heading with the heading of the aircraft.

Option C. changes it position after the aircraft heading is changed.

Correct Answer is. gives heading with respect to magnetic north.

Explanation. NIL.

Question Number. 63. If rate feedback in a flight director goes open circuit, position indication will.

Option A. oscillate.

Option B. be sluggish.

Option C. go hard over.

Correct Answer is. oscillate.

Explanation. NIL.

Question Number. 64. The needle of a resolver is connected to.

Option A. two coils and an electromagnet.

Option B. two coils and a permanent magnet.

Option C. two coils only.

Correct Answer is. two coils only.

Explanation. NIL.

Question Number. 65. If the compass fluid has bubbles at low altitude.

Option A. this is due to excessive high cabin altitude flying.

Option B. this has no influence on compass readings.

Option C. this is due to insufficient de-aeration.

Correct Answer is. this is due to insufficient de-aeration.

Explanation. NIL. <http://www.silva.se/files/compass.html#BUBBLES>

Question Number. 66. A remote compass compensator unit is replaced. Which of the following is correct?.

Option A. The swing can be performed at a later date.

Option B. No swing is required if the new heading is within 5 degrees of the old.

Option C. A compass swing must be performed.

Correct Answer is. A compass swing must be performed.

Explanation. AL/10-5 10.

Question Number. 67. A compass has a residual deviation of +1 degree. To steer a true heading of 180 degrees the pilot must steer.

Option A. 179 degrees.

Option B. 180 degrees.

Option C. 181 degrees.

Correct Answer is. 179 degrees.

Explanation. AL/10-5 Table 1 columns 7 and 8.

Question Number. 68. How is a leading edge flap position indicated in the cockpit?.

Option A. Servomotor.

Option B. A measuring device.

Option C. Torque synchro.

Correct Answer is. Torque synchro.

Explanation. NIL.

Question Number. 69. In a Machmeter, what type of compensation is there?.

Option A. Hair spring.

Option B. Square-Law compensation.

Option C. Compensation is not required.

Correct Answer is. Compensation is not required.

Explanation. NIL.

Question Number. 70. What effect on the rate of precession will a change of gyro rotor speed have?.

Option A. No effect.

Option B. Decrease the rotor speed, decrease the rate of precession.

Option C. Increase the rotor speed, decrease the rate of precession.

Correct Answer is. Increase the rotor speed, decrease the rate of precession.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 33.

Question Number. 71. A gyroscopic body has its rigidity increased by.

Option A. decreasing the mass of the rotor.

Option B. decreasing the rotor speed.

Option C. increasing the rotor speed.

Correct Answer is. increasing the rotor speed.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 33.

Question Number. 72. If a constant torque is applied to a gyroscope, the rate of precession.

Option A. is unaffected by changes in rotor speed.

Option B. increases with a higher rotor speed.

Option C. increases with a lower rotor speed.

Correct Answer is. increases with a lower rotor speed.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 33.

Question Number. 73. Random drift of a gyro is caused by.

Option A. unbalance and bearing friction in the gyro.

Option B. rotation of the earth.

Option C. aircraft turning with an error in roll.

Correct Answer is. unbalance and bearing friction in the gyro.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 33 (Real Drift).

Question Number. 74. A pendulous vane type erection system fitted to a gyro horizon works on the principle of.

Option A. increased reaction of the air from a bisected port.

Option B. decreased reaction of the air from a fully open port.

Option C. increased reaction of the air from a fully open port.

Correct Answer is. increased reaction of the air from a fully open port.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 49.

Question Number. 75. During the normal straight and level flight, the gyro of an electrical artificial horizon is kept erect in pitch by a.

Option A. mercury switch in the fore and aft axis controlling a torque motor fitted between the inner and outer gimbal rings.

Option B. torque motor fitted between the outer gimbal ring and the case controlled by a mercury switch in the athwartships axis.

Option C. torque motor fitted between the outer gimbal ring and the case controlled by a mercury switch in the fore and aft axis.

Correct Answer is. torque motor fitted between the outer gimbal ring and the case controlled by a mercury switch in the fore and aft axis.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 51 (see page 48 for 'athwartship').

Question Number. 76. The normal erection supply to the mercury switches of the artificial horizon is disconnected.

Option A. for the first 40 seconds after initially switching 'ON'.

Option B. during turns.

Option C. when the fast erection button is pressed.

Correct Answer is. during turns.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 51 bottom.

Question Number. 77. The pitch/bank erection system is used in an electrical gyro horizon to.

Option A. give full erection control to the roll switch during a turn.

Option B. give full erection control to the pitch switch during a turn.

Option C. to prevent the pitch switch giving a false indication due to centrifugal effects during a turn.

Correct Answer is. to prevent the pitch switch giving a false indication due to centrifugal effects during a turn.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 51.

Question Number. 78. The fast erection push on an electrical gyro horizon must not be used for a set period after switching on because.

Option A. excessive hunting will take place.

Option B. overheating of the gyro rotor windings will occur.

Option C. the normal erection switch contact will burn out.

Correct Answer is. excessive hunting will take place.

Explanation. AL/10-2 9.3.2.

Question Number. 79. Apparent drift of a directional gyro is due to.

Option A. the effect of the earth's rotation.

Option B. unbalance of the gimbals.

Option C. bearing friction.

Correct Answer is. the effect of the earth's rotation.

Explanation. AL/3-23 12.3.2.

Question Number. 80. The erection system on a directional gyroscope has.

Option A. a switch on the outer gimbal controlling a motor on the inner gimbal.

Option B. a switch on the inner gimbal controlling a motor on the inner gimbal.

Option C. a switch on the inner gimbal controlling a motor on the outer gimbal.

Correct Answer is. a switch on the inner gimbal controlling a motor on the outer gimbal.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 46/7.

Question Number. 81. In a rate gyro used to detect movements about a vertical axis, the amount the gimbal ring moves would be increased if the.

Option A. angle through which the gyro moves in azimuth increases.

Option B. rotor speed decreases.

Option C. spring tension was increased.

Correct Answer is. rotor speed decreases.

Explanation. Nil.

Question Number. 82. The Turn and Slip indicator employs.

Option A. a vertical gyro.

Option B. a rate gyro.

Option C. an azimuth gyro.

Correct Answer is. a rate gyro.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 54.

Question Number. 83. In a Turn and Slip indicator, the effect of increasing the

rotor speed would be.

Option A. it would have no effect.

Option B. it would under read.

Option C. it would over read.

Correct Answer is. it would under read.

Explanation. Nil.

Question Number. 84. How is the information on a directional gyro outer gimbal taken off?

Option A. By a switch on the outer gimbal.

Option B. By a switch on the inner gimbal.

Option C. By a flux take-off device.

Correct Answer is. By a flux take-off device.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 77/78.

Question Number. 85. Why is a directional gyro inner gimbal restricted to +/- 85°?

Option A. To ensure outer gimbal erection system works correctly.

Option B. To prevent outer gimbal rotating.

Option C. To prevent gyro going into gimbal lock.

Correct Answer is. To prevent gyro going into gimbal lock.

Explanation. Nil.

Question Number. 86. The speed of the rotor in a Turn and Slip indicator is approximately.

Option A. 2,400 rpm.

Option B. 4,200 rpm.

Option C. 22,500 rpm.

Correct Answer is. 4,200 rpm.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 53.

Question Number. 87. In a directional gyro, the inner/outer gimbal is corrected to.

Option A. 15 sine latitude.

Option B. 15 cosine latitude.

Option C. 15 sine longitude.

Correct Answer is. 15 sine latitude.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 37/8.

Question Number. 88. The electrolyte switches used in gyro systems rely upon.

Option A. change in inductance to operate.

Option B. change in resistance to operate.

Option C. change in voltage applied to operate.

Correct Answer is. change in resistance to operate.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 50/51.

Question Number. 89. Precession of a gyro depends on.

Option A. both answers (a) and (b).

Option B. angular velocity of the rotor only.

Option C. moment of inertia of the rotor only.

Correct Answer is. both answers (a) and (b).

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 53.

Question Number. 90. Angular momentum of a gyro rotor depends on.

Option A. angular velocity of the rotor.

Option B. moment of inertia of the rotor.

Option C. moment of inertia and angular velocity of the rotor.

Correct Answer is. moment of inertia and angular velocity of the rotor.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 33.

Question Number. 91. Air driven gyros, compared to electric gyros, generally rotate.

Option A. faster.

Option B. the same speed.

Option C. slower.

Correct Answer is. slower.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 41.

Question Number. 92. Gyro rigidity is proportional to.

Option A. mass and speed.

Option B. mass, and radius of mass from spin axis.

Option C. mass, speed and radius of mass from spin axis.

Correct Answer is. mass, speed and radius of mass from spin axis.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 33.

Question Number. 93. Gyro precessional force is.

Option A. inversely proportional to the applied force.

Option B. directly proportional to applied force.

Option C. proportional to the square of the applied force.

Correct Answer is. directly proportional to applied force.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 33.

Question Number. 94. The speed of a vacuum driven gyro horizon rotor is approximately.

Option A. 22,000 rpm.

Option B. 15,000 rpm.

Option C. 4,200 rpm.

Correct Answer is. 15,000 rpm.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 46.

Question Number. 95. A V.S.I. is connected to.

Option A. vacuum.

Option B. static pressure.

Option C. pitot pressure.

Correct Answer is. static pressure.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 22/23.

Question Number. 96. With a V.S.I. pointer at position 1 on the upper half of the scale it indicates.

Option A. 1,000 ft/minute rate of descent.

Option B. 1,000 ft/minute rate of climb.

Option C. 100 ft/minute rate of climb.

Correct Answer is. 1,000 ft/minute rate of climb.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 24.

Question Number. 97. After disconnecting the supply to an electrically operated gyro instrument it is recommended that, to allow the gyro rotor to stop, before moving the instrument.

Option A. seven minutes should elapse.

Option B. three minutes should elapse.

Option C. fifteen minutes should elapse.

Correct Answer is. fifteen minutes should elapse.

Explanation. AL/10.2 8.1 c.

Question Number. 98. The Port and Starboard static vents on an aircraft are interconnected to.

Option A. reduce compressibility error.

Option B. minimize errors caused by leaks in the system.

Option C. cancel errors caused in the static system when the aircraft yaws.

Correct Answer is. cancel errors caused in the static system when the aircraft yaws.  
Explanation. NIL.

Question Number. 99. Which of the following would cause a displacement gyro to topple?.

Option A. Inverting the gyro.

Option B. Running gyro at low speed.

Option C. Running gyro at high speed.

Correct Answer is. Running gyro at low speed.

Explanation. NIL.

Question Number. 100. In level flight, a V.S.I. will indicate.

Option A. horizontal to left.

Option B. vertically down.

Option C. vertically up.

Correct Answer is. horizontal to left.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 22.

Question Number. 101. On descent, the pressure in a V.S.I. capsule.

Option A. leads the case pressure.

Option B. lags the case pressure.

Option C. is the same as case pressure.

Correct Answer is. leads the case pressure.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 22.

Question Number. 102. A small constant leak in the case of V.S.I. fitted in a pressurized aircraft would, during level flight, cause the instrument to indicate.

Option A. a rate of climb.

Option B. zero.

Option C. a rate of descent.

Correct Answer is. zero.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 22.

Question Number. 103. When a force is applied to a horizontal gyro, the precession of the rotor will continue until.

Option A. as long as the force is applied.

Option B. plane of rotation is in line with the plane of the applied force.

Option C. plane of rotation is in line with the precessional force.

Correct Answer is. plane of rotation is in line with the plane of the applied force.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 33.

Question Number. 104. An artificial horizon has.  
Option A. the inner gimbal pivoted laterally.  
Option B. the inner gimbal pivoted vertically.  
Option C. the inner gimbal pivoted longitudinally.  
Correct Answer is. the inner gimbal pivoted laterally.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 47.

Question Number. 105. A pressure of one atmosphere is equal to.  
Option A. 14.7 PSI.  
Option B. 100 millibar.  
Option C. 1 inch Hg.  
Correct Answer is. 14.7 PSI.  
Explanation. NIL.

Question Number. 106. In the directional gyro.  
Option A. the outer gimbal is pivoted vertically.  
Option B. the outer gimbal is pivoted longitudinally.  
Option C. the outer gimbal is pivoted laterally.  
Correct Answer is. the outer gimbal is pivoted vertically.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 42.

Question Number. 107. The millibar is a unit of.  
Option A. barometric pressure.  
Option B. pressure altitude.  
Option C. atmospheric temperature.  
Correct Answer is. barometric pressure.  
Explanation. NIL.

Question Number. 108. In the Turn and Slip indicator.  
Option A. the spin axis is longitudinal.  
Option B. the spin axis is lateral.  
Option C. the spin axis is vertical.  
Correct Answer is. the spin axis is lateral.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 53.

Question Number. 109. In an altimeter, the.

Option A. inside of the capsule is connected to static pressure.

Option B. capsule is evacuated and sealed.

Option C. capsule and case are connected via a calibrated choke.

Correct Answer is. capsule is evacuated and sealed.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 6.

Question Number. 110. The units on the calibrated scale of a V.S.I. are expressed in.

Option A. hundreds of feet per minute.

Option B. knots (kts).

Option C. miles per hour (mph).

Correct Answer is. hundreds of feet per minute.

Explanation. (Light aircraft only - large aircraft are 1000s ft/min).

Question Number. 111. A standby air supply for gyro operation could be obtained from.

Option A. a tapping from the induction manifold.

Option B. a venturi.

Option C. a pitot head.

Correct Answer is. a venturi.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 40.

Question Number. 112. At the lowest point of each vent line you would normally find a.

Option A. float valve.

Option B. NACA duct.

Option C. self draining non-return valve.

Correct Answer is. self draining non-return valve.

Explanation. NIL.

Question Number. 113. A rate two turn is.

Option A. 90 degrees per minute.

Option B. 360 degrees per minute.

Option C. 180 degrees per minute.

Correct Answer is. 360 degrees per minute.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 54, Aircraft Instruments and Integrated Systems Page 131.

Question Number. 114. The rate of turn information from a turn coordinator (compared to a Turn and Slip) is.

Option A. more instantaneous.

Option B. less accurate.

Option C. more accurate.

Correct Answer is. more accurate.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 55.

Question Number. 115. Temperature correction in a sensitive altimeter mechanism is provided by a.

Option A. bi-metal U-spring acting on the capsule.

Option B. balance weight.

Option C. U-spring acting on the capsule.

Correct Answer is. bi-metal U-spring acting on the capsule.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 8.

Question Number. 116. The capsule in a vertical speed indicator will be expanded when the aircraft is.

Option A. climbing.

Option B. descending.

Option C. in level flight.

Correct Answer is. descending.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 22/23.

Question Number. 117. After replacing an instrument of the pitot-static group, it is necessary to.

Option A. calibrate the instrument concerned.

Option B. carry out a leak test on the appropriate system(s).

Option C. blow through the lines with a clean low pressure air supply.

Correct Answer is. carry out a leak test on the appropriate system(s).

Explanation. AL/10-1 15.5.

Question Number. 118. If the pitot and static pipe lines were cross connected at the instrument panel connection, application of pressure to the pitot head would cause the.

Option A. altimeter reading to decrease, vertical speed indicator to indicate climb.

Option B. altimeter reading to increase, vertical speed indicator to indicate descent.

Option C. altimeter reading to decrease, vertical speed indicator to indicate descent.

Correct Answer is. altimeter reading to decrease, vertical speed indicator to indicate

descent.

Explanation. NIL.

Question Number. 119. A constant force applied to the inner gimbal of a vertical gyro would cause.

Option A. a continual precession in roll.

Option B. a roll error and gyro topple.

Option C. a pitch error and gyro topple.

Correct Answer is. a continual precession in roll.

Explanation. NIL.

Question Number. 120. A rate of turn indicator dial marked '2 minutes' refers to a.

Option A. rate 3 turn.

Option B. rate 2 turn.

Option C. rate 1 turn.

Correct Answer is. rate 1 turn.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 54.

Question Number. 121. A pitot or static leak check is carried out.

Option A. only when an instrument is changed.

Option B. only when a leak is suspected.

Option C. whenever the pitot or static systems are disturbed.

Correct Answer is. whenever the pitot or static systems are disturbed.

Explanation. AL/10-1 15.5.

Question Number. 122. The temperature of boiling water at standard pressure on the Fahrenheit and Centigrade scale is.

Option A. 100 deg. and 32 deg. Respectively.

Option B. 180 deg. and 100 deg. Respectively.

Option C. 212 deg. and 100 deg. Respectively.

Correct Answer is. 212 deg. and 100 deg. Respectively.

Explanation. NIL.

Question Number. 123. A temperature of 59°F is equivalent to.

Option A. 14.69°C.

Option B. 32°C.

Option C. 15°C.

Correct Answer is. 15°C.

Explanation. NIL.

Question Number. 124. Aircraft heading (HDG) is.

Option A. the angle between True North and the longitudinal axis of the aircraft.

Option B. the angle between True North and the desired track.

Option C. the angle between True North and the actual track.

Correct Answer is. the angle between True North and the longitudinal axis of the aircraft.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 87.

Question Number. 125. Wind angle is the direction of the wind measured.

Option A. in degrees from the desired track.

Option B. in degrees from True North.

Option C. in degrees from the aircraft's heading.

Correct Answer is. in degrees from True North.

Explanation. NIL.

Question Number. 126. Limit stops are fitted in an artificial horizon to.

Option A. limit the outer gimbal movement.

Option B. reduce gimbal nutation.

Option C. prevent gimbal lock.

Correct Answer is. prevent gimbal lock.

Explanation. NIL.

Question Number. 127. The electrical output from a remote gyro to an attitude director indicator is.

Option A. by a control synchro.

Option B. by a differential synchro.

Option C. by a torque synchro.

Correct Answer is. by a control synchro.

Explanation. Avionics Fundamentals Page 93 Fig 5-20.

Question Number. 128. Agonic lines link places of.

Option A. zero variation.

Option B. different variation.

Option C. equal variation.

Correct Answer is. zero variation.

Explanation. NIL.

<https://ntc.cap.af.mil/ops/DOT/school/L23CockpitFam/magneticcompass.cfm>

Question Number. 129. Position error is caused by.

Option A. pitot head position.

Option B. instrument location in the instrument panel.

Option C. mechanical imperfections in an instrument.

Correct Answer is. pitot head position.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris  
Page 17.

Question Number. 130. To convert degrees Centigrade to degrees Kelvin.

Option A. add 112 degrees.

Option B. use the formula  $(\text{deg C} \times 9/5) + 32$ .

Option C. add 273 degrees.

Correct Answer is. add 273 degrees.

Explanation. NIL.

Question Number. 131. Damping on a RATE GYRO can be either.

Option A. viscous, eddy current or air dash pot.

Option B. eddy current, variable spring or moving iron.

Option C. viscous, eddy current or variable spring.

Correct Answer is. viscous, eddy current or air dash pot.

Explanation. NIL.

Question Number. 132. The electrical output from a remote gyro to an attitude director indicator is.

Option A. by a control synchro.

Option B. by a differential synchro.

Option C. by a torque synchro.

Correct Answer is. by a control synchro.

Explanation. Avionics Fundamentals Page 93 Fig 5-20.

Question Number. 133. Electrical driven gyros are.

Option A. rotated at the same speed as air driven gyros.

Option B. rotated slower than air driven gyros.

Option C. rotated faster than air driven gyros.

Correct Answer is. rotated faster than air driven gyros.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris  
Page 41.

Question Number. 134. In a ratiometer temperature indicating circuit, there is a break in the circuit to the bulb. This will give.

Option A. mid scale deflection.

Option B. full scale deflection.

Option C. no scale deflection.

Correct Answer is. full scale deflection.

Explanation. Think of it this way - resistance increases with temperature, and that drives it toward fsd. If the bulb circuit is broken, the resistance will be infinite.

Question Number. 135. With the gyro at normal running speed, a torque applied to the inner gimbal ring of a vertical gyro will cause the.

Option A. outer and inner ring to move.

Option B. inner ring to move.

Option C. outer ring to move.

Correct Answer is. outer ring to move.

Explanation. NIL.

Question Number. 136. When an aircraft is descending, the pressure in the altimeter case.

Option A. will cause the aneroid capsule to contract.

Option B. will cause the aneroid capsule to expand.

Option C. will not affect the aneroid capsule.

Correct Answer is. will cause the aneroid capsule to contract.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 5.

Question Number. 137. The supply of Desynn indicating system.

Option A. is direct current.

Option B. is alternating current at 400 c/s.

Option C. is alternating current at 50 c/s.

Correct Answer is. is direct current.

Explanation. NIL.

Question Number. 138. A sensitive altimeter reading 100 ft. when the millibar scale is set to the atmospheric pressure at airfield level (QFE).

Option A. indicates that the airfield is 100 ft. above sea level.

Option B. indicates that the instrument is unserviceable.

Option C. indicates that the aircraft is in a region of high pressure and the reading must be corrected to I.S.A. standards.

Correct Answer is. indicates that the instrument is unserviceable.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 9.

Question Number. 139. After using a pitot-static test set the pressure in the aircraft static system should be released to the atmosphere by.

Option A. removing the static connector from its static vent.

Option B. venting the static system via an internal bleed in the test set.  
Option C. removing the static connector from its static vent after waiting for a period of three minutes.  
Correct Answer is. venting the static system via an internal bleed in the test set.  
Explanation. NIL.

Question Number. 140. An altimeter is operated.  
Option A. by the vacuum system.  
Option B. by the pitot system.  
Option C. by the static system.  
Correct Answer is. by the static system.  
Explanation. NIL.

Question Number. 141. What is the purpose of the bimetallic strip in the altimeter?.  
Option A. Compensates for non-linear tension in the hairspring.  
Option B. Corrects for capsule elasticity.  
Option C. Compensates for change in density.  
Correct Answer is. Corrects for capsule elasticity.  
Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 5.

Question Number. 142. Which axis does the directional gyro spin on?.  
Option A. Vertical.  
Option B. Horizontal.  
Option C. Both vertical and horizontal.  
Correct Answer is. Horizontal.  
Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 8.

Question Number. 143. The capsule in an altimeter responds to.  
Option A. absolute pressure.  
Option B. gauge pressure.  
Option C. differential pressure.  
Correct Answer is. absolute pressure.  
Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 36.

Question Number. 144. The aeroplane monitor on the artificial horizon is fitted to the.  
Option A. inner gimbal.

Option B. rotor.

Option C. instrument case.

Correct Answer is. instrument case.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 5.

Question Number. 145. True airspeed in an Air Data Computer is a function of.

Option A. airspeed and altitude.

Option B. mach number and temperature.

Option C. airspeed and temperature.

Correct Answer is. mach number and temperature.

Explanation. Aircraft Instruments and Integrated Systems Pallett Page 272.

Question Number. 146. The advantage of an instantaneous V.S.I. over a conventional one is.

Option A. it has an accelerometer which prevents the lag of a conventional one.

Option B. it does not require warming up.

Option C. it does not require pitot/static pressure.

Correct Answer is. it has an accelerometer which prevents the lag of a conventional one.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 27.

Question Number. 147. For a particular I.A.S. as the density decreases with altitude, the T.A.S.

Option A. decreases.

Option B. remains the same.

Option C. increases.

Correct Answer is. increases.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 24.

Question Number. 148. The type of gyro used in a gyro compass is a.

Option A. directional gyro.

Option B. vertical gyro.

Option C. rate gyro.

Correct Answer is. directional gyro.

Explanation. NIL.

Question Number. 149. A desiccant used in the storage of instruments.

Option A. is sodium-bicarbonate.

Option B. is silica-gel.

Option C. is anti-freeze oil.

Correct Answer is. is silica-gel.

Explanation. NIL.

Question Number. 150. What effect on the rate of precession will a change of gyro rotor speed have?.

Option A. No effect.

Option B. Decrease the rotor speed, decrease the rate of precession.

Option C. Increase the rotor speed, decrease the rate of precession.

Correct Answer is. Increase the rotor speed, decrease the rate of precession.

Explanation. NIL.

Question Number. 151. Bourdon Tubes have.

Option A. toroidal cross section.

Option B. oval cross section.

Option C. circular cross section.

Correct Answer is. oval cross section.

Explanation. Flight Instruments and Automatic Flight Control Systems David Harris Page 182 Figure.

Question Number. 152. In a Bourdon tube.

Option A. one end is sealed and the other end open to the pressure source.

Option B. one end is sealed and the other end open to atmosphere.

Option C. both ends sealed.

Correct Answer is. one end is sealed and the other end open to the pressure source.

Explanation. Flight Instruments and Automatic Flight Control Systems David Harris Page 182.

Question Number. 153. Pressure gauge calibrators (Dead Weight Testers) use the.

Option A. Brahm's press principle.

Option B. Boyle's Law.

Option C. Charle's Law.

Correct Answer is. Brahm's press principle.

Explanation. NIL.

Question Number. 154. The fluid suitable for use in a Dead Weight Tester is.

Option A. anti-freeze oil.

Option B. castor-oil.

Option C. kerosene.

Correct Answer is. castor-oil.

Explanation. NIL. <http://www.bcmsensor.com/pressure/datasheets/PDH.htm>

Question Number. 155. The distance readout on an HSI is.

Option A. from the aircraft DME system.

Option B. dialled in by the pilot.

Option C. from the aircraft ATC system.

Correct Answer is. from the aircraft DME system.

Explanation. NIL.

Question Number. 156. A gyroscope having one plane of freedom at right angles to the plane of rotation, and its gimbal restrained either electrically or by a spring, is known as.

Option A. a rate gyro.

Option B. an earth gyro.

Option C. a tied gyro.

Correct Answer is. a rate gyro.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 52.

Question Number. 157. Pressure may be expressed in.

Option A. force per unit area.

Option B. weight or mass.

Option C. force per unit volume.

Correct Answer is. force per unit area.

Explanation. NIL.

Question Number. 158. What is the purpose of the hair spring in a Bourdon tube pressure gauge?.

Option A. To reduce 'backlash'.

Option B. To return the pointer to zero.

Option C. To act a controlling force.

Correct Answer is. To reduce 'backlash'.

Explanation. NIL.

Question Number. 159. The ADI's attitude information is normally obtained from the aircraft's.

Option A. attitude rate gyros.

Option B. directional gyros.

Option C. vertical gyros.  
Correct Answer is. vertical gyros.  
Explanation. NIL.

Question Number. 160. One dot VOR deviation represents.  
Option A. 5°.  
Option B. 2 miles.  
Option C. 1¼°.  
Correct Answer is. 5°.  
Explanation. NIL.

Question Number. 161. An instrument used for measuring negative pressures.

Option A. cannot be of the Bourdon tube type.  
Option B. has anti-clockwise pointer movement if Bourdon tube operated.  
Option C. has the Bourdon tube reversed within the case.  
Correct Answer is. cannot be of the Bourdon tube type.  
Explanation. Flight Instruments and Automatic Flight Control Systems David Harris  
Page 182.

Question Number. 162. An absolute pressure gauge measures.  
Option A. the applied pressure referred to atmospheric pressure.  
Option B. pressures extremely accurately.  
Option C. the applied pressure referred to a perfect vacuum.  
Correct Answer is. the applied pressure referred to a perfect vacuum.  
Explanation. NIL.

Question Number. 163. Gauge pressure as indicated on a direct reading Bourdon  
Tube pressure gauge is equal to.  
Option A. absolute pressure minus atmospheric pressure.  
Option B. atmospheric pressure minus absolute pressure.  
Option C. absolute pressure plus atmospheric pressure.  
Correct Answer is. absolute pressure minus atmospheric pressure.  
Explanation. NIL.

Question Number. 164. The to/from indicator on an HSI informs the pilot of which  
direction he is tracking relative to.  
Option A. an ILS station.  
Option B. an ADF station.  
Option C. a VOR station.  
Correct Answer is. a VOR station.

Explanation. NIL.

Question Number. 165. A pressure gauge, such as a hydraulic brake pressure gauge, indicates 1,000 p.s.i. In terms of absolute pressure, this represents.

Option A. 985.3 p.s.i.

Option B. 1,014.7 p.s.i.

Option C. 1,000 p.s.i.

Correct Answer is. 1,014.7 p.s.i.

Explanation. NIL.

Question Number. 166. To fill a Dead Weight Tester.

Option A. remove platform and fill cylinder.

Option B. screw out hand wheel and fill reservoir.

Option C. screw in hand wheel and fill reservoir.

Correct Answer is. screw out hand wheel and fill reservoir.

Explanation. NIL.

Question Number. 167. With an aircraft on the ground and QNH set on the millibar scale of the altimeter, the altimeter will read.

Option A. the airfield height.

Option B. off scale.

Option C. zero.

Correct Answer is. the airfield height.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 9.

Question Number. 168. When checking a sensitive altimeter on a pre-flight inspection.

Option A. the ambient air pressure is set on the millibar scale.

Option B. the standard sea level barometric pressure is always set on the millibar scale.

Option C. the ambient air pressure corrected for temperature is set on the millibar scale.

Correct Answer is. the ambient air pressure is set on the millibar scale.

Explanation. QFE is set and it should read airfield height.

Question Number. 169. The HSI compass card is positioned by the.

Option A. compass system.

Option B. aircraft ADF system.

Option C. heading select knob.

Correct Answer is. compass system.

Explanation. NIL.

Question Number. 170. The applied pressure to an A.S.I. varies with the.

Option A. square of the speed.

Option B. square root of the speed.

Option C. cube root of the speed.

Correct Answer is. square of the speed.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris  
Page 15.

Question Number. 171. The supply to an A.S.I.

Option A. is pitot pressure only.

Option B. are pitot and static pressure.

Option C. is static pressure only.

Correct Answer is. are pitot and static pressure.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris  
Page 13.

Question Number. 172. The capsule for an A.S.I. will be expanding when the aircraft is.

Option A. climbing.

Option B. accelerating.

Option C. decelerating.

Correct Answer is. accelerating.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris  
Page 13.

Question Number. 173. The deflection of the ADI command bars when flying a localiser approach is proportional to.

Option A. the difference between the amplitudes on the two modulations.

Option B. the sum of the amplitude of the two modulations.

Option C. the difference in amplitude of the two r.f. carriers.

Correct Answer is. the difference between the amplitudes on the two modulations.

Explanation. NIL.

Question Number. 174. If an aircraft is flying straight and level in still air, airspeed will be.

Option A. less than the ground speed.

Option B. equal to the ground speed.

Option C. greater than the ground speed.

Correct Answer is. equal to the ground speed.

Explanation. NIL.

Question Number. 175. If an aircraft flying in still air at 400 knots, encounters a head wind of 50 knots, its ground speed is.

Option A. 450 knots.

Option B. 350 knots.

Option C. 400 knots.

Correct Answer is. 350 knots.

Explanation. NIL.

Question Number. 176. To provide a linear scale on an A.S.I., a.

Option A. 10 to 1 gearing is used.

Option B. ranging bar and screws are fitted.

Option C. bi-metal corrector is employed.

Correct Answer is. ranging bar and screws are fitted.

Explanation. Aircraft Instruments and Integrated Systems Pallett Page 44 fig 2.18 and text below.

Question Number. 177. A machmeter is an instrument which indicates the speed of.

Option A. sound relative to the aircraft's altitude.

Option B. the aircraft relative to the speed of sound at ground level.

Option C. the aircraft relative to the local sonic speed.

Correct Answer is. the aircraft relative to the local sonic speed.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 19, and Aircraft Instruments and Integrated Systems Pallett Page 45.

Question Number. 178. The moving element of a ratiometer has.

Option A. three coils.

Option B. one coil.

Option C. two coils.

Correct Answer is. two coils.

Explanation. Flight Instruments and Automatic Flight Control Systems Page 186 Fig 7.4 and para below.

Question Number. 179. When carrying out a pressure leak test on an altimeter, you are checking for leaks in the.

Option A. instrument case.

Option B. pressure chamber.

Option C. capsule stack.

Correct Answer is. instrument case.

Explanation. NIL.

Question Number. 180. If an altimeter millibar scale was set to 1013.25 and the barometric pressure at that time was 1020, the altimeter should read.

Option A. zero feet.

Option B. positive altitude.

Option C. below zero feet (negative altitude).

Correct Answer is. below zero feet (negative altitude).

Explanation. Assuming aircraft is on the ground.

Question Number. 181. An aircraft flying towards a VOR station shows indications of 120° and 'TO'. After passing over the station, on the same course, the indications will be.

Option A. 120° and FROM.

Option B. 300° and FROM.

Option C. 300° and TO.

Correct Answer is. 120° and FROM.

Explanation. NIL.

Question Number. 182. The command bars in a flight director system indicate.

Option A. the actual path with respect to required path.

Option B. the required path with respect to actual path.

Option C. true horizon.

Correct Answer is. the required path with respect to actual path.

Explanation. NIL.

Question Number. 183. When changing a windscreen panel which has a standby magnetic compass located in the vicinity.

Option A. precautions should be taken that the bonding tag is attached to the correct attachment bolt.

Option B. precautions must be taken to ensure that the attachment bolts are of the specified type.

Option C. The attachment bolts should be tightened in an anti-clockwise direction around the window.

Correct Answer is. precautions must be taken to ensure that the attachment bolts are of the specified type.

Explanation. NIL.

Question Number. 184. On a conventional RMI the angle between the compass datum and the radio pointer arrow is.

Option A. the relative bearing.  
Option B. the magnetic bearing.  
Option C. the complimentary bearing.  
Correct Answer is. the relative bearing.  
Explanation. NIL.

Question Number. 185. A compass is made aperiodic by.  
Option A. locking.  
Option B. tying it to the case.  
Option C. using fluid.  
Correct Answer is. using fluid.  
Explanation. NIL.

Question Number. 186. Isogonal lines link places of.  
Option A. different variation.  
Option B. equal variation.  
Option C. zero variation.  
Correct Answer is. equal variation.  
Explanation. Aircraft Instruments and Integrated Systems Pallett Page 81.

Question Number. 187. In an artificial horizon Pendulosity Error is caused by.  
Option A. bottom lightness of inner gimbals.  
Option B. bottom heaviness of inner gimbals.  
Option C. displacement of erection control device.  
Correct Answer is. bottom heaviness of inner gimbals.  
Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 49 (acceleration error).

Question Number. 188. If True Airspeed is 470 knots, what is the Equivalent Air speed?.  
Option A. 278 knots.  
Option B. 662 knots.  
Option C. 550 knots.  
Correct Answer is. 278 knots.  
Explanation. True airspeed is always higher than EAS (or IAS) at any altitude above Sea Level.

Question Number. 189. If the Airspeed Indicator reading is 300 Knots, what is the Calibrated Airspeed?.  
Option A. 296 knots.

Option B. 304 knots.

Option C. 293 knots.

Correct Answer is. 304 knots.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris  
Page 14.

Question Number. 190. In an Artificial Horizon, Erection Error is caused by.

Option A. displacement of erection control device.

Option B. bottom heaviness of inner gimbals.

Option C. bottom lightness of inner gimbals.

Correct Answer is. displacement of erection control device.

Explanation. NIL.

Question Number. 191. A Vertical Speed indicator Metering Unit Consist of.

Option A. both a) & b).

Option B. an orifice.

Option C. a capillary.

Correct Answer is. both a) & b).

Explanation. NIL.

Question Number. 192. Flux Valve senses angle of horizontal component with respect to the aircraft's.

Option A. lateral axis.

Option B. longitudinal axis.

Option C. both lateral and longitudinal axis.

Correct Answer is. longitudinal axis.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris  
Page 64/65.

Question Number. 193. The manual VOR input is for.

Option A. the radio magnetic indicator.

Option B. the ADI.

Option C. the course deviation bar.

Correct Answer is. the course deviation bar.

Explanation. NIL.

Question Number. 194. After correction of the north-south heading reading on a compass swing, the resultant correction is known as.

Option A. magnetic heading.

Option B. residual deviation.  
Option C. correct heading.  
Correct Answer is. residual deviation.  
Explanation. NIL.

Question Number. 195. Apparent drift on directional gyro is corrected by.  
Option A. series of balance holes drilled in gyro rotor.  
Option B. mercury switch on outer ring.  
Option C. an adjustment nut on inner ring.  
Correct Answer is. an adjustment nut on inner ring.  
Explanation. Flight Instruments and Automatic Flight Control Systems Page 45.

Question Number. 196. If a micro adjuster is replaced in a compass system, you would.  
Option A. carry out a new compass swing.  
Option B. set it to zero datum.  
Option C. set it up the same as the one removed.  
Correct Answer is. carry out a new compass swing.  
Explanation. NIL.

Question Number. 197. In a compass swing: North error -2 degrees, South error + 2 degrees. The coefficient C is.  
Option A. +2 degrees.  
Option B. 0 degrees.  
Option C. -2 degrees.  
Correct Answer is. -2 degrees.  
Explanation. AL/10-5 Table 1. This is not the same as a previous question.

Question Number. 198. Purpose of Altitude Alerting is to warn the pilot of.  
Option A. approach to or deviation from selected altitude.  
Option B. selection of altitude.  
Option C. altitude information.  
Correct Answer is. approach to or deviation from selected altitude.  
Explanation. NIL.

<http://www.domingoaereo.hpg.ig.com.br/Boeing727/Manual/warnings.htm>

Question Number. 199. Aircraft certified before 1997 with RVSM, maximum tolerance for the system is.  
Option A. +/- 500ft system tolerance.  
Option B. +/- 200ft system, +/-50ft for instrument error.  
Option C. +/- 300ft system, +/-50ft for instrument error.

Correct Answer is. +/- 300ft system, +/-50ft for instrument error.  
Explanation. NIL. <http://www2.eur-rvsm.com/library.htm>

Question Number. 200. Machmeters work on.

Option A. static.

Option B. pitot and static.

Option C. pitot.

Correct Answer is. pitot and static.

Explanation. NIL.

Question Number. 201. An aircraft with Mach warning will warn.

Option A. when Mach 1 is exceeded.

Option B. when Mcrit is reached.

Option C. when envelope limit is reached.

Correct Answer is. when Mcrit is reached.

Explanation. NIL.

Question Number. 202. An HSI provides what information?.

Option A. VOR, map, attitude, ILS.

Option B. VOR, plan, ILS, map, radar.

Option C. VOR, ILS, plan, attitude.

Correct Answer is. VOR, plan, ILS, map, radar.

Explanation. NIL.

Question Number. 203. Compressibility error in a pitot head is caused by.

Option A. compression of air in the tube at high speed.

Option B. blockage in the pitot tube.

Option C. misalignment of pitot head.

Correct Answer is. compression of air in the tube at high speed.

Explanation. Flight Instruments and Automatic Flight Control Systems - David Harris  
P17 ASI Errors (3).

Question Number. 204. The earth's magnetic field is.

Option A. vertical at the poles, horizontal at the magnetic equator.

Option B. vertical across the earth.

Option C. horizontal across the earth.

Correct Answer is. vertical at the poles, horizontal at the magnetic equator.

Explanation. NIL.

Question Number. 205. There is an air bubble in the compass:.

Option A. The fluid is not aerated properly.  
Option B. It is due to high altitude.  
Option C. It is required, to compensate for expansion of the fluid.  
Correct Answer is. It is due to high altitude.  
Explanation. NIL.

Question Number. 206. A flux detector output is a.  
Option A. rectified D.C. voltage.  
Option B. A.C. voltage at twice the frequency of the excitation voltage.  
Option C. A.C. voltage at the same frequency as the excitation voltage.  
Correct Answer is. A.C. voltage at twice the frequency of the excitation voltage.  
Explanation. Aircraft Instruments and Integrated Systems Pallett Page 189.

### **11B.05.2. Instruments/Avionic Systems - Avionic Systems.**

Question Number. 1. Autopilot servo brake is energised.  
Option A. to actuate on.  
Option B. at the same time as the clutch.  
Option C. to actuate off.  
Correct Answer is. to actuate off.  
Explanation. Pallett Aircraft Electrical Systems 3rd Edition Page 142.

Question Number. 2. Which category are hand mikes considered essential?.

Option A. Aerial work aircraft.

Option B. Light aircraft.

Option C. Heavy passenger aircraft.

Correct Answer is. Light aircraft.

Explanation. ANO Schedule 4 Scale N and Article 47, prohibit them on Transport Category aircraft. However, no direct reference to them being 'essential' on light aircraft is found.

Question Number. 3. Emergency frequency is.

Option A. 125.5 Hz.

Option B. 121.5 Hz.

Option C. 123.5 Hz.

Correct Answer is. 121.5 Hz.

Explanation. JAR OPS 1.820 or 1.850. Jeppesen A&P Technician Airframe Textbook Page 12-25.

Question Number. 4. 121.5 MHz is what frequency?.

Option A. ILS.

Option B. VOR.

Option C. VHF.

Correct Answer is. VHF.

Explanation. 118-137 MHz is VHF frequency. Jeppesen A&P Technician Airframe Textbook Page 12-13.

Question Number. 5. 112.1 MHz is what frequency?.

Option A. VHF.

Option B. ILS.

Option C. VOR.

Correct Answer is. VOR.

Explanation. 112-118 MHz is VOR frequency. Less than 112 MHz odd decimals are ILS. Jeppesen A&P Technician Airframe Textbook Page 12-14.

Question Number. 6. On a fibreglass aerial, what paint should be used?.

Option A. Cellulose only.

Option B. Not cellulose.

Option C. Polyurethane.

Correct Answer is. Not cellulose.

Explanation. CAIPs RL/2-2 8.1.2.

Question Number. 7. When painting a neoprene coated radio antenna.

Option A. use any paint.

Option B. use cellulose paint.

Option C. do not use cellulose paint.

Correct Answer is. do not use cellulose paint.

Explanation. CAIPs RL/2-2 8.1.2.

Question Number. 8. How many axis does the aircraft autopilot control?.

Option A. Four.

Option B. Three.

Option C. Two.

Correct Answer is. Three.

Explanation. Pallett Automatic Flight Control 2nd Edition Page 81. Jeppesen A&P Technician Airframe Textbook Page 12-36.

Question Number. 9. ILS marker beacon lights are.

Option A. blue, amber, white.

Option B. blue, white, green.

Option C. green, blue, amber.

Correct Answer is. blue, amber, white.

Explanation. Aircraft Electricity and Avionics (5th Edition) Eismin Page 312. Jeppesen A&P Technician Airframe Textbook Page 12-24.

Question Number. 10. 111.1 MHz is.

Option A. a VOR frequency.

Option B. an ILS frequency.

Option C. a HF frequency.

Correct Answer is. an ILS frequency.

Explanation. Jeppesen Aircraft Radio Systems Page 69 shows this as a localiser frequency. Jeppesen A&P Technician Airframe Textbook Page 12-24.

Question Number. 11. An autopilot PFCU servo brake is.

Option A. energised on.

Option B. energised at the same time as the clutch.

Option C. energised off.

Correct Answer is. energised off.

Explanation. Aircraft Electrical Systems, Pallett Page 142.

Question Number. 12. The aviation distress frequency is.

Option A. 121.5 kHz.

Option B. 122.5 MHz.

Option C. 121.5 MHz.

Correct Answer is. 121.5 MHz.

Explanation. JAR OPS 1.820 or 1.850 c. Jeppesen A&P Technician Airframe Textbook Page 12-25.

Question Number. 13. A radar altimeter in track mode is effective to.

Option A. 100 ft.

Option B. 2500 ft.

Option C. 2000 ft.

Correct Answer is. 2500 ft.

Explanation. Aircraft Electricity and Electronics. Eismin Page 323 - 324.

Question Number. 14. 112.1 MHz is.

Option A. an ILS frequency.

Option B. an ADF frequency.

Option C. a VOR frequency.

Correct Answer is. a VOR frequency.

Explanation. 112 - 118 MHz are VOR frequencies. Jeppesen A&P Technician Airframe Textbook Page 12-14.

Question Number. 15. What does a Decca Navigation system operate on?.

Option A. Very High Frequency.

Option B. Low Frequency.

Option C. High Frequency.

Correct Answer is. Low Frequency.

Explanation. Decca navigation is low frequency.

Question Number. 16. Which of the following has an hyperbolic curve?.

Option A. VOR.

Option B. DME.

Option C. Loran C.

Correct Answer is. Loran C.

Explanation. Loran C is a type of LF Navigation. Jeppesen Avionic Fundamentals Page 153. Also Aircraft Radio Systems by James Powell Page 101.

Question Number. 17. A GPS satellite will come into view.  
Option A. 20° above the horizon with respect to the viewer.  
Option B. 15° above the horizon with respect to the viewer.  
Option C. 10° above the horizon with respect to the viewer.  
Correct Answer is. 15° above the horizon with respect to the viewer.  
Explanation. Elevation mask' is 15 degrees.

Question Number. 18. Restrictions to the use of hand held microphones apply to.  
Option A. transport category aircraft only.  
Option B. private aircraft.  
Option C. aerial work and transport category aircraft.  
Correct Answer is. transport category aircraft only.  
Explanation. ANO Schedule 4 Scale N.

Question Number. 19. The purpose of the clutch in an autothrottle servo is.  
Option A. to allow the pilot to override.  
Option B. to limit the range of control movement.  
Option C. to protect the servo motor in the event of inadvertent runaway.  
Correct Answer is. to allow the pilot to override.  
Explanation. Pallett Automatic Flight Control Pg 289.

Question Number. 20. Track mode of an RA is operational.  
Option A. from 0 to 2,500 feet.  
Option B. from 1.0 to 100 feet.  
Option C. above 10,000 feet.

Correct Answer is. from 0 to 2,500 feet.

Explanation. The radio altimeter is operational from 0 - 2500 ft Jeppesen Avionic Fundamentals Page 223.

Question Number. 21. How many aerials are there in a TCAS system?.

Option A. 1.

Option B. 3.

Option C. 2.

Correct Answer is. 2.

Explanation. Avionic Systems: Operation and Maintenance page 160.

Question Number. 22. Wavelength of band radar is.

Option A. 3 cm.

Option B. 5 cm.

Option C. 10 m.

Correct Answer is. 3 cm.

Explanation. Introduction to Avionics Dale Cundy Page 82.

Question Number. 23. Precipitation static is caused by.

Option A. lightning strikes.

Option B. HF radiation.

Option C. skin to air particle collisions.

Correct Answer is. skin to air particle collisions.

Explanation. Aircraft Electricity and Electronics - Eismin page 211.

Question Number. 24. HF aerials have weak points designed at.

Option A. both ends.

Option B. the front end.

Option C. the back end.

Correct Answer is. the back end.

Explanation. CAIPs RL/2-2 para 2.2.4.

Question Number. 25. What is the reply frequency of an aircraft transponder?.

Option A. 1000 MHz.

Option B. 1030 MHz.

Option C. 1090 MHz.

Correct Answer is. 1090 MHz.

Explanation. Avionic Fundamentals page 211.

Question Number. 26. CAT 2 RVR limit is.

Option A. 1200 ft.

Option B. 1000 ft.

Option C. 10,000 ft.

Correct Answer is. 1200 ft.

Explanation. CAT II ILS Runway Visual Range (RVR) is 'not less than 1200ft'. Ref: Avionic Fundamentals page 199.

Question Number. 27. With autopilot engaged, which control surface is inhibited?.

Option A. THS.

Option B. Elevators.

Option C. Ailerons.

Correct Answer is. THS.

Explanation. A&P Airframe Technician Textbook Pg 12-35.

Question Number. 28. When flaps are lowered, the automatic trim system will.

Option A. angle of incidence remains the same.

Option B. increase the angle of incidence of the THS.

Option C. decrease the angle of incidence of the THS.

Correct Answer is. decrease the angle of incidence of the THS.

Explanation. NIL.

Question Number. 29. In autopilot, the control column.

Option A. does not move.

Option B. moves in pitch.

Option C. moves in pitch and roll.

Correct Answer is. moves in pitch and roll.

Explanation. A&P Airframe Technician Textbook Pg 12-47 (Parallel system). This is assuming it is a non-fly-by-wire aircraft.

Question Number. 30. A hyperbolic system is.

Option A. VOR.

Option B. LORAN C.

Option C. ILS.

Correct Answer is. LORAN C.

Explanation. Loran C is a type of Omega Navigation. Jeppesen Avionic Fundamentals Page 153.

Question Number. 31. When is autothrottle disengaged?.

Option A. On landing.

Option B. After thrust reverser has deployed beyond 90% so that TO/GA can be selected in case of emergency.

Option C. On selection of thrust reverse.

Correct Answer is. On selection of thrust reverse.

Explanation. Pallett Automatic Flight Control Page 286.

Question Number. 32. In aircraft with an autopilot and an auto trim, a pitch command input will cause.

Option A. column will not move and trim system will move.

Option B. column to move but trim system not to move.

Option C. column to move and trim system to move.

Correct Answer is. column to move and trim system to move.

Explanation. A&P Technician Airframe Textbook 12-47 - This is assuming it is a non-fly-by-wire aircraft.

Question Number. 33. In regard to the aircraft transponder, what is the pulse frequency?.

Option A. Number of pulses per signal.

Option B. Amount of times interrogating signal is sent per second.

Option C. Amount of times reply signal is sent per second.

Correct Answer is. Amount of times reply signal is sent per second.

Explanation. NIL.

Question Number. 34. CAT 2 RVR limit is.

Option A. 400 m.

Option B. 200 m.

Option C. 800 m.

Correct Answer is. 400 m.

Explanation. CAT II ILS Runway Visual Range (RVR) is 'not less than 1200ft'. 1200 ft = 400m Ref: Avionic Fundamentals page 199.

Question Number. 35. How many programs can a FMC store?.

Option A. One current.

Option B. Two. Both active.

Option C. Two. One active and one standby.

Correct Answer is. Two. One active and one standby.

Explanation. Pallett Aircraft Instruments and Integrated Systems Page 399 on. Boeing 757 chapter 34-61-00 page 201.

Question Number. 36. EPR and speed for autothrottle is activated at.

Option A. take off.

Option B. approach.

Option C. cruise.

Correct Answer is. take off.

Explanation. Pallett Automatic Flight Control 4th Edition Page 286.

Question Number. 37. How does an IRS calculate velocity?.

Option A. Integration of accelerometers.

Option B. Differentiation of laser gyro.

Option C. Double integration of accelerometers.

Correct Answer is. Integration of accelerometers.

Explanation. Pallett Automatic Flight Control 4th Edition Page 191.

Question Number. 38. In an autopilot, what controls pitch mode?.

Option A. Glideslope.

Option B. VOR.

Option C. Localizer.

Correct Answer is. Glideslope.

Explanation. Pallett Automatic Flight Control 4th Edition Page 187.

Question Number. 39. Glideslope controls autopilot in.

Option A. yaw.

Option B. roll.

Option C. pitch.

Correct Answer is. pitch.

Explanation. Pallett Automatic Flight Control 4th Edition Page 187.

Question Number. 40. Static dischargers help eliminate radio interference by dissipating static electricity into the atmosphere at.

Option A. all voltage levels.

Option B. low current levels.

Option C. high voltage levels.

Correct Answer is. low current levels.

Explanation. Reference found in an older version of A&P Technician Airframe Textbook Page 700 (Not in latest edition). Quote 'If the aircraft is equipped with static dischargers, the static discharge occurs at lower current and more frequently'.

Question Number. 41. What is B-RNAV?.

Option A. Indicates true airspeed.

Option B. Indicates bearing and airspeed until next active waypoint.

Option C. Ability to store 6 waypoints.

Correct Answer is. Indicates bearing and airspeed until next active waypoint.  
Explanation. See Module 11 Forum.

Question Number. 42. An Automatic Flight Control System receives inputs from the following ground based transmitters.

Option A. DME, ILS, ADF.

Option B. VOR, ILS.

Option C. RA, ADF, ILS.

Correct Answer is. VOR, ILS.

Explanation. An AFCS uses VOR and ILS (RA is not ground based).

Question Number. 43. What is the wavelength of C band radar?.

Option A. 17 m.

Option B. 3 cm.

Option C. 7 cm.

Correct Answer is. 7 cm.

Explanation. C Band is 4 - 8 cm. Most aircraft systems use about 5.6cm. Ref Boeing and Jeppesen A&P Technician Airframe Textbook Page 12-27.

Question Number. 44. What is primary radar?.

Option A. Radar that sends out pulse and receives reflected pulse.

Option B. Land based.

Option C. Radar that gives height and position.

Correct Answer is. Radar that sends out pulse and receives reflected pulse.

Explanation. NIL.

Question Number. 45. What is ILS marker beacon frequency?.

Option A. 75 MHz.

Option B. 100 MHz.

Option C. 50 MHz.

Correct Answer is. 75 MHz.

Explanation. Automatic Flight Control. Pallett, 4th Edition Page 183/4.

Question Number. 46. TCAS is selected.

Option A. by a switch, by pilot on selector panel.

Option B. automatically.

Option C. not available in cruise.

Correct Answer is. by a switch, by pilot on selector panel.

Explanation. NIL.

Question Number. 47. The manual VOR input is for.

Option A. glideslope.

Option B. course deviation bar.

Option C. RMI.

Correct Answer is. course deviation bar.

Explanation. B737 MM Chapter 34-31-02.

Question Number. 48. The mach trim is initiated by.

Option A. an electric motor.

Option B. the autopilot motor.

Option C. a PCU.

Correct Answer is. the autopilot motor.

Explanation. Automatic Flight Control, Pallett, Page 231.

Question Number. 49. What is the colour of the middle marker beacon?.

Option A. Amber.

Option B. Blue.

Option C. White.

Correct Answer is. Amber.

Explanation. Jeppesen - Avionics Fundamentals, Page 219 fig 14-2.

Question Number. 50. A GPS system is formed from.

Option A. receiver, processing unit, interactive console.

Option B. satellites, processing unit, display unit.

Option C. space, control, user.

Correct Answer is. space, control, user.

Explanation. NIL. <http://www.robins.af.mil/lkn/jssmogps.htm>

Question Number. 51. For aircraft with dual CMCs, when only one CMC is available, it.

Option A. can be connected to either side.

Option B. must be connected to the left side.

Option C. must be connected to the right side.

Correct Answer is. must be connected to the left side.

Explanation. Aircraft Electricity and Electronics Fifth Edition Eismen Chap 13 page 271.

Question Number. 52. Laser gyros are.

Option A. aligned to the magnetic north.

Option B. aligned to the true north.

Option C. aligned to the aircraft structure.

Correct Answer is. aligned to the aircraft structure.

Explanation. Jeppesen Avionics Fundamentals Page 99.

Question Number. 53. Laser gyros.

Option A. have rotational parts.

Option B. do not have rotational parts.

Option C. have movable parts.

Correct Answer is. do not have rotational parts.

Explanation. Jeppesen Avionics Fundamentals Page 99.

Question Number. 54. A radio coupled approach is.

Option A. localiser first, followed by glideslope.

Option B. in any order.

Option C. glideslope first, followed by localiser.

Correct Answer is. localiser first, followed by glideslope.

Explanation. Automatic Flight Control Pallett Page 184-185.

Question Number. 55. Aileron signal is fed to the rudder channel.

Option A. for yaw damping compensation.

Option B. for turn command back-up.

Option C. for turn coordination.

Correct Answer is. for turn coordination.

Explanation. Automatic Flight Control. Pallett. 4th Edition Page 121/122.

Question Number. 56. The rate of G/S warning in GPWS.

Option A. changes with radio altitude.

Option B. does not change.

Option C. changes with barometric altitude.

Correct Answer is. changes with radio altitude.

Explanation. Avionic Fundamentals page 263.

Question Number. 57. What frequency are VOR and ILS?.

Option A. UHF.

Option B. VHF.

Option C. HF.

Correct Answer is. VHF.

Explanation. Aircraft Instruments and Integrated Systems Page 426.

Question Number. 58. A radio frequency of 16 MHz would be used for.

Option A. weather radar.

Option B. marker beacons.  
Option C. HF communications.  
Correct Answer is. HF communications.  
Explanation. NIL.

Question Number. 59. An aircraft lands in autoland. After touch down and thrust reversers are deployed. What happens to autothrottle?.

Option A. Automatically switches off.  
Option B. Advances throttles.  
Option C. Stays armed for go around in an emergency.  
Correct Answer is. Automatically switches off.  
Explanation. Automatic Flight Control Pallett and Coyle Page 286.

Question Number. 60. Pilot's instinctive cut-out buttons are positioned.

Option A. on right side of control wheel.  
Option B. on side of control wheel furthest from throttles.  
Option C. on left side of control wheel.  
Correct Answer is. on side of control wheel furthest from throttles.  
Explanation. JAR 25.1329 (d).

Question Number. 61. ILS and VOR operate in which range.

Option A. HF.  
Option B. VHF.  
Option C. UHF.  
Correct Answer is. VHF.  
Explanation. Jeppesen A&P Technician Airframe Textbook 12-1.

Question Number. 62. FMC secondary flight-plan is selected.

Option A. on the ground by the pilot.  
Option B. in the air by the pilot.  
Option C. by calendar date monthly.  
Correct Answer is. in the air by the pilot.  
Explanation. FMC has a primary (active) and a secondary (alternative) stored flight plan.

Question Number. 63. GPWS operating in mode 1 and 2 when close to ground will give.

Option A. amber warning.  
Option B. red caption and aural 'whoop whoop pull up'.  
Option C. red caption and aural 'pull up, undercarriage, flaps, throttle'.  
Correct Answer is. red caption and aural 'whoop whoop pull up'.

Explanation. NIL.

Question Number. 64. The components of an ILS are.

Option A. a localizer and the marker beacons.

Option B. a localizer, a glide slope and the marker beacons.

Option C. a localizer and a glide slope.

Correct Answer is. a localizer, a glide slope and the marker beacons.

Explanation. Aircraft Radio Systems by James Powell page 69.

Question Number. 65. In ILS, the glideslope provides.

Option A. distance checks.

Option B. vertical steering.

Option C. lateral steering.

Correct Answer is. vertical steering.

Explanation. Aircraft Radio Systems by James Powell page 69.

Question Number. 66. If the 90 Hz tone modulation in a localizer receiver predominates, the deviation indicator will show.

Option A. fly right.

Option B. the flag.

Option C. fly left.

Correct Answer is. fly right.

Explanation. Aircraft Radio Systems by James Powell page 73.

Question Number. 67. Autopilot will operate above what altitude?.

Option A. 750 ft.

Option B. 1000 ft.

Option C. 500 ft.

Correct Answer is. 500 ft.

Explanation. NIL.

Question Number. 68. A radio coupled autopilot in pitch uses.

Option A. ADF.

Option B. VOR.

Option C. glideslope.

Correct Answer is. glideslope.

Explanation. NIL.

Question Number. 69. EPR and thrust modes in autothrottle are the only modes that can be selected in.

Option A. cruise.  
Option B. approach.  
Option C. take off.  
Correct Answer is. take off.  
Explanation. NIL.

Question Number. 70. An inertial navigation unit uses pin programming for.

Option A. magnetic orientation.  
Option B. location.  
Option C. aircraft type.  
Correct Answer is. location.  
Explanation. Pin programming for IRU`s and INU`s are carried out on the aircraft rack mounted side. The purpose being to tell the installed unit which position it is serving within the aircraft i.e left, ctr or right side! The unit is universal for all.

Question Number. 71. How can it be verified if FMC update is correct?.

Option A. Dataplate on the FMC.  
Option B. BITE.  
Option C. FMC via CDU.  
Correct Answer is. FMC via CDU.  
Explanation. NIL.

Question Number. 72. GPWS will show a fault if the following fails:.

Option A. Radio altimeter.  
Option B. Air speed indicator.  
Option C. Pressure altimeter.  
Correct Answer is. Radio altimeter.  
Explanation. Of the three, GPWS has only connection to the RA. It does use barometric vertical speed however.

Question Number. 73. INS has mercury switches on.

Option A. all gimbals.  
Option B. outer gimbal.  
Option C. inner gimbal.  
Correct Answer is. all gimbals.  
Explanation. Aircraft Instruments and Integrated Systems Pallett Page 116.

Question Number. 74. If the runway picture in the EADI moves down during an ILS approach, the aircraft must fly.

Option A. up.

Option B. down.  
Option C. nowhere - this is normal on an ILS approach.  
Correct Answer is. down.  
Explanation. NIL.

Question Number. 75. What modulation is used for the beams of a localiser in an ILS?.

Option A. 150 Hz right of runway centerline, 90 Hz left of runway centreline.  
Option B. 90 Hz below the glide path, 150 Hz above the glide path.  
Option C. 150 Hz left of runway centerline, 90 Hz right of runway centreline.  
Correct Answer is. 150 Hz right of runway centerline, 90 Hz left of runway centreline.  
Explanation. Aircraft Radio Systems Powell Page 70.

Question Number. 76. In what frequency range does the automatic direction finding (ADF) system operate?.

Option A. 108.00 - 117.95 MHz.  
Option B. 1025 - 1150 KHz.  
Option C. 190 - 1759 KHz.  
Correct Answer is. 190 - 1759 KHz.  
Explanation. Jeppesen A&P Technician Airframe Textbook Page 12-13.

Question Number. 77. How does an aircraft distinguish its own Distance Measuring Equipment reply from those for other aircraft?.

Option A. By changing at random the time delay between the pulse pairs of the interrogation signal.  
Option B. By modulation of an audio tone.  
Option C. By using an alternate frequency.  
Correct Answer is. By changing at random the time delay between the pulse pairs of the interrogation signal.  
Explanation. Aircraft Radio Systems Powell Page 106.

Question Number. 78. From where is bearing information received for display on the digital-distance radio-magnetic indicator (DDRMI)?.

Option A. From VOR and ADF systems.  
Option B. From ADF only.  
Option C. From VOR only.  
Correct Answer is. From VOR and ADF systems.  
Explanation. Aircraft Instruments and Integrated Systems Pallett Page 197.

Question Number. 79. Which frequency is used to achieve line of sight radio communication?.

Option A. HF.

Option B. VHF.

Option C. VHF and UHF.

Correct Answer is. VHF and UHF.

Explanation. NIL. [http://www.tpub.com/content/aviation/14014/css/14014\\_166.htm](http://www.tpub.com/content/aviation/14014/css/14014_166.htm)

Question Number. 80. Why is an aerial tuning unit used in a high frequency (HF) communication system?.

Option A. To extend or retract the aerial and so vary its physical length.

Option B. To electrically lengthen or shorten the aerial for optimum matching of impedance.

Option C. To select the transmission/reception frequency in the HF band.

Correct Answer is. To electrically lengthen or shorten the aerial for optimum matching of impedance.

Explanation. NIL.

<http://dSPACE.dial.pipex.com/town/pipexdsl/r/Arar93/mds975/Content/aerials2.htm>

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Question Number. 81. What would be the purpose of an input from an inertial reference system being connected to a weather radar?.

Option A. To place the weather radar target in azimuth and distance for the display.

Option B. To ensure that there is no radar transmission with aircraft on ground.

Option C. To provide stabilisation for the radar antenna.

Correct Answer is. To provide stabilisation for the radar antenna.

Explanation. NIL. <http://www.artietheairplane.com/radar.htm>

Question Number. 82. Which systems provide envelope modulation information for a Ground Proximity Warning System (GPWS)?.

Option A. Rudder/ailerons.

Option B. Autothrottle.

Option C. Flaps/undercarriage.

Correct Answer is. Flaps/undercarriage.

Explanation. NIL.

Question Number. 83. The Time Reference Scanning Beam (TRSB) corresponds to ILS localiser and glidepath. How does it operate?.

Option A. It operates in the same manner as ILS but utilises higher frequencies.

Option B. Azimuth and elevation transmitters produce a narrow beam which is rapidly scanned TO and FRO or UP and DOWN.

Option C. It operates in conjunction with DME at lower frequencies than ILS.

Correct Answer is. Azimuth and elevation transmitters produce a narrow beam which is rapidly scanned TO and FRO or UP and DOWN.

Explanation. Aircraft Radio Systems Powell Page 224.

Question Number. 84. The FMS navigation database is updated.

Option A. every 28 days.

Option B. after a B or C check has been completed.

Option C. daily.

Correct Answer is. every 28 days.

Explanation. NIL.

Question Number. 85. In an IRS system you would expect to find.

Option A. ring laser gyros.

Option B. three strap down accelerometers.

Option C. an azimuth gyro system.

Correct Answer is. ring laser gyros.

Explanation. Assuming they mean a strapdown system. (Note: in b, it is the system which is strapdown, not the accelerometers, in c, azimuth gyro is not the only type of gyro involved).

Question Number. 86. In an INS system the accelerometer is a mass.

Option A. a remotely mounted mass on the airframe.

Option B. a mass suspended in free air.

Option C. suspended between two springs in a tube.

Correct Answer is. suspended between two springs in a tube.

Explanation. Aircraft Instruments and Integrated Systems Pallett Page 256. (Note: the mass is suspended in fluid, and is not remote).

Question Number. 87. In a modern aircraft the ACARS system is used primarily for.

Option A. reporting defects on the aircraft automatically.

Option B. communications between the aircraft and base.

Option C. as part of the passenger telephone system.

Correct Answer is. communications between the aircraft and base.

Explanation. NIL.

Question Number. 88. What are the main areas of the autopilot?.

Option A. Error, correction, demand, resolved.

Option B. Error, correction, follow up, demand.

Option C. Error, correction, follow up, command.

Correct Answer is. Error, correction, follow up, command.

Explanation. NIL.

Question Number. 89. VHF frequency is.

Option A. 108 - 136 MHz.

Option B. 108 - 112 MHz.

Option C. 108 - 118 MHz.

Correct Answer is. 108 - 136 MHz.

Explanation. Aircraft Electricity and Electronics Eismen Page 295.

Question Number. 90. The call system for the captain will have the audio signal of a.

Option A. horn.

Option B. hi tone chime.

Option C. two tone chime.

Correct Answer is. hi tone chime.

Explanation. B737.

Question Number. 91. Channel 3 on a CVR records.

Option A. first officer.

Option B. flightdeck.

Option C. captain.

Correct Answer is. flightdeck.

Explanation. JAR 25.1457.

Question Number. 92. DME works on the frequency of.

Option A. UHF.

Option B. HF.

Option C. VHF.

Correct Answer is. UHF.

Explanation. Aircraft Electricity and Electronics Eismen Page 310 and 278.

Question Number. 93. A radial is referenced.

Option A. to a VOR.

Option B. from a beacon.

Option C. on a compass.

Correct Answer is. from a beacon.

Explanation. NIL.

Question Number. 94. ADF works by using.

Option A. both loop and sense aerial.

Option B. loop aerial.

Option C. sense aerial.

Correct Answer is. both loop and sense aerial.

Explanation. NIL.

Question Number. 95. How is the next database on the FMC activated?.

Option A. Manually in the air.

Option B. Manually, on the ground.

Option C. Automatically by due date.

Correct Answer is. Manually in the air.

Explanation. NIL.

Question Number. 96. What GPWS mode gives a 'Whoop Whoop, Pull-up' command?.

Option A. Mode 6.

Option B. Mode 3.

Option C. Mode 2.

Correct Answer is. Mode 2.

Explanation. Transport Category Aircraft Systems Page 9.19.

Question Number. 97. A transponder that is compatible for use with a TCAS system would be.

Option A. Mode A.

Option B. Mode S.

Option C. Mode C.

Correct Answer is. Mode S.

Explanation. Introduction to TCAS version 7 US Department of Transport FAA Page 17 (Target Surveillance).

Question Number. 98. GPS.

Option A. uses 18 satellites equally spaced around 6 orbits.

Option B. uses 21 satellites equally spaced around 7 orbits.

Option C. uses 24 satellites equally spaced around 6 orbits.

Correct Answer is. uses 24 satellites equally spaced around 6 orbits.

Explanation. NIL.

Question Number. 99. Random precession of the inner gimbal ring is detected by placing mercury switches.

Option A. on both gimbal rings.

Option B. on outer gimbal ring.

Option C. on inner gimbal ring.

Correct Answer is. on inner gimbal ring.

Explanation. NIL.

Question Number. 100. The IRS laser gyro is a.

Option A. displaced gyro.

Option B. displacement gyro.

Option C. rate gyro.

Correct Answer is. rate gyro.

Explanation. Rate integrated gyro. Aircraft Electricity and Electronics 5th Ed. Eismin Page 373.

Question Number. 101. What manoeuvre does TCAS II advise the pilot to make?.

Option A. RA.

Option B. TA.

Option C. either RA or TA.

Correct Answer is. RA.

Explanation. Introduction to TCAS version 7 US Department of Transport FAA Page 27 (Threat Detection).

Question Number. 102. What are the shapes of traffic shown on a TCAS display ?.

Option A. White diamonds, red squares and amber circles.

Option B. White squares, red diamonds and amber circles.

Option C. White circles, red diamonds and amber squares.

Correct Answer is. White diamonds, red squares and amber circles.

Explanation. Introduction to TCAS version 7 US Department of Transport FAA Page 27 (Threat Detection).

Question Number. 103. The laser ring gyro.

Option A. does not have gimbal and rotating parts.

Option B. has a stabilized platform.

Option C. does not have gimbal.

Correct Answer is. does not have gimbal and rotating parts.

Explanation. Aircraft Electricity and Electronics 5th Ed. Eismin Page 373.

Question Number. 104. 3 autopilot computers are considered.

Option A. Fail resistant.

Option B. Fail Operable.

Option C. Fail Passive.

Correct Answer is. Fail Operable.

Explanation. NIL.

Question Number. 105. In autopilot with THS in motion, the.

Option A. elevator is inhibited.

Option B. Mach trim is inhibited.

Option C. Auto Trim is inhibited.

Correct Answer is. Auto Trim is inhibited.

Explanation. NIL.

Question Number. 106. How can a pilot over-ride the auto-throttle?.

Option A. By deselecting auto-throttle first.

Option B. It is not possible.

Option C. Manually through a clutch on the throttle levers.

Correct Answer is. Manually through a clutch on the throttle levers.

Explanation. NIL.

Question Number. 107. Where is the autothrottle disconnect switch?.

Option A. Within reach of the Captain.

Option B. Within reach of both pilots.

Option C. Within reach of the First Officer.

Correct Answer is. Within reach of both pilots.

Explanation. NIL.

Question Number. 108. Decca navigation uses.

Option A. VHF.

Option B. HF.

Option C. LF.

Correct Answer is. LF.

Explanation. NIL. <http://webhome.idirect.com/~jproc/hyperbolic/decca.html>

Question Number. 109. There are two FMS installed on the aircraft. If one FMS fails during flight.

Option A. the whole FMS system is unserviceable until the pilot switches over to standby.

Option B. it has no effect, because the second FMS was in the stand-by mode, now it is active.

Option C. the failed FMS has a blank screen.

Correct Answer is. the failed FMS has a blank screen.

Explanation. Aircraft Instruments and Integrated Systems Pallett page 406.

Question Number. 110. Which of the following has priority over TCAS warnings?.

Option A. Gear position warning.  
Option B. Stall warning.  
Option C. Resolution Advisories.  
Correct Answer is. Stall warning.  
Explanation. NIL.

Question Number. 111. The ILS marker beacon operates at a frequency of.  
Option A. 75 MHz.  
Option B. 50 MHz.  
Option C. 100 MHz.  
Correct Answer is. 75 MHz.  
Explanation. Aircraft Electricity and Electronics Eismen page 311.

Question Number. 112. The manual input for the VOR course corrector is related to.  
Option A. the CDI offset bar.  
Option B. the ILS system.  
Option C. the RMI.  
Correct Answer is. the CDI offset bar.  
Explanation. NIL.

Question Number. 113. A flat plate antenna is a.  
Option A. a Doppler antenna.  
Option B. parabolic antenna.  
Option C. a series of slots and wave guides.  
Correct Answer is. a series of slots and wave guides.  
Explanation. Aircraft Electricity and Electronics Eismen page 342.

Question Number. 114. To obtain an accurate GPS fix, the GPS receiver must be in line of sight of.  
Option A. 6 satellites.  
Option B. 4 satellites.  
Option C. 3 satellites.  
Correct Answer is. 4 satellites.  
Explanation. Aircraft Electricity and Electronics Eismen Pages 319. 4 satellites are required to provide height information as well as position.  
<http://www.tycoelectronics.com/gps/basics.asp>.

Question Number. 115. Which of the following systems is inhibited when a test is performed of the rad. alt. system?.  
Option A. altitude alert.

Option B. TCAS.  
Option C. GPWS.  
Correct Answer is. GPWS.  
Explanation. NIL.

Question Number. 116. The GPS satellite system consists of.  
Option A. 20 satellites and 5 standby satellite.  
Option B. 21 satellites and 3 standby satellites.  
Option C. 24 satellites and 1 standby satellites.  
Correct Answer is. 21 satellites and 3 standby satellites.  
Explanation. Aircraft Electricity and Electronics Eismen Pages 318 and 319.

Question Number. 117. A Mode C transponder gives the following info:.  
Option A. Altitude.  
Option B. Interrogation.  
Option C. Altitude and interrogation.  
Correct Answer is. Altitude.  
Explanation. Avionics Fundamentals Page 211.

Question Number. 118. The autothrottle system at touchdown will.  
Option A. go to idle and disconnect.  
Option B. go to idle.  
Option C. apply reverse thrust.  
Correct Answer is. go to idle and disconnect.  
Explanation. Pallett Automatic Flight Control Page 286.

Question Number. 119. When will the decision height aural warning sound?.  
Option A. At decision height.  
Option B. Before decision height.  
Option C. After decision height.  
Correct Answer is. At decision height.  
Explanation. NIL.

Question Number. 120. FMCS Pin Programming is allowed.  
Option A. to compensate for FMC position on the aircraft.  
Option B. under CAA Rules.  
Option C. for the database of aircraft landing altitudes.  
Correct Answer is. to compensate for FMC position on the aircraft.  
Explanation. NIL.

Question Number. 121. Before the aeroplane is moved from the loading pier, the pilot must.

Option A. insert the latitude and longitude of the pier into the INS.

Option B. insert the latitude and longitude of the first waypoint into the INS.

Option C. set the altitude to be fed into the INS.

Correct Answer is. insert the latitude and longitude of the pier into the INS.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 82.

Question Number. 122. A 'strap-down' inertial navigation system has.

Option A. accelerometers on a stable platform and gyros fixed to the airframe.

Option B. accelerometers and gyros fixed to the airframe.

Option C. accelerometers fixed to the airframe and gyros on a stable platform.

Correct Answer is. accelerometers and gyros fixed to the airframe.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 90.

Question Number. 123. A force re-balance accelerometer in an IN system has the acceleration force balanced by a.

Option A. constant force.

Option B. linear force.

Option C. non-linear force.

Correct Answer is. linear force.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 33.

Question Number. 124. An accelerometer in an IN system must be able to detect accelerations down to.

Option A.  $10^{-6}$  g.

Option B.  $10^{-2}$  g.

Option C.  $10^{-3}$  g.

Correct Answer is.  $10^{-6}$  g.

Explanation. NIL.

Question Number. 125. A laser gyro output is.

Option A. inversely proportional to angular turning rate.

Option B. directly proportional to frequency addition.

Option C. directly proportional to angular turning rate.

Correct Answer is. directly proportional to angular turning rate.

Explanation. NIL.

Question Number. 126. In an IN system, Coriolis effect is the result of.  
Option A. the effect of the earth's rotation on a stable platform.  
Option B. gyro wander.  
Option C. platform misalignment.  
Correct Answer is. the effect of the earth's rotation on a stable platform.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 85.

Question Number. 127. The Inertial Navigation System computes distance from acceleration by.  
Option A. two successive integrations.  
Option B. a differential followed by an integration.  
Option C. a single integration.  
Correct Answer is. two successive integrations.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 81.

Question Number. 128. Coriolis effect is corrected for by.  
Option A. re-aligning the stable platform.  
Option B. adding a correction term to the accelerometer outputs.  
Option C. torquing the gyros.  
Correct Answer is. adding a correction term to the accelerometer outputs.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page.

Question Number. 129. In an IN system, the output of the accelerometer is linear because of a.  
Option A. pendulous suspension.  
Option B. linear spring.  
Option C. force balance system.  
Correct Answer is. force balance system.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 76.

Question Number. 130. The three accelerometers on a stable platform are mounted.  
Option A. parallel to each other.  
Option B. orthogonally.  
Option C. 120 degrees apart.  
Correct Answer is. orthogonally.  
Explanation. NIL.

Question Number. 131. In an IN system, the purpose of the stable platform is to.

Option A. provide attitude reference.  
Option B. prevent unwanted acceleration affecting the accelerometers.  
Option C. stop the gyros from toppling.  
Correct Answer is. prevent unwanted acceleration affecting the accelerometers.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 77.

Question Number. 132. The type of gyro generally used in an IN system is a.

Option A. rate gyro.  
Option B. rate integrating gyro.  
Option C. displacement gyro.  
Correct Answer is. rate integrating gyro.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 77.

Question Number. 133. Earth rate is approximately.

Option A. 5 degrees per hour.  
Option B. 15 degrees per hour.  
Option C. 84 degrees per hour.  
Correct Answer is. 15 degrees per hour.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 37.

Question Number. 134. In a gimbal system, the stable platform is the.

Option A. azimuth gimbal.  
Option B. roll gimbal.  
Option C. pitch gimbal.  
Correct Answer is. azimuth gimbal.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 77/78.

Question Number. 135. To prevent gimbal lock on the stable platform it is normal to use.

Option A. a pitch gimbal.  
Option B. four gimbals.  
Option C. three gimbals.  
Correct Answer is. four gimbals.  
Explanation. NIL.

Question Number. 136. When the inertial platform is torqued to perform like a Schuler pendulum.

Option A. the platform rotates with respect to the aircraft.  
Option B. the platform remains fixed with respect to the local vertical.

Option C. the platform oscillates with respect to the local vertical.  
Correct Answer is. the platform oscillates with respect to the local vertical.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 86.

Question Number. 137. A Schuler pendulum has a period of oscillation of.  
Option A. 8.4 minutes.  
Option B. 84.4 seconds.  
Option C. 84.4 minutes.  
Correct Answer is. 84.4 minutes.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 86.

Question Number. 138. An IN system requires data from the.  
Option A. air data computer.  
Option B. Doppler system.  
Option C. satellites.  
Correct Answer is. air data computer.  
Explanation. NIL.

Question Number. 139. When in manual mode, the C.D.U. alert lamp of the IN system will flash.  
Option A. when an error is detected.  
Option B. thirty seconds before a track change is required.  
Option C. two minutes before the next waypoint.  
Correct Answer is. two minutes before the next waypoint.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 89.

Question Number. 140. TK (cross track) is the.  
Option A. perpendicular distance from the desired track.  
Option B. angle in degrees that aircraft track is left or right of desired track.  
Option C. actual track across the earth's surface.  
Correct Answer is. perpendicular distance from the desired track.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 88.

Question Number. 141. The output of an INS can be fed to.  
Option A. attitude indicators.  
Option B. vertical speed indicators.  
Option C. altimeters.  
Correct Answer is. attitude indicators.  
Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 85.

Question Number. 142. The three accelerometers on a strapdown platform are mounted.

Option A. 90° to each other.

Option B. 120° apart.

Option C. parallel to each other.

Correct Answer is. 90° to each other.

Explanation. NIL.

Question Number. 143. A basic I.N.S. platform has.

Option A. 3 axis accelerometer.

Option B. 2 accelerometers and 3 gyros.

Option C. 3 accelerometers and 2 gyros (pitch and roll).

Correct Answer is. 2 accelerometers and 3 gyros.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 78.

Question Number. 144. Using I.N.S. an aircraft flies.

Option A. course directed by ground station.

Option B. rhumb line.

Option C. great circle arc.

Correct Answer is. great circle arc.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 81.

Question Number. 145. What must be entered in to the I.N.S. before the aircraft moves?.

Option A. Present position.

Option B. E.T.A.

Option C. Waypoints.

Correct Answer is. Present position.

Explanation. NIL.

Question Number. 146. Selection of the INS Mode Selector Unit (MSU) to ATT REF is made.

Option A. to feed information to the Captain and 1st Officers ADI displays.

Option B. when attitude information is lost.

Option C. when navigation information is lost.

Correct Answer is. when navigation information is lost.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 85.

Question Number. 147. For the INS, the Battery Unit provides.

Option A. standby power only when on the ground, to maintain the alignment phase.

Option B. both when airborne and on the ground.

Option C. standby power when airborne, switched by weight-off switches in the undercarriage.

Correct Answer is. both when airborne and on the ground.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 85.

Question Number. 148. Control Display Unit (CDU) selection of TKE displays.

Option A. difference in degrees from True North in a clockwise direction from the desired track.

Option B. distance perpendicular from the selected track.

Option C. difference in degrees that the aircraft track is to the right or left of the desired track.

Correct Answer is. difference in degrees that the aircraft track is to the right or left of the desired track.

Explanation. Flight Instruments and Automatic Flight Control, David Harris Page 88.

Question Number. 149. The Earth Rate Compensation is computed from.

Option A. the earth's rotational rate ( $15^\circ/\text{hour}$ ) times the sine of the longitude.

Option B. the earth's rotational rate ( $15^\circ/\text{hour}$ ) times the cosine of the latitude.

Option C. the earth's rotational rate ( $15^\circ/\text{hour}$ ) times the sine of the latitude.

Correct Answer is. the earth's rotational rate ( $15^\circ/\text{hour}$ ) times the sine of the latitude.

Explanation. NIL.

Question Number. 150. INS wind speed is calculated from.

Option A. the vectorial addition of TAS and GS.

Option B. the vectorial addition of IAS and TAS.

Option C. the vectorial addition of IAS and GS.

Correct Answer is. the vectorial addition of TAS and GS.

Explanation. NIL.

Question Number. 151. Centripetal error compensation is achieved by.

Option A. an additional signal is added to the N/S accelerometer to cancel the centripetal error.

Option B. allowing the platform to oscillate at a fixed rate.

Option C. the platform is torqued to align the N/S accelerometer along its insensitive axis.

Correct Answer is. an additional signal is added to the N/S accelerometer to cancel the centripetal error.

Explanation. NIL.

Question Number. 152. Transport Rate compensation is achieved by.

Option A. an additional signal added to the N/S accelerometer output depending on heading.

Option B. allowing the platform to oscillate at a fixed rate.

Option C. the platform being torqued by a computed torquing signal.

Correct Answer is. the platform being torqued by a computed torquing signal.

Explanation. NIL.

Question Number. 153. If the battery fails on the ground (INS System).

Option A. a red warning light appears on the MSU and a horn sounds.

Option B. an amber light appears on the MSU and a horn sounds.

Option C. a red light appears on the CDU and a horn sounds.

Correct Answer is. a red warning light appears on the MSU and a horn sounds.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 85.

Question Number. 154. An IRS alignment.

Option A. takes 10 minutes and present position can be entered any time during the alignment.

Option B. takes 10 minutes and present position must be entered before alignment.

Option C. takes 10 minutes and the previous flight shut down present position is used for the alignment.

Correct Answer is. takes 10 minutes and present position can be entered any time during the alignment.

Explanation. NIL.

Question Number. 155. For an IRS system to pass the 'Alignment System Performance Test' the.

Option A. latitude entered must be within given limits of the latitude computed by IRU.

Option B. the No. 1 and No.2 must both have the same latitude and longitude present position entered.

Option C. entered present latitude and longitude must agree with the latitude and longitude at the last power down.

Correct Answer is. latitude entered must be within given limits of the latitude computed by IRU.

Explanation. NIL.

Question Number. 156. A laser gyro dither mechanism ensures that.

Option A. that the two contra-rotating beams each operate at different frequencies.

Option B. the contra-rotating beams are synchronised together.

Option C. optical 'backscatter' does not cause the contra-rotating beams to lock together.

Correct Answer is. optical 'backscatter' does not cause the contra-rotating beams to lock together.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 47.

Question Number. 157. The localiser deviation signal for the flight director comes from the.

Option A. flight director computer.

Option B. VHF comm system.

Option C. VHF nav system.

Correct Answer is. VHF nav system.

Explanation. NIL.

Question Number. 158. The heading error signal used in the heading select mode.

Option A. is the difference between the desired course and the actual course.

Option B. is the difference between the desired heading and the actual heading.

Option C. comes direct from the compass system.

Correct Answer is. is the difference between the desired heading and the actual heading.

Explanation. NIL.

Question Number. 159. The crab angle of the aircraft during VOR or LOC modes is displayed by the.

Option A. difference between the course arrow and aircraft heading.

Option B. difference between the selected heading and aircraft heading.

Option C. selected course counter.

Correct Answer is. difference between the course arrow and aircraft heading.

Explanation. NIL.

Question Number. 160. VOR left-right deviation signals come from the.

Option A. DME system.

Option B. VLF nav system.

Option C. VHF nav set.

Correct Answer is. VHF nav set.

Explanation. NIL.

Question Number. 161. Above the glideslope, the ILS glideslope signal modulation is.

Option A. 90 Hz.

Option B. 90 KHZ.

Option C. 150 Hz.

Correct Answer is. 90 Hz.

Explanation. Automatic Flight Control, Pallett, page 181, Fig.6.6 and Aircraft Radio Systems, Powell, Page 72, top of L/H column.

Question Number. 162. The localiser modulation signal to the left of the localiser centre line, as seen from the localiser transmitter, is.

Option A. 150 Hz.

Option B. 90 Hz.

Option C. 90 KHz.

Correct Answer is. 150 Hz.

Explanation. It says 'as seen from the localiser transmitter'.

Question Number. 163. The correct sense demand generated for a selected heading  $180^\circ$ , when the aircraft heading is  $150^\circ$  is.

Option A. straight ahead.

Option B. turn right.

Option C. turn left.

Correct Answer is. turn right.

Explanation. NIL.

Question Number. 164. When an aircraft is flying along the extended centre line of the runway it is in the.

Option A. equi-signal sector.

Option B. 90 Hz modulation sector.

Option C. 150 Hz modulation sector.

Correct Answer is. equi-signal sector.

Explanation. NIL.

Question Number. 165. The localiser system offers approach guidance to the runway in terms of.

Option A. the vertical plane.

Option B. distance to touch down.

Option C. the horizontal plane.

Correct Answer is. the horizontal plane.

Explanation. NIL.

Question Number. 166. The glideslope transmitter is located.

Option A. adjacent to the touch-down point of the runway.

Option B. at the end opposite to the approach end of the runway.

Option C. at the approach end of the runway.

Correct Answer is. adjacent to the touch-down point of the runway.

Explanation. Automatic Flight Control, Pallett, page 181 (bottom of the page) and Aircraft Radio Systems, Powell, page 72, Fig. 5.5.

Question Number. 167. The glideslope and localiser frequencies.

Option A. are fixed and common to all runways therefore frequency selection is not necessary.

Option B. have to be selected separately.

Option C. are paired and one frequency selector suffices for both.

Correct Answer is. are paired and one frequency selector suffices for both.

Explanation. Aircraft Radio Systems, Powell, page 71 and Avionics Fundamentals, Jeppesen, page 206.

Question Number. 168. The glideslope system offers approach guidance to runways in terms of.

Option A. the horizontal plane.

Option B. the vertical plane.

Option C. distance to touchdown.

Correct Answer is. the vertical plane.

Explanation. Automatic Flight Control Pallett Page 181.

Question Number. 169. The glideslope equipment operates in the.

Option A. VHF band.

Option B. HF band.

Option C. UHF band.

Correct Answer is. UHF band.

Explanation. Automatic Flight Control Pallett Page 181.

Question Number. 170. The localiser equipment operates in the.

Option A. UHF band.

Option B. HF band.

Option C. VHF band.

Correct Answer is. VHF band.

Explanation. Automatic Flight Control Pallett Page 181.

Question Number. 171. The aircraft equipment determines the bearing of a ground station by comparing.

Option A. the phase of one 30 Hz modulation with that of a 9960 Hz modulation.  
Option B. the amplitude of two 30 Hz modulations.  
Option C. the phase of two 30 Hz modulations.  
Correct Answer is. the phase of two 30 Hz modulations.  
Explanation. Aircraft Radio Systems, Powell Pages 59 and 60 and Radio Aids, R.B.Underdown and David Cockburn Page 72.

Question Number. 172. The number of different radials provided by a ground station is.  
Option A. infinite.  
Option B. 360.  
Option C. 180 per quadrant, i.e. 720 in 360°.  
Correct Answer is. infinite.  
Explanation. NIL.

Question Number. 173. Which of the following frequencies is allocated to VOR?.  
Option A. 103.9 MHz.  
Option B. 127.2 MHz.  
Option C. 114.3 MHz.  
Correct Answer is. 114.3 MHz.  
Explanation. Aircraft Radio Systems, Powell Pages 58 All frequencies between 112.00 and 117.95 MHz (High Power VORs) and all odd frequencies between 108.00 and 111.95 MHz (Terminal VORs).

Question Number. 174. Aerial masts may be damaged by.  
Option A. killfrost anti-icing fluid.  
Option B. Skydrol hydraulic fluids.  
Option C. water.  
Correct Answer is. Skydrol hydraulic fluids.  
Explanation. NIL.

Question Number. 175. Most radio aerial masts are.  
Option A. insulated from the fuselage.  
Option B. not bonded.  
Option C. bonded.  
Correct Answer is. bonded.  
Explanation. NIL.

Question Number. 176. When an aircraft is heading due north (magnetic) towards a VOR station the reference and variable signals will be.

Option A. 270° out of phase.  
Option B. 180° out of phase.  
Option C. in phase.  
Correct Answer is. 180° out of phase.  
Explanation. Aircraft is due South of the station.

Question Number. 177. The middle marker modulation is keyed with.  
Option A. dots.  
Option B. dashes.  
Option C. alternate dots and dashes.  
Correct Answer is. alternate dots and dashes.  
Explanation. NIL.

Question Number. 178. The modulation of the outer marker is.  
Option A. 400 Hz.  
Option B. 1300 Hz.  
Option C. 3000 Hz.  
Correct Answer is. 400 Hz.  
Explanation. Aircraft Electricity and Electronics Eismis Pages 311-312.

Question Number. 179. The approximate distance of the middle marker from the runway threshold is.  
Option A. 7 miles.  
Option B. 3 miles.  
Option C. 3500 ft.  
Correct Answer is. 3500 ft.  
Explanation. NIL. [http://www.avionicswest.com/marker\\_beacon\\_receiver.htm](http://www.avionicswest.com/marker_beacon_receiver.htm)

Question Number. 180. Marker information is usually provided to the pilot.  
Option A. visually.  
Option B. aurally.  
Option C. both visually and aurally.  
Correct Answer is. both visually and aurally.  
Explanation. Aircraft Electricity and Electronics Eismis Pages 311.

Question Number. 181. An over station sensor (OSS) detects.  
Option A. radio deviation signals proportional to distance from a localiser transmitter.  
Option B. the rapid rate of the VOR signal over the cone of confusion.  
Option C. radio deviation signals proportional to distance from a VOR transmitter.  
Correct Answer is. the rapid rate of the VOR signal over the cone of confusion.

Explanation. NIL.

Question Number. 182. Incompatible Flight Director modes are.

Option A. VRU and compass.

Option B. VOR and glidepath.

Option C. altitude hold and ILS.

Correct Answer is. altitude hold and ILS.

Explanation. NIL.

Question Number. 183. The VOR system comprises.

Option A. reference phase signal.

Option B. variable phase signal.

Option C. variable and reference phase signals.

Correct Answer is. variable and reference phase signals.

Explanation. Aircraft Electricity and Electronics Eismin Pages 306 and 307.

Question Number. 184. The most sensitive system between ILS and VOR is.

Option A. they both have the same sensitivity.

Option B. ILS.

Option C. VOR.

Correct Answer is. ILS.

Explanation. NIL.

Question Number. 185. If an aircraft is flying on a heading of 000 away from a VOR station, the TO/FROM indicator would show.

Option A. no indication.

Option B. from.

Option C. to.

Correct Answer is. from.

Explanation. NIL.

Question Number. 186. How does the flight director computer differentiate between VOR and ILS frequencies?.

Option A. Discriminator on control panel.

Option B. Frequency discriminator in receiver.

Option C. Trigger pulse from ground station.

Correct Answer is. Frequency discriminator in receiver.

Explanation. NIL.

Question Number. 187. The glideslope transmitter operates on.

Option A. frequencies of 108 to 118 MHZ.

Option B. the UHF band.

Option C. the VHF band.

Correct Answer is. the UHF band.

Explanation. Aircraft Electricity and Electronics Eismin Page 308.

Question Number. 188. The pilots instinctive autopilot disengage button is on the.

Option A. left of the control column.

Option B. side of the controls away from the throttles.

Option C. right of the control column.

Correct Answer is. side of the controls away from the throttles.

Explanation. Flight Instruments and Automatic Flight Control Systems, David Harris Page 133.

Question Number. 189. If the autopilot automatically disconnects in the autoland mode, the audible warning.

Option A. can only be switched off by re-engaging the autopilot.

Option B. is switched off by the instinctive cut-out button.

Option C. switches off after a time interval.

Correct Answer is. is switched off by the instinctive cut-out button.

Explanation. JAR AWO Para 153.

Question Number. 190. A category 3B aircraft using fail operational automatic landing equipment will have.

Option A. a decision height depending on RVR.

Option B. no decision height.

Option C. a decision height of 50ft.

Correct Answer is. a decision height of 50ft.

Explanation. Automatic Flight Control Pallett Page 279.

Question Number. 191. For an aircraft to be certified for automatic landing, an autothrottle system is.

Option A. a matter of choice for the operator.

Option B. mandatory.

Option C. dependent on the operation of the aircraft at slow speeds.

Correct Answer is. dependent on the operation of the aircraft at slow speeds.

Explanation. JAR AWO Para 306 b.

Question Number. 192. With autothrottle engaged, the application of reverse thrust

will.

Option A. disconnect the autothrottle.

Option B. drive the throttles to the minimum thrust position.

Option C. drive the throttles to the reverse thrust position.

Correct Answer is. disconnect the autothrottle.

Explanation. NIL.

Question Number. 193. During ATC transponder operation, side lobe suppression acts to.

Option A. mute the DME operation during transmit phase.

Option B. supply altitude readout.

Option C. mute coms transmission during transponder operation.

Correct Answer is. mute the DME operation during transmit phase.

Explanation. NIL.

Question Number. 194. During operation of a twin HF radio system transceiver.

Option A. #1 HF system operation is inhibited during #2 operation.

Option B. #1 HF system can transmit but not receive.

Option C. both systems can be operated simultaneously.

Correct Answer is. #1 HF system operation is inhibited during #2 operation.

Explanation. NIL.

Question Number. 195. L band DME transmits on a frequency of.

Option A. 2210 MHz.

Option B. 4133 MHz.

Option C. 1090 MHz.

Correct Answer is. 1090 MHz.

Explanation. NIL.

Question Number. 196. Function of ADF & VOR and DME in navigation system with reference to aircraft and beacon is;

Option A. the first provides bearing line from aircraft to beacon and latter provides distance between aircraft and beacon.

Option B. the first provides distance between aircraft and beacon and latter provides bearing line from aircraft to beacon.

Option C. None of above.

Correct Answer is. the first provides bearing line from aircraft to beacon and latter provides distance between aircraft and beacon.

Explanation. NIL.

Question Number. 197. Which two frequencies are paired?.

Option A. DME and Glideslope.

Option B. Localizer and DME.

Option C. Glideslope and localizer.

Correct Answer is. Glideslope and localizer.

Explanation. NIL.

Question Number. 198. Localizer beam width is the angle where the two edges of beam are apart at the runway threshold by.

Option A. 700 ft.

Option B. 7 ft.

Option C. 70 ft.

Correct Answer is. 700 ft.

Explanation. Avionics Fundamentals Page 200.

Question Number. 199. What happens if frequency decreases without altering the physical length of aerial?.

Option A. The aerial becomes capacitively reactive.

Option B. The aerial becomes inductively reactive.

Option C. The aerial becomes inductively capacitive.

Correct Answer is. The aerial becomes capacitively reactive.

Explanation. NIL.

Question Number. 200. What happens if frequency increases without altering the physical length of aerial?.

Option A. The aerial becomes inductively reactive.

Option B. The aerial becomes inductively capacitive.

Option C. The aerial becomes capacitively reactive.

Correct Answer is. The aerial becomes inductively reactive.

Explanation. NIL.

Question Number. 201. Aerials provide optimum output at one particular frequency, when its load is purely.

Option A. resistive.

Option B. inductive.

Option C. capacitive.

Correct Answer is. resistive.

Explanation. NIL.

Question Number. 202. The torque pre-set in an autopilot system is.

Option A. to stop the motor overheating.

Option B. to allow it to be overridden at a certain force.

Option C. to give control surface feel.

Correct Answer is. to allow it to be overridden at a certain force.

Explanation. NIL.

Question Number. 203. Most aerals are.

Option A. bonded.

Option B. made from non-conductive material.

Option C. not bonded.

Correct Answer is. bonded.

Explanation. NIL.

Question Number. 204. The Middle Marker beacon is what colour?.

Option A. White.

Option B. Blue.

Option C. Amber.

Correct Answer is. Amber.

Explanation. NIL.

Question Number. 205. Laser gyros have.

Option A. no rotating parts.

Option B. rotating parts.

Option C. moving parts.

Correct Answer is. no rotating parts.

Explanation. A laser gyro has moving parts (dither motor vibrates) but not rotating parts.

Question Number. 206. Laser gyros are aligned to.

Option A. magnetic north.

Option B. true north.

Option C. aircraft structure.

Correct Answer is. aircraft structure.

Explanation. NIL.

Question Number. 207. Triplex autopilot is.

Option A. fail operational.

Option B. fail soft.

Option C. fail passive.

Correct Answer is. fail operational.

Explanation. Automatic Flight Control Pallett Page 282.

Question Number. 208. Flight management control system (FMCS) utilises.

Option A. VOR, ADF, DME.

Option B. ILS, VOR, ADF.

Option C. ILS, DME, ADC.

Correct Answer is. ILS, DME, ADC.

Explanation. FMCS does not normally utilise ADF.

Question Number. 209. ACARS is.

Option A. a satellite communication system.

Option B. a way of reporting defects to maintenance base in flight.

Option C. a navigation system.

Correct Answer is. a way of reporting defects to maintenance base in flight.

Explanation. Aircraft Electricity and Electronics Eismis Page 250.

Question Number. 210. Where is an ATC transponder mode 'A' selected ON?.

Option A. The altimeter.

Option B. The ATC control panel.

Option C. The airspeed indicator.

Correct Answer is. The ATC control panel.

Explanation. NIL.

Question Number. 211. How many data bases are required in an FMS system?.

Option A. 3 (one is used for redundancy).

Option B. 1.

Option C. 2.

Correct Answer is. 2.

Explanation. NIL.

Question Number. 212. What channel of the autopilot does the glideslope control?.

Option A. Roll.

Option B. Pitch.

Option C. Yaw.

Correct Answer is. Pitch.

Explanation. NIL.

Question Number. 213. What is secondary radar?.

Option A. Signal returned from a transponder.

Option B. A backup radar on an airfield.  
Option C. Reflected radar bounce from an aircraft.  
Correct Answer is. Signal returned from a transponder.  
Explanation. NIL.

Question Number. 214. In an autothrottle system, when is EPR or thrust mode used?.

Option A. Approach.  
Option B. Take-off.  
Option C. Cruise.  
Correct Answer is. Take-off.  
Explanation. E.H.J.Pallet 3rd edition page 284 3rd paragraph.

Question Number. 215. What is Mode 1 & 2 of GPWS used for?.

Option A. Excessive descent rate, excessive terrain closure rate.  
Option B. Excessive descent rate, unsafe terrain clearance.  
Option C. Excessive terrain closure rate, altitude loss after take-off.  
Correct Answer is. Excessive descent rate, excessive terrain closure rate.  
Explanation. NIL.

Question Number. 216. For radio communication over a distance of over 250 miles we use.

Option A. VHF.  
Option B. HF.  
Option C. VLF.  
Correct Answer is. HF.  
Explanation. NIL.

Question Number. 217. Autopilot, when on approach to landing, how many axis are used?.

Option A. 2.  
Option B. 4.  
Option C. 3.  
Correct Answer is. 3.  
Explanation. NIL.

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