Module 06. Materials & Hardware

01a. Aircraft Materials - Ferrous.

Question Number. 1. When drilling stainless steel, use a.
Option A. drill ground to 120 °, slow cutting speed.
Option B. drill ground to 90 °, fast cutting speed.
Option C. drill ground to 90 °, slow cutting speed.
Correct Answer is. drill ground to 120 °, slow cutting speed.
Explanation. NIL.

Question Number. 2. How is a material galvanised?.
Option A. Sprayed with nickel solution.
Option B. Packed in a drum containing zinc dust and heated.
Option C. Dipped in a bath of molten zinc.
Correct Answer is. Dipped in a bath of molten zinc.
Explanation. NIL.

Question Number. 3. What temperature would steel be tempered at?.
Option A. At the annealing temperature.
Option B. Above the annealing temperature.
Option C. Below the annealing temperature.
Correct Answer is. Below the annealing temperature.
Explanation. NIL.

Question Number. 4. Tempering steel gives.
Option A. greater brittleness.
Option B. greater hardness.
Option C. relief of internal stress after hardening.
Correct Answer is. relief of internal stress after hardening.
Explanation. Tempering is done to relieve internal stresses.

Question Number. 5. The addition of chromium to steel will produce.
Option A. toughness.
Option B. hardness.
Option C. ductility.

Correct Answer is. hardness.
Explanation. Chromium is alloyed with steel to make it harder.

Question Number. 6. Chromium added to plain carbon steel.
Option A. increases it's resistance to corrosion.
Option B. turns it into a non-ferrous alloy.
Option C. makes the metal softer.
Correct Answer is. increases it's resistance to corrosion.
Explanation. Chromium, when added to steel increases its hardness and corrosion resistance (hence CRS).

Question Number. 7. The purpose of case hardening is to.
Option A. produce a hard case over a tough core.
Option B. reduce the carbon in the steel.
Option C. introduce carbon into the steel.
Correct Answer is. produce a hard case over a tough core.
Explanation. Case hardening hardens the surface only.

Question Number. 8. At normal temperatures HC steel is harder because.
Option A. it has more austenite.
Option B. of the % of carbon in the granules.
Option C. it has less austenite.
Correct Answer is. of the % of carbon in the granules.
Explanation. NIL.

Question Number. 9. Nitriding is.
Option A. tempering.
Option B. anodising.
Option C. case hardening.
Correct Answer is. case hardening.
Explanation. Nitriding is a form of case hardening.

Question Number. 10. Medium carbon steels have a carbon content of.
Option A. 0.3 - 0.5 %.
Option B. 0.5 - 0.8 %.
Option C. 0.8 - 1.05 %.
Correct Answer is. 0.3 - 0.5 %.

Explanation. Medium carbon steel is 0.3 - 0.6% (approx). FAA AC43 4-1.

Question Number. 11. A ferrous metal contains.
Option A. aluminum .
Option B. iron.
Option C. magnesium.
Correct Answer is. iron.
Explanation. Ferrous' is from the Latin for iron.

Question Number. 12. With respect to ferrous metals which of the following is
true?.
Option A. Iron is not any element of ferrous metals.
Option B. Iron is a main element and most ferrous metal are magnetic.
Option C. Iron is a main element and ferrous metals are not magnetic.
Correct Answer is. Iron is a main element and most ferrous metal are magnetic.
Explanation. The Latin for iron is 'Ferrum' Ferrous metals are named thus, and most are paramagneticwith the exception of some stainless steels.

Question Number. 13. The annealing process on steel is required sometimes as it.
Option A. provides a corrosion resistant layer that prevents oxidation.
Option B. allows the material a greater stress per unit area.
Option C. relieves internal stress suffered after engineering processes.
Correct Answer is. relieves internal stress suffered after engineering processes.
Explanation. Annealing is to relieve internal stresses.

Question Number. 14. Cobalt steel tested on the Brinell test would have a BHN number between.
Option A. 100 to 175.
Option B. 300 to 400.
Option C. 600 to 700.
Correct Answer is. 600 to 700.
Explanation. Cobalt steel (used in cobalt drills) has a very high hardness (600-700 BHN or 60-65 Rockwell C). BL/10-3.

Question Number. 15. If a material is found to be in the tertiary phase of creep the following procedure should be implemented:.
Option A. The component should under go dye penetrant process and condition monitored.
Option B. The crack should be stop drill, condition monitoring should be applied.
Option C. The component should be replaced immediately.
Correct Answer is. The component should be replaced immediately.
Explanation. The tertiary phase of creep occurs just before complete failure of the component. BL/10-3 3.11.3.

Question Number. 16. What is used for marking out steels?.
Option A. Engineers blue.
Option B. Wax crayon.
Option C. Copper sulphate. Correct
Correct Answer is. Copper sulphate.
Explanation. Copper sulphate is used for marking steel. Workshop Technology Part 1 Pg 209.

Question Number. 17. Phosphating of steels is carried out by immersing the steel in to a solution of.
Option A. phosphoric acid and metal phosphates.
Option B. nitric acid and sulphur.
Option C. metal phosphates and sulphuric acid.
Correct Answer is. phosphoric acid and metal phosphates.
Explanation. CAIPs BL/7- 4 1.1.

Question Number. 18. Tempering entails.
Option A. heating under the UCP and slow cooling.
Option B. heating over the UCP and fast cooling.
Option C. heating over the UCP and slow cooling.

Correct Answer is. heating under the UCP and slow cooling.
Explanation. To temper steel, heat to BELOW the Lower Critical Temperature (LCT) and cool either slowly or quench in water.

Question Number. 19. Austenitic stainless steels are.
Option A. magnetic.
Option B. non-magnetic.
Option C. hardened by heat treatment.

Correct Answer is. non-magnetic.
Explanation. Austenitic stainless steel is non-magnetic.

Question Number. 20. The formation of steel depends upon.
Option A. the formation of pearlite into austenite.
Option B. the formation of austenite into pearlite.
Option C. the presence of pearlite in the structure.
Correct Answer is. the formation of austenite into pearlite.
Explanation. Austenite exists above the LCT and turns into pearlite as the steel cools.

Question Number. 21. How is residual magnetism removed after an NDT examination?.
Option A. EMI.
Option B. EMC.
Option C. Degaussing.
Correct Answer is. Degaussing.
Explanation. Degaussing is another name for demagnetising.

Question Number. 22. The hardness of steel depends upon.
Option A. formation of pearlite into austenite.
Option B. formation of cementite.
Option C. the iron austenite grain structure.
Correct Answer is. formation of cementite.
Explanation. Cementite (iron carbide) is the hard grain structure that precipitates from the austenite as high carbon steel cools from above the UCT.

Question Number. 23. The difference between annealing and normalizing is.
Option A. both are heated above the UCT, cool slowly to anneal, cool in air to normalize.

Option B. both are heated below the UCT, cool in air to anneal, cool slowly to normalize.
Option C. both are heated above the UCT, cool in air to anneal, cool slowly to normalize.
Correct Answer is. both are heated above the UCT, cool slowly to anneal, cool in air to
normalize.
Explanation. Both are heated above the UCT, but the only difference is, cool slowly (in the furnace) to anneal, cool in air to normalize.

Question Number. 24. Normalizing of steel is done to.
Option A. remove residual stress of the manufacturing process.
Option B. make steel softer.
Option C. restore the fatigue life of steel.
Correct Answer is. remove residual stress of the manufacturing process.
Explanation. NIL.

Question Number. 25. When normalising, the material is.
Option A. quenched immediately.
Option B. left to cool in room temperature.
Option C. cooled slowly.
Correct Answer is. left to cool in room temperature.
Explanation. Cool in air when normalising.

Question Number. 26. Cast iron is.
Option A. very malleable.
Option B. tough.
Option C. heavy and brittle.
Correct Answer is. heavy and brittle.
Explanation. NIL.

Question Number. 27. Case hardening can be carried out on.
Option A. titanium.
Option B. any ferrous metal.
Option C. duralumin.
Correct Answer is. any ferrous metal.
Explanation. NIL.

Question Number. 28. Exhaust systems are usually made from stainless steel which is
susceptible to.
Option A. surface corrosion.
Option B. filiform corrosion.
Option C. intergranular corrosion.
Correct Answer is. intergranular corrosion.
Explanation. NIL.

Question Number. 29. When metal is first heated slightly above its critical temperature andthen cooled rapidly it is common that the metal will increase in.
Option A. brittleness.
Option B. both of the above.
Option C. hardness.
Correct Answer is. both of the above.
Explanation. This is the process of hardening (ferrous) metals.

Question Number. 30. Steel is tempered.
Option A. after hardening.
Option B. before hardening.
Option C. to increase hardening.
Correct Answer is. after hardening.
Explanation. Tempering is to reduce the brittleness caused by hardening.

Question Number. 31. If a steel component is operated below the fatigue limit. The fatigue lifeis.
Option A. finite.
Option B. infinite.
Option C. depend on its proof stress.
Correct Answer is. infinite.
Explanation. NIL. http://metals.about.com/library/bldef-Fatigue-Limit.htm

Question Number. 32. A low carbon steel would normally be case hardened using.

Option A. the nitriding process.
Option B. flame or induction hardening.
Option C. pack or gas carburising.
Correct Answer is. pack or gas carburising.
Explanation. NIL.
http://www.efunda.com/processes/heat_treat/hardening/diffusion.cfm

Question Number. 33. After a product has been manufactured and all heat treatment has beencarried out the stress remaining if any is termed as.
Option A. residual stress.
Option B. working stress.
Option C. applied stress.
Correct Answer is. residual stress.
Explanation. NIL. http://www.physiqueindustrie.com/residual_stress.php

Question Number. 34. Annealing steels.
Option A. toughens the metal.
Option B. makes the metal malleable.
Option C. makes the metal brittle.
Correct Answer is. makes the metal malleable.
Explanation. A&P Technician General Textbook Chap 7 page 3.

Question Number. 35. Tempering of hardened steel is carried out to.
Option A. retain surface hardness, but soften the core.
Option B. retain core hardness, but soften the surface.
Option C. significantly reduce the brittleness without suffering a major drop in its strength.
Correct Answer is. significantly reduce the brittleness without suffering a major drop in its strength.
Explanation. NIL.
Question Number. 36. High speed steel relies heavily on the following metallic element for itsability to cut other metals, even when it is heated to a dull red color.
Option A. Tungsten.
Option B. Nickel.
Option C. Vanadium.

Correct Answer is. Tungsten.
Explanation. NIL.

Question Number. 37. When a low carbon steel bolt is stretched beyond its elastic limit withoutbreaking, it will.
Option A. deform temporarily.
Option B. become more ductile.
Option C. deform permanently.

Correct Answer is. deform permanently.
Explanation. NIL.

Question Number. 38. 1% Nickel, 1% Carbon, steel is widely used for.
Option A. exhaust valves.
Option B. ball and roller bearings.
Option C. high tensile steel bolts.
Correct Answer is. ball and roller bearings.
Explanation. NIL.

Question Number. 39. Fatigue failure may be defined as.
Option A. failure caused by stress in excess of the material U.T.S.
Option B. failure due to impact.
Option C. reduction in strength due to alternating loads.
Correct Answer is. reduction in strength due to alternating loads.
Explanation. NIL.

Question Number. 40. Normalising steels.
Option A. increases toughness.
Option B. increases the hardness.
Option C. relieves the stresses.
Correct Answer is. relieves the stresses.
Explanation. NIL.

Question Number. 41. Cast iron is.
Option A. tough.
Option B. heavy and brittle.
Option C. very malleable.

Correct Answer is. heavy and brittle.
Explanation. NIL.

Question Number. 42. Austenitic steel is produced when the material is heated to.
Option A. above the Upper Critical Point.
Option B. above the Lower Critical Point.
Option C. below the Upper Critical Point.
Correct Answer is. above the Upper Critical Point.
Explanation. NIL.

Question Number. 43. Steel is produced by refining pig iron where air/oxygen is blown throughthe molten material to remove.
Option A. carbon.
Option B. oxides.
Option C. sulphur.
Correct Answer is. carbon.
Explanation. Air is to 'decarburise' the pig iron.
ttp://www.bsu.edu/web/acmaassel/steel.html

Question Number. 44. During a Rockwell Hardness test, what dimension is measured?.
Option A. The diameter of the indent.
Option B. The depth of the indent.
Option C. The diameter and depth of the indent.
Correct Answer is. The depth of the indent.
Explanation. NIL. http://www.qcplus.co.uk/training/training-rockwell.htm

Question Number. 45. What does the 0 in 2024-T3 mean?.
Option A. The percentage of impurities in the alloy.
Option B. The alloy has not been modified.
Option C. The alloy has been modified.
Correct Answer is. The alloy has not been modified.
Explanation. NIL.
http://www.jjjtrain.com/vms/engineering_metal_stds.html#6

Question Number. 46. In most aircraft hydraulic systems, two-piece tube connectors consisting of a sleeve and a nut are used when a tubing flare is required. The use of this type of connector eliminates.
Option A. the flaring operation prior to assembly.
Option B. the possibility of reducing the flare thickness by wiping or ironing during the tightening process.
Option C. wrench damage to the tubing during the tightening process.
Correct Answer is. the possibility of reducing the flare thickness by wiping or ironing during the tightening process.
Explanation. With the two-piece fitting (AN818) there is no relative motion between the
fitting and the flare when the nut is being tightened.

01b. Aircraft Materials - Ferrous.

Question Number. 1. In the tensile strength test.
Option A. the material is pulled to limit of elasticity.
Option B. the material is pulled to until it breaks.
Option C. the material is pulled until it reaches its UTS.
Correct Answer is. the material is pulled to until it breaks.
Explanation. The material is tested to full destructions.

Question Number. 2. Impact resistance measures the.
Option A. material toughness.
Option B. material hardness.
Option C. material ductility.
Correct Answer is. material toughness.
Explanation. Toughness' is resistance to impact.

Question Number. 3. Specified time of contact between the indentor and test piece in a vickers or brinell hardness test is.
Option A. 20 seconds.
Option B. 10 seconds.
Option C. 15 seconds.
Correct Answer is. 15 seconds.
Explanation. CAIPs BL/10-3 5.2.8.

Question Number. 4. In an Izod impact test the striking energy of the striker is
approximately.
Option A. 150 J.
Option B. 163 J.
Option C. 300 J.
Correct Answer is. 163 J.
Explanation. CAIPs BL/10-3 6.2.

Question Number. 5. The Charpy test measures.
Option A. strain.
Option B. impact energy.
Option C. Young's modulus.
Correct Answer is. impact energy.
Explanation. NIL.

Question Number. 6. The 'Fatigue limit' for steel is generally in the region of, compared to thestatic U.T.S.
Option A. 40%-60%.
Option B. 60%-80%.
Option C. 20%-40%.
Correct Answer is. 20%-40%.
Explanation. NIL. http://www.key-to-steel.com/Articles/Art137.htm

Question Number. 7. The ability of mild steel to accept more load after the yield point is reached is due to.
Option A. necking.
Option B. strain hardening.
Option C. plastic station.
Correct Answer is. strain hardening.
Explanation. NIL.

Question Number. 8. What is a Rockwell tester used for?.
Option A. Hardness Testing.
Option B. Tensile Testing.
Option C. Fatigue Testing.
Correct Answer is. Hardness Testing.

Explanation. NIL. http://www.qcplus.co.uk/training/training-rockwell.htm

Question Number. 9. What type of test involves using a weighted pendulum to strike a material until fracture?.
Option A. Hardness Test.
Option B. Impact Resistance Test.
Option C. Fatigue Testing.
Correct Answer is. Impact Resistance Test.
Explanation. NIL. http://www-materials.eng.cam.ac.uk/mpsite/properties/non-IE/toughness.html

Question Number. 10. Which of the folllowing are all hardness testing machines?.
Option A. Rockwell, Brinell and Izod.
Option B. Rockwell, Vickers and Izod.
Option C. Rockwell, Brinell and Vickers.
Correct Answer is. Rockwell, Brinell and Vickers.
Explanation. Standard Aviation Maintenance Handbook Page 4-11.

02a. Aircraft Materials - Non-Ferrous.

Question Number. 1. The most suitable mixture for a salt bath operation is.
Option A. 20% nitrate of soda and 80% sodium nitrate.
Option B. 90% nitrate of soda and 10% sodium nitrate.
Option C. 70% sodium chlorate and 30% sodium nitrate.
Correct Answer is. 90% nitrate of soda and 10% sodium nitrate.
Explanation. BL/9-1 12.

Question Number. 2. How many times can clad alloy be heat treated?.
Option A. Once only.
Option B. 3 times.
Option C. as many times as required.
Correct Answer is. 3 times.
Explanation. NIL.

Question Number. 3. The symbol 'W' on a material indicates.
Option A. it is for use on aircraft mainplanes only.
Option B. it has been solution treated and will respond effectively to precipitation treatment.
Option C. it is for workshop use only.
Correct Answer is. it has been solution treated and will respond effectively to precipitation
treatment.
Explanation. NIL.

Question Number. 4. For a particular metal material, what conditions are best to minimize creep?.
Option A. Low stress, low temperature.
Option B. Low stress, high temperature.
Option C. High stress, low temperature.
Correct Answer is. Low stress, low temperature.
Explanation. NIL.

Question Number. 5. What is the effect of precipitation heat treatment on aluminum?.
Option A. It speeds up age hardening process.
Option B. It delays the age hardening process.
Option C. It softens the material to allow it to be worked.
Correct Answer is. It speeds up age hardening process.
Explanation. NIL.

Question Number. 6. Aluminum exposed to air will.
Option A. oxidise and become weaker.
Option B. oxidise and become electrically insulated.
Option C. oxidise and become stronger.
Correct Answer is. oxidise and become electrically insulated.
Explanation. Oxides of all metals are insulators.

Question Number. 7. What care should you take with 2024-T3?.
Option A. Do not scratch or make nicks in it.
Option B. Do not bend at sharp angles.
Option C. Do not remove the surface of the sheet metal.

Correct Answer is. Do not scratch or make nicks in it.
Explanation. 2024-T3 has a low fatigue resistance.

Question Number. 8. Composition of silver solder is.
Option A. tin and lead.
Option B. tin, lead and silver.
Option C. tin, lead, silver and antimony.
Correct Answer is. tin, lead, silver and antimony.
Explanation. BL/6-1 Table 3.

Question Number. 9. If aluminum alloy is not quenched within the minimum time allowed after heat treatment is it will be.
Option A. subject to corrosion.
Option B. malleable.
Option C. brittle.
Correct Answer is. brittle.
Explanation. If al. alloy is not quenched, the copper precipitates and it remains hard and brittle.

Question Number. 10. Anodizing protects alloy metal from corrosion and does what else?.
Option A. Seals the surface from moisture.
Option B. Makes a good surface for paint to adhere to.
Option C. Makes the surface alkaline.
Correct Answer is. Makes a good surface for paint to adhere to.
Explanation. NIL.

Question Number. 11. If caustic soda turns a material black what is it?.
Option A. Aluminum alloy.
Option B. Alclad.
Option C. Aluminum .
Correct Answer is. Aluminum alloy.
Explanation. Caustic soda turns al.alloy black, and pure aluminum white.

Question Number. 12. What chemical is used to identify aluminum alloys?.
Option A. Caustic soda.

Option B. Copper sulphate.
Option C. Nitric acid.
Correct Answer is. Caustic soda.
Explanation. Caustic soda turns al.alloy black, and pure aluminum white.

Question Number. 13. Pure aluminum is.
Option A. highly resistant to corrosion.
Option B. not resistant to corrosion.
Option C. reasonably resistant to corrosion.
Correct Answer is. highly resistant to corrosion.
Explanation. Pure aluminum is highly resistant to corrosion.

Question Number. 14. Precipitation treating makes the metal.
Option A. Precipitation treating makes the metal.
Option B. less strong and hard.
Option C. harder, stronger and less ductile.
Correct Answer is. harder, stronger and less ductile.
Explanation. NIL.

Question Number. 15. A material has the code 2024 -TH6 on it. Which part of the code indicates the percentage of the alloying element?.
Option A. H.
Option B. 20.
Option C. 6.
Correct Answer is. 20.
Explanation. NIL.

Question Number. 16. Aluminum alloyed primarily with magnesium is numbered.
Option A. 2025.
Option B. 5025.
Option C. 1025.
Correct Answer is. 5025.
Explanation. NIL.

Question Number. 17. Heat treatment is shown on a British aluminum alloy by a.

Option A. letter and number code.
Option B. number code.
Option C. letter code
Correct Answer is. letter code
Explanation. BL/9-1 16.2.

Question Number. 18. Non heat treatable materials.
Option A. cannot be hardened.
Option B. can be hardened by strain hardening or cold working.
Option C. can be hardened by annealing.
Correct Answer is. can be hardened by strain hardening or cold working.
Explanation. All materials but a few (eg lead) can be hardened by cold working.

Question Number. 19. Which of the following metals is an aluminum silicon alloy used mainlyfor casting?.
Option A. Alclad.
Option B. Aldrey.
Option C. Alpax.
Correct Answer is. Alpax.
Explanation. Trade name for material used mainly for castings. Low density and corrosion resistance.87 % Aluminum 13 % Silicon. http://www.glue-it.com/model-engineering/general-information/glossary/a_summ.htm

Question Number. 20. Aircraft skin is joggled to.
Option A. provide smooth airflow at faying surfaces.
Option B. make a frame lighter but stronger.
Option C. conform to the aircraft contour.
Correct Answer is. provide smooth airflow at faying surfaces.
Explanation. A joggle makes a flush surface at a join.

Question Number. 21. The British system of heat treatment codes is.
Option A. a series of letters.
Option B. numbers and letters.
Option C. a series of numbers.
Correct Answer is. a series of letters.

Explanation. CAIP BL/9-1.

Question Number. 22. In a sheet metal store the following is marked on a sheet of aluminum alloy: L162 (sheet 1). , On a different sheet the following marking is found: L172 (sheet 2). The following is true:
Option A. Sheet one has a shinier surface than sheet 2.
Option B. Sheet one is more ductile than sheet 2.
Option C. Sheet two is of a thicker gauge than sheet 1.
Correct Answer is. Sheet one is more ductile than sheet 2.
Explanation. The L numbers are the British al. alloy specs.

Question Number. 23. Cold working of a material is used to reduce.
Option A. material hardness.
Option B. fatigue.
Option C. wear of manufacturing tools.
Correct Answer is. wear of manufacturing tools.
Explanation. Cold working increases strength and hardness (therefore reduces wear).

Question Number. 24. Sheet metal should be stored.
Option A. above 25 degrees centigrade.
Option B. on its edge in racks to prevent scratching.
Option C. stacked flat to prevent bending of sheets.
Correct Answer is. on its edge in racks to prevent scratching.
Explanation. CAAIPs Leaflet 1-8.

Question Number. 25. Clad aluminum alloy (alclad) has a pure aluminum coating of.
Option A. 0.002.
Option B. 1% of alloy thickness.
Option C. 5% of alloy thickness.
Correct Answer is. 5% of alloy thickness.
Explanation. The cladding is 5% each side.

Question Number. 26. The main metal in monel is.
Option A. aluminum.
Option B. nickel.

Option C. stainless steel.
Correct Answer is. nickel.
Explanation. Monel is a nickel alloy.

Question Number. 27. A tube complying to BS T51 is.
Option A. tungum.
Option B. HTS tube.
Option C. high pressure seamless copper tube.
Correct Answer is. high pressure seamless copper tube.
Explanation. BL/6-15 3.2.1 or download External document... page 28. http://www.dstan.mod.uk/data/05/069/00000300.pdf

Question Number. 28. Why is nickel chromium used in many exhaust systems?.
Option A. Corrosion resistant and high heat conductivity.
Option B. Lightweight and flexible.
Option C. Corrosion resistant and low expansion coefficient.
Correct Answer is. Corrosion resistant and low expansion coefficient.
Explanation. Nickel and chromium are the alloying elements in Stainless Steel.

Question Number. 29. Titanium alloys.
Option A. are cheap to manufacture.
Option B. have a high strength to weight ratio.
Option C. are corrosion resistant but heavy.
Correct Answer is. have a high strength to weight ratio.
Explanation. NIL.

Question Number. 30. Which part of the 2017- T36 aluminum alloy designation indicates the primary alloying agent used in its manufacture?.
Option A. 20.
Option B. 2.
Option C. 17.
Correct Answer is. 2.
Explanation. NIL.

Question Number. 31. Clad aluminum alloys are used in aircraft because they.
Option A. are harder wearing than unclad aluminum alloys.
Option B. are less subject to corrosion than uncoated aluminum alloys.
Option C. are stronger than unclad aluminum alloys.
Correct Answer is. are less subject to corrosion than uncoated aluminum alloys.
Explanation. NIL.

Question Number. 32. Non heat treatable aluminum alloys.
Option A. can be hardened by strain hardening.
Option B. cannot be softened.
Option C. cannot be hardened.
Correct Answer is. can be hardened by strain hardening.
Explanation. NIL.

Question Number. 33. Solution treatment after manufacturers have performed it once can becarried out a further.
Option A. 1 time.
Option B. 2 times.
Option C. 3 times.
Correct Answer is. 2 times.
Explanation. Solution treatment to Alclad can be carried out only 3 times in total. CAIPs BL/9-1. Rivets can be re-heat treated 3 times (so 4 times in total) BL/6-27 6.3.

Question Number. 34. Following solution treatment aluminum alloy can be placed into service.
Option A. after 5 days.
Option B. straight away.
Option C. after 24 hours.
Correct Answer is. after 5 days.
Explanation. Full hardness is achieved after 4-5 days. CAIPs BL/9- 1 Para 7.

Question Number. 35. The time between removal from heat treatment furnace and quenching must be not more than.
Option A. 3 seconds.

Option B. 10 seconds.
Option C. 7 seconds.
Correct Answer is. 10 seconds.
Explanation. Jeppesen A&P Technician Airframe Textbook Page 2-9.

Question Number. 36. When buffing surface of Aluminum Alloy, what material are you removing?.
Option A. Oxide layer.
Option B. Aluminum.
Option C. Alloy.
Correct Answer is. Oxide layer.
Explanation. Polishing al.alloy, pure al. or Alclad, you would be removing the oxide layer.

Question Number. 37. Why is clad alloy preferred to pure Aluminum ?.
Option A. Less brittle.
Option B. More ductile.
Option C. Tougher.
Correct Answer is. Tougher.
Explanation. The important factor is that clad aluminum alloy is 90% aluminum alloy. The fact that it is clad is irrelevant.

Question Number. 38. Why are aluminum alloys used on aircraft, instead of pure aluminum ?.
Option A. Stronger.
Option B. Corrosion resistant.
Option C. Lighter.
Correct Answer is. Stronger.
Explanation. NIL.

Question Number. 39. The magnesium alloys used in aircraft can be recognized
by.
Option A. shiny surface due to chromium plated on the surface.
Option B. yellowish surface due to protective treatment.
Option C. silver surface due to protective coating.
Correct Answer is. yellowish surface due to protective treatment.

Explanation. NIL.

Question Number. 40. Age hardening of aluminum is.
Option A. never carried out.
Option B. a gradual hardening over a period of time.
Option C. not necessary.
Correct Answer is. never carried out.
Explanation. Aluminum will not age harden like aluminum alloys such as dural as there ars no alloying elements such as copper that will come out of solution over time.

Question Number. 41. Alclad is.
Option A. aluminum with duralumin cladding.
Option B. duralumin with aluminum coating.
Option C. duralumin with magnesium cladding.
Correct Answer is. duralumin with aluminum coating.
Explanation. NIL.

Question Number. 42. The oxide film on the surface of aluminum is.
Option A. hard and porous.
Option B. porous.
Option C. non porous.
Correct Answer is. non porous.
Explanation. NIL.

Question Number. 43. The process of forming a pure layer of aluminum over an aluminum alloy is.
Option A. metalizing.
Option B. cladding.
Option C. electroplating.
Correct Answer is. cladding.
Explanation. NIL.

Question Number. 44. Titanium can be identified by placing it on a grinding wheel and lookingfor.
Option A. Red Sparks.
Option B. Yellow Sparks.

Option C. White Sparks.
Correct Answer is. White Sparks.
Explanation. NIL.

Question Number. 45. The critical process of heat treatment is.
Option A. temperature, method of heating and cooling.
Option B. temperature and method of heating only.
Option C. method of heating only.
Correct Answer is. temperature, method of heating and cooling.
Explanation. NIL.

Question Number. 46. Re-treatment of aluminum alloys can be performed by.
Option A. alocrom treatment.
Option B. brushing on phosphate treatment followed by paint.
Option C. selenious acid treatment.
Correct Answer is. alocrom treatment.
Explanation. NIL.

Question Number. 47. What is generally true for titanium alloy?.
Option A. It is stronger than the aluminum .
Option B. It is stronger than the steel.
Option C. It has lower density than magnesium.

Correct Answer is. It is stronger than the aluminum .
Explanation. NIL. http://www.geocities.com/pganio/materials.html

Question Number. 48. Malleable materials are.
Option A. easy to forge.
Option B. easy to cast.
Option C. highly ductile.
Correct Answer is. easy to forge.
Explanation. Malleability does not necessarily mean ductility.

Question Number. 49. If a material has to undergo deep cold forming operation. The essential property would be.
Option A. ductility.

Option B. malleability.
Option C. elasticity.
Correct Answer is. malleability.
Explanation. NIL.

Question Number. 50. The metal which must not be heated in a salt bath is.
Option A. magnesium alloy.
Option B. duralumin.
Option C. rivets made of alclad.
Correct Answer is. magnesium alloy.
Explanation. NIL.

Question Number. 51. The colour code on sheet metal indicates.
Option A. only the specification of the material.
Option B. the spec and gauge of the material.
Option C. that the material is from an approved source.
Correct Answer is. that the material is from an approved source. OR only the specification of thematerial.
Explanation. NIL.

Question Number. 52. When two or more metallic materials are fused together, the combination is known as.
Option A. a composite material.
Option B. a thermosetting compound.
Option C. an alloy.
Correct Answer is. an alloy.
Explanation. Fuse means 'to melt'.

Question Number. 53. Malleable materials are normally.
Option A. also highly ductile.
Option B. easy to cast.
Option C. easily forged.
Correct Answer is. easily forged.
Explanation. NIL.

Question Number. 54. The common bonding material for Tungsten Carbide is.
Option A. Invar.
Option B. Cobalt.
Option C. Silicon.
Correct Answer is. Cobalt.
Explanation. Cobalt is used to bond tungsten carbide to cutting tools.

Question Number. 55. Grain size will effect the mechanical properties of metal. Which of the following is true?.
Option A. Large grain size is attributed to slow cooling rates and will give less tensile strength.
Option B. Materials with large grain size are more prone to creep.
Option C. Small grain size is normally attributed to rapid cooling rates and will give less tensile strength.
Correct Answer is. Large grain size is attributed to slow cooling rates and will give less tensile strength.
Explanation. NIL.

Question Number. 56. The cracking of structural members under repeated stress lower than the ultimate tensile load is known as.
Option A. creep.
Option B. fatigue failure.
Option C. stress reversal.
Correct Answer is. fatigue failure.
Explanation. NIL.

Question Number. 57. A piece of duralumin has been annealed and bent into shape prior to fitting to an aircraft. Which of the following is correct? It must be.
Option A. fitted to the aircraft within 24 hours.
Option B. solution treated, precipitation treated and fitted to the aircraft within 2 hours.
Option C. solution treated prior to fitting to an aircraft.
Correct Answer is. solution treated, precipitation treated and fitted to the aircraft within 2 hours. OR solution treated prior to fitting to an aircraft.
Explanation. NIL.

Question Number. 58. A sheet of metal is designated 2024-T4. The code tells us that the material is a copper based aluminum alloy.
Option A. annealed and Naturally aged.
Option B. solution treated and naturally aged.
Option C. solution treated and artificially aged.
Correct Answer is. solution treated and naturally aged.
Explanation. NIL.
http://www.jjjtrain.com/vms/engineering_metal_stds.html

Question Number. 59. A metal is coded 1285 using the IADS coding method. This means the metal is.
Option A. 85% pure aluminum .
Option B. 99.85% pure aluminum .
Option C. a copper based aluminum alloy i.e. duralumin.
Correct Answer is. 99.85% pure aluminum .
Explanation. NIL.
http://www.jjjtrain.com/vms/engineering_metal_stds.html

Question Number. 60. A material containing approximately 66% nickel and 33% copper is known as.
Option A. Nimonic.
Option B. Monel metal.
Option C. Invar
Correct Answer is. Monel metal.
Explanation. NIL.

Question Number. 61. Monel metal consists of approximately.
Option A. 66% Chromium and 33% Copper.
Option B. 66% Copper and 33% Nickel.
Option C. 66% Nickel and 33% Copper.
Correct Answer is. 66% Chromium and 33% Copper.
Explanation. NIL. http://www.lenntech.com/Monel.htm

Question Number. 62. Silver solder is composed of the materials.
Option A. Copper, Tin and Silver.
Option B. Zinc, Lead and Silver.

Option C. Copper, Zinc and Silver.
Correct Answer is. Copper, Zinc and Silver.
Explanation. NIL. http://ajh-knives.com/soldering.html

Question Number. 63. The ease with which a material can be forged, rolled and extruded without fracture is an indication of a material's.
Option A. malleability.
Option B. ductility.
Option C. brittleness.
Correct Answer is. malleability.
Explanation. NIL.

Question Number. 64. What is fatigue?.
Option A. Cyclic stressing of a part.
Option B. Failure of a component due to corrosion.
Option C. Constant stressing of a part.
Correct Answer is. Cyclic stressing of a part.
Explanation. NIL.

Question Number. 65. Why is stop drilling carried out at the end of a crack?.
Option A. To change the direction of the crack.
Option B. To stop the crack from propagating.
Option C. To increase the stress concentration at the crack end.
Correct Answer is. To stop the crack from propagating.
Explanation. NIL.

Question Number. 66. Annealing of aluminum .
Option A. increases the tensile strength.
Option B. makes the material brittle.
Option C. removes stresses caused by forming.
Correct Answer is. removes stresses caused by forming.
Explanation. NIL.

02b. Aircraft Materials - Non-Ferrous.

Question Number. 1. In the Brinell hardness test, you would measure the

indentation's.
Option A. depth.
Option B. area.
Option C. diameter.
Correct Answer is. diameter.
Explanation. In a Brinell hardness test, the diameter of the indent is used to indicate the hardness.

Question Number. 2. The impact testing technique is used on a material to test
for.
Option A. hardness.
Option B. toughness.
Option C. shear strain.
Correct Answer is. toughness.
Explanation. The impact test machine measures resistance to impact (i.e. toughness). BL/10-3.

Question Number. 3. An S-N curve is useful in the design evaluation process for
testing.
Option A. fatigue life.
Option B. shear force.
Option C. tension.
Correct Answer is. fatigue life.
Explanation. An SN curve is to evaluate a material for fatigue. S=stress level N=number cycles to failure.

Question Number. 4. What is a fusible material?.
Option A. The ability of two dissimilar metals to melt together.
Option B. The ability of a metal to melt.
Option C. The ability of a metal to be welded.
Correct Answer is. The ability of a metal to melt.
Explanation. Fuse' simply means to melt.

Question Number. 5. Brittleness is.
Option A. the property to resist wear.

Option B. the property to not deform before cracking.
Option C. the property to resist deformation.
Correct Answer is. the property to not deform before cracking.
Explanation. NIL.

Question Number. 6. The proof stress of a material is the stress at which.
Option A. the material yields.
Option B. small amount of permanent set takes place.
Option C. necking of the material begins.
Correct Answer is. small amount of permanent set takes place.
Explanation. NIL.

Question Number. 7. Young's Modulus is a measure of.
Option A. strain.
Option B. stress.
Option C. stiffness.
Correct Answer is. stiffness.
Explanation. NIL.

Question Number. 8. Hooke's law states that, within the elastic region, elastic strain is.
Option A. indirectly proportional to stress.
Option B. directly proportional to stress.
Option C. directly opposite to stress.
Correct Answer is. directly proportional to stress.
Explanation. NIL.

Question Number. 9. The S.I. unit for strain is.
Option A. Nmm.
Option B. P.S.I.
Option C. no units.
Correct Answer is. no units.
Explanation. NIL.

Question Number. 10. The value of stress for a given material can be derived by.
Option A. Cross sectional area / Load.

Option B. Load * Cross sectional area.
Option C. Load / Cross sectional area.
Correct Answer is. Load / Cross sectional area.
Explanation. NIL.

Question Number. 11. A material's yield strength is the ability to.
Option A. withstand a crushing force.
Option B. resist side loads.
Option C. resist deformation.
Correct Answer is. resist deformation.
Explanation. NIL.

Question Number. 12. What type of a test involves stretching material until it
breaks?.
Option A. Fatigue Testing.
Option B. Hardness Testing.
Option C. Tensile Testing.
Correct Answer is. Tensile Testing.
Explanation. NIL. http://www-materials.eng.cam.ac.uk/mpsite/properties/non- IE/strength.html

03.1a. Aircraft Materials –
Composite and Non- Metallic other than wood and fabric.

Question Number. 1. Adhesives containing phenol-formaldehyde, to cure, requires.
Option A. room temperature.
Option B. high temperature.
Option C. low temperature.
Correct Answer is. high temperature.
Explanation. NIL.

Question Number. 2. Two parts of the adhesive process are.
Option A. wetting and gripping.
Option B. spreading and setting.
Option C. wetting and setting.

Correct Answer is. wetting and setting.
Explanation. NIL.

Question Number. 3. Types of adhesive joints are.
Option A. mechanical and cemented.
Option B. cemented and specific.
Option C. mechanical and specific.
Correct Answer is. mechanical and specific.
Explanation. NIL.

Question Number. 4. What material would be used where a high temperature application is
required, e.g. a firewall?.
Option A. Aramid (Kevlar) fibers.
Option B. Carbon/graphite fibers.
Option C. Ceramic fibers.
Correct Answer is. Ceramic fibers.
Explanation. Ceramic composites retain their strength at high temperatures.

Question Number. 5. Over extended honeycomb can bend in which direction?.
Option A. In all directions.
Option B. Across the ribbon.
Option C. Along the ribbon.
Correct Answer is. Along the ribbon.
Explanation. NIL.

Question Number. 6. Fiber weave strength is greatest in the direction of the.
Option A. weft.
Option B. warp.
Option C. bias.
Correct Answer is. warp.
Explanation. See Jeppesen Advanced Composites.

Question Number. 7. What is Alumina?.

Option A. An alloy of aluminum .
Option B. Aluminum ore.
Option C. A ceramic oxide of aluminum .
Correct Answer is. A ceramic oxide of aluminum .
Explanation. Alumina ia aluminum oxide - a ceramic.

Question Number. 8. Which of these core materials will be used in the making of a composite material flat panel?.
Option A. Hexagonal core.
Option B. Rectangular core.
Option C. Flexible core.
Correct Answer is. Hexagonal core.
Explanation. NIL.

Question Number. 9. Which of the following could best be manufactured from Perspex panel?.
Option A. A passenger window.
Option B. A radome.
Option C. A cockpit windscreen.
Correct Answer is. A passenger window.
Explanation. NIL.

Question Number. 10. Kevlar and Nomex are types of.
Option A. glass fiber composite.
Option B. advanced composite.
Option C. aluminum alloy.
Correct Answer is. advanced composite.
Explanation. Kevlar and Nomex are Aramid materials.

Question Number. 11. Strength of fiberglass is.
Option A. either direction.
Option B. along the fiber.
Option C. across the fiber.
Correct Answer is. along the fiber.
Explanation. NIL.

Question Number. 12. A composite flap panel has structural damage. What NDT method willyou use to detect?.
Option A. High voltage x-ray.
Option B. Low voltage x-ray.
Option C. Coin tap test.
Correct Answer is. Coin tap test.
Explanation. NIL.

Question Number. 13. Sound is best absorbed by a material which is.
Option A. dense.
Option B. soft and porous.
Option C. hard.
Correct Answer is. soft and porous.
Explanation. Cellular' materials make good sound insulation. Sound is unaffected by density, nor hardness.

Question Number. 14. The maximum tensile strength of fiber reinforced plastic is achieved using.
Option A. fibers uniformly distributed at 45 degrees to each other.
Option B. unidirectional fibers.
Option C. chopped strand mat.
Correct Answer is. unidirectional fibers.
Explanation. NIL.

Question Number. 15. Polyester resin and glass fiber cloth, becomes.
Option A. PTFE.
Option B. PVC.
Option C. GRP.
Correct Answer is. GRP.
Explanation. NIL.

Question Number. 16. A thermoplastic can be.
Option A. heated and formed only once.
Option B. is not affected by even low temperatures.
Option C. can be reheated and reformed more than once.
Correct Answer is. can be reheated and reformed more than once.
Explanation. NIL.

Question Number. 17. An impact adhesive is part of the.
Option A. thermoplastic group.
Option B. thermoset group.
Option C. Anaerobic resin group.
Correct Answer is. thermoplastic group.
Explanation. NIL.

Question Number. 18. Sandwich panels made of metal honeycomb construction are used on modern aircraft because this type of construction.
Option A. may be repaired by gluing replacement skin to the inner core material with
thermoplastic resin.
Option B. is lighter than single sheet skin of the same strength and is more corrosion
resistant.
Option C. has a high strength to weight ratio.
Correct Answer is. is lighter than single sheet skin of the same strength and is more corrosion resistant.
Explanation. NIL.

Question Number. 19. A category of plastic material that is capable of softening or flowing when reheated is described as a.
Option A. thermoset.
Option B. thermoplastic.
Option C. thermocure.
Correct Answer is. thermoplastic.
Explanation. NIL.

Question Number. 20. The classification of high tensile strength fiberglass used in aircraft structures is.
Option A. G-glass.
Option B. E-glass.
Option C. S-glass.

Correct Answer is. S-glass.
Explanation. NIL.

Question Number. 21. Which is the identifying characteristic of acrylic plastics?.
Option A. Acetone will soften the plastic, but will not change its colour.
Option B. Has a yellowish tint when viewed from the edge.
Option C. Zinc chloride will have no effect.
Correct Answer is. Zinc chloride will have no effect.
Explanation. NIL.

Question Number. 22. The classification for fiberglass reinforcement material that is high resistivity and the most common is.
Option A. E-glass.
Option B. S-glass.
Option C. G-glass.
Correct Answer is. E-glass.
Explanation. NIL.

Question Number. 23. Composite fabric material is considered to be the strongest in what direction?.
Option A. Warp.
Option B. Bias.
Option C. Weft.
Correct Answer is. Warp.
Explanation. NIL.
Question Number. 24. Which of the following are generally characteristic of aramid fiber (Kevlar) composites?.
Option A. High tensile strength and flexibility.
Option B. Flexibility, stiffness and corrosive effect in contact with aluminum .
Option C. High tensile strength, stiffness and ability to conduct electricity.
Correct Answer is. High tensile strength, stiffness and ability to conduct electricity. OR High tensile strength and flexibility.
Explanation. NIL.

Question Number. 25. Which of the following are generally characteristic of carbon/graphite fiber composites?.
Option A. Flexibility, High compressive strength and ability to conduct electricity.
Option B. Flexibility and high compressive strength.
Option C. Stiffness, high compressive strength and corrosive effect in contact with aluminum .
Correct Answer is. Stiffness, high compressive strength and corrosive effect in contact with aluminum .
Explanation. NIL.

Question Number. 26. Which of the following statements is true about thermosetting plastics?.
Option A. They are also known as Teflon.
Option B. Once moulded into shape they become set and cannot subsequently be softened by reheating.
Option C. They become plastic when heat is applied.
Correct Answer is. Once molded into shape they become set and cannot subsequently be softened by reheating.
Explanation. NIL.

03.1b. Aircraft Materials –
Composite and Non- Metallic other than wood and fabric.

Question Number. 1. Which of the following is susceptible to the ingress of moisture?.
Option A. Glass fiber.
Option B. Carbon fiber.
Option C. Kevlar.
Correct Answer is. Kevlar.
Explanation. NIL.

Question Number. 2. What tests are done on adhesive joints?.
Option A. Shear and peel.
Option B. Impact and peel.
Option C. Impact and shear.
Correct Answer is. Shear and peel.

Explanation. NIL.

Question Number. 3. When using a hot bonder to effect a composite repair, you
use.
Option A. inorganic resin adhesives.
Option B. organic resin adhesives.
Option C. synthetic resin adhesives.
Correct Answer is. synthetic resin adhesives.
Explanation. NIL.

Question Number. 4. In a composite repair lay-up, how much should each layer extend beyond the layer below it?.
Option A. 3 - 4 inches.
Option B. 1 - 2 inches.
Option C. 2 - 3 inches.
Correct Answer is. 1 - 2 inches.
Explanation. FAA AC43 Page 3-5.

Question Number. 5. What is the effect of heat on a cold cure resin?.
Option A. No effect on pot life.
Option B. Decrease pot life.
Option C. Increase pot life.
Correct Answer is. Decrease pot life.
Explanation. NIL.

Question Number. 6. If you increase the amount of catalyst in a resin mixture,.
Option A. the material will become stronger.
Option B. the material will become weaker.
Option C. the pot life will be decreased.
Correct Answer is. the pot life will be decreased.
Explanation. NIL.

Question Number. 7. What two components of a three part polyester resin are dangerous to
mix together directly?.

Option A. Accelerator and free catalyst.
Option B. Catalyst and resin.
Option C. Accelerator and resin.
Correct Answer is. Accelerator and free catalyst.
Explanation. CAIP AL/7-6 page 2 para 4.

Question Number. 8. What is the effect of adding too much hardener to a resin?.
Option A. No effect.
Option B. Makes the repair more brittle.
Option C. The resin will not harden.
Correct Answer is. Makes the repair more brittle.
Explanation. NIL.

Question Number. 9. What is the largest hole in honeycomb repairable with
micro balloons?.
Option A. 2.54 inches.
Option B. 2.54 mm.
Option C. 2.54 cm.
Correct Answer is. 2.54 cm.
Explanation. Answer is 1 inch.

Question Number. 10. An air driven router is used to remove honeycomb material for
repairs.
Option A. when one outer skin is damaged.
Option B. to stainless steel honeycomb only.
Option C. when both outer skins are damaged.
Correct Answer is. when one outer skin is damaged.
Explanation. NIL.

Question Number. 11. Where would you use a Templestick?.
Option A. For the boundary marking of a composite repair.

Option B. To indicate temperature when a repaired composite item is cured with heat lamps.
Option C. As a temporary repair in a glass fiber internal.
Correct Answer is. To indicate temperature when a repaired composite item is cured with headlamps.
Explanation. NIL.

Question Number. 12. The vacuum connections on a fiberglass repair must be placed onto the.
Option A. top layer of glass fabric directly.
Option B. breather mat.
Option C. peel ply.
Correct Answer is. breather mat.
Explanation. The breather mat allows the air to flow from the repair.

Question Number. 13. What do you do if you forget to add hardener to a composite repair?.
Option A. Add hardener at the edges and it will cure.
Option B. It will cure eventually anyway.
Option C. Remove all resin and start again.
Correct Answer is. Remove all resin and start again.
Explanation. NIL.

Question Number. 14. Why would you use micro balloons as a filler?.
Option A. It is the lightest filler material.
Option B. It is the cheapest filler material.
Option C. It cross-links with the panel.
Correct Answer is. It is the lightest filler material.
Explanation. Micro balloons is the lightest filler material.

Question Number. 15. When using a backing former on a composite repair you need to use.
Option A. a vacuum bag.
Option B. cellophane.
Option C. breather cloth.
Correct Answer is. cellophane.
Explanation. See Jeppesen Advanced Composites.

Question Number. 16. Heater mats should overlap the repair by.
Option A. 4 inches.
Option B. 6 inches.
Option C. 2 inches.
Correct Answer is. 2 inches.
Explanation. See Jeppesen Advanced Composites.

Question Number. 17. A thermoplastic fiber reinforced composite is prepared by.
Option A. a solvent wipe.
Option B. corona method.
Option C. etching.
Correct Answer is. corona method.
Explanation. Corona method is used to prepare a thermoplastic material. http://www.bondmaster.com/surfacePrep.asp

Question Number. 18. During vacuum bag lay-up the vacuum gauge is placed
where?.
Option A. Next to the vacuum port.
Option B. Opposite side to the vacuum port.
Option C. Over the repair.
Correct Answer is. Opposite side to the vacuum port.
Explanation. Although the vacuum gauge can be placed anywhere, the easiest being on the same side as the vacuum nozzle, the most logical answer (and probably the one the CAA want) is opposite side of the repair to the nozzle. See Jeppesen Advanced Composites shows a diagram with it opposite side (fig 7-4) and one showing it combined with the vacuum nozzle (fig 7-6).

Question Number. 19. Stepped curing has.
Option A. 2 or more arrest points.
Option B. no arrest point.
Option C. 1 arrest point.
Correct Answer is. 2 or more arrest points.

Explanation. See Jeppesen Advanced Composites (dwell time = soak time = arrest point). Or A&P Technician Airframe Textbook.

Question Number. 20. Maximum repair dimensions for use of micro balloons is.
Option A. 10mm.
Option B. 20mm.
Option C. 30mm.
Correct Answer is. 10mm.
Explanation. Maximum repair with micro balloons is approximately 3/8 inch - closest here is 10 mm. AL/7- 6 7.4.

Question Number. 21. In an autoclave what pressure would the vacuum alarm be set at?.
Option A. Operating pressure.
Option B. Higher than operating pressure.
Option C. Lower than operating pressure.
Correct Answer is. Lower than operating pressure.
Explanation. An autoclave uses pressure, so the alarm must sound if the pressure drops below normal.

Question Number. 22. In an autoclave what would you cover the repair in?.
Option A. High temp nylon.
Option B. Polypropylene.
Option C. Polythene.
Correct Answer is. High temp nylon.
Explanation. See Jeppesen Advanced Composites.

Question Number. 23. When mixing resin it is dangerous to add.
Option A. accelerator and catalyst before resin.
Option B. catalyst and resin before accelerator.
Option C. resin and accelerator before catalyst.
Correct Answer is. accelerator and catalyst before resin.
Explanation. AL/7- 6 4.

Question Number. 24. In an autoclave, to apply pressure.

Option A. a vacuum bag is used.
Option B. weights are used.
Option C. clamps are used.
Correct Answer is. a vacuum bag is used.
Explanation. See Jeppesen Advanced Composites.

Question Number. 25. What does MSDS stand for?.
Option A. Metal Surface Dimension Sector.
Option B. Material Safety Data Sheet.
Option C. Maximum Structural Design System.
Correct Answer is. Material Safety Data Sheet.
Explanation. MSDS - Material Safety Data Sheet.

Question Number. 26. Honeycomb for repair can be removed with.
Option A. a drill.
Option B. locally manufactured concave knife.
Option C. a router.
Correct Answer is. a router.
Explanation. CAIPs AL/7-6.

Question Number. 27. The pot life of a cold cured resin.
Option A. is not reliant upon temperature fluctuations.
Option B. decreases with an increase in temperature.
Option C. increases with increase of temperature.
Correct Answer is. decreases with an increase in temperature.
Explanation. CAIPs AL/7-6.

Question Number. 28. Thermosetting adhesive, during their curing cycle give off.
Option A. static radiation.
Option B. heat.
Option C. carbon monoxide.
Correct Answer is. heat.
Explanation. plastics (or adhesives) require heat to make them cure. The heat can be applied externally (endothermic) or created internally by a catalyst or hardener (exothermic). The latter gives off heat.

Question Number. 29. The effect of a lower temperature than ambient during the curing period of a resin, will cause the curing time to.
Option A. decrease.
Option B. increase.
Option C. remain unchanged.
Correct Answer is. increase.
Explanation. A colder temperature will cause a resin to take longer to cure. AL/7-6 4.3.

Question Number. 30. What is used as the base covering on a honeycomb repair?.
Option A. Glass cloth or thin aluminum sheet.
Option B. Thick aluminum sheet.
Option C. Plywood.
Correct Answer is. Glass cloth or thin aluminum sheet.
Explanation. Most correct answer for a repair to a honeycomb sandwhich structure. AL/7-6 7.5.5.

Question Number. 31. When drilling a carbon fiber reinforced plastic use.
Option A. a steel drill and carbarundum powder.
Option B. a tungsten drill with a pointed tip.
Option C. a tungsten carbide drill.
Correct Answer is. a tungsten carbide drill.
Explanation. Airbus A340 SRM - states Carbide or Carbide tipped drill for composite materials.

Question Number. 32. When laying up a glass fiber repair, the extra layer of fiber is.
Option A. a sacrificial layer for sanding.
Option B. for extra strength.
Option C. for shrinkage.
Correct Answer is. for extra strength.
Explanation. AC43 3-3(3) page 3-4.

Question Number. 33. Bubbles are removed from a wet composite lay- up by.
Option A. application of pressure.

Option B. use of a roller.
Option C. application of vacuum.
Correct Answer is. use of a roller.
Explanation. Bubbles (large ones anyway) are removed with a roller.

Question Number. 34. Use of excessive hardener in polyester resin leads to.
Option A. a less stiff joint.
Option B. reduced pot life.
Option C. stiffer joint.
Correct Answer is. reduced pot life.
Explanation. Too much hardener will greatly reduce pot life as well as make the polyester brittle.

Question Number. 35. When the temperature increases on a hot bond repair is paused it is known as.
Option A. arrest point.
Option B. ramping down.
Option C. ramping up.
Correct Answer is. arrest point.
Explanation. Ramp-up' and 'ramp-down' refer to the heating and cooling rates (in °C per minute).When the heating is paused it is called 'hold' or 'soak' at the 'arrest point'.

Question Number. 36. Slight waviness on a fiber composite structure.
Option A. may cause fatigue crack eventually.
Option B. may be tolerable if lightly loaded.
Option C. could be reinforce with additional plies over the weakened area.
Correct Answer is. may be tolerable if lightly loaded.
Explanation. NIL.

Question Number. 37. The maximum length of time a component is held in stores is known as the.
Option A. package life.
Option B. storage life.
Option C. shelf life.
Correct Answer is. shelf life.

Explanation. NIL.

Question Number. 38. On a pre-preg composite.
Option A. life can be extended by 12 months if stored below 10 °C.
Option B. life can be extended by 12 months if stored above 40 °C.
Option C. no life extension is allowed, it must be used immediately.
Correct Answer is. life can be extended by 12 months if stored above 40 °C.
Explanation. NIL.

Question Number. 39. Hot bond composite pane has a crack. When it reaches the ribbon it will.
Option A. carry on along the ribbon.
Option B. have no effect on its direction.
Option C. stop.
Correct Answer is. stop.
Explanation. NIL.
Question Number. 40. In an autoclave the air is removed by.
Option A. pressure.
Option B. roller.
Option C. vacuum.
Correct Answer is. vacuum.
Explanation. Air is removed by vacuum whether an autoclave is used or not.

Question Number. 41. What is the separation of an aramid panel layers described as?.
Option A. Delamination.
Option B. Debonding.
Option C. Detachment.
Correct Answer is. Delamination.
Explanation. NIL.

Question Number. 42. Tap testing a sandwich panel construction.
Option A. is not an approved method of testing.
Option B. will not give very reliable results.
Option C. is crude, but works remarkably well.

Correct Answer is. is crude, but works remarkably well.
Explanation. NIL.

Question Number. 43. Which product is a serious health hazard when handling?.
Option A. Ceramic.
Option B. Asbestos.
Option C. Glass fiber.
Correct Answer is. Asbestos.
Explanation. NIL.

Question Number. 44. Aircraft transparent plastics are cleaned using.
Option A. warm soapy water, rinsed and dried.
Option B. paraffin and soft cotton pad.
Option C. clean dry soft leather.
Correct Answer is. warm soapy water, rinsed and dried.
Explanation. AL/7- 4 6.1.

Question Number. 45. A thermosetting adhesive. Option
Option A. will be resistant to heat.
Option B. can be re-formed when hot.
Option C. undergoes a chemical transformation and creates an insoluble substance. Correct
Correct Answer is. undergoes a chemical transformation and creates an insoluble substance.
Explanation. NIL.

Question Number. 46. Metal fasteners used with carbon/graphite composite
structures.
Option A. must be made of materials suh as titanium or corrosion resistant steel.
Option B. must be made of high strength aluminum alloy.
Option C. may be made of any of the metals commonly used in aircraft fasteners.
Correct Answer is. must be made of materials such as titanium or corrosion resistant steel.

Explanation. NIL.

Question Number. 47. Which methods can be used to inspect fiberglass/honeycomb structures for entrapped water?.
Option A. Acoustic emission and X-ray.
Option B. X-ray and back-lighting.
Option C. Acoustic emission and back-lighting.
Correct Answer is. X-ray and back-lighting.
Explanation. Acoustic emission will detect corrosion only.

Question Number. 48. When balsa wood is used to replace a damaged honeycomb core, the plug should be cut so that.
Option A. it is about 1/8 inch undersize to allow sufficient bonding material to be applied.
Option B. the grain is parallel to the skin.
Option C. the grain is perpendicular to the skin.
Correct Answer is. the grain is perpendicular to the skin.
Explanation. NIL.

Question Number. 49. When repairing puncture-type damage of a metal faced laminated honeycomb panel, the edges of the doubler should be tapered to.
Option A. whatever is desired for a neat clean appearance.
Option B. two times the thickness of the metal.
Option C. 100 times the thickness of the metal.
Correct Answer is. 100 times the thickness of the metal.
Explanation. NIL.

Question Number. 50. One of the best ways to assure that a properly prepared batch of matrix resin has been achieved is to.
Option A. test the viscosity of the resin immediately after mixing.
Option B. have mixed enough for a test sample.
Option C. perform a chemical composition analysis.
Correct Answer is. have mixed enough for a test sample.
Explanation. NIL.

Question Number. 51. Composite inspections by means of acoustic emissions
monitoring.
Option A. analyse ultrasonic signals transmitted into the parts being inspected.
Option B. create sonogram pictures of the areas being inspected.
Option C. pick up the 'noise' of corrosion or other deterioration taking place.
Correct Answer is. create sonogram pictures of the areas being inspected. OR pick up the 'noise' of corrosion or other deterioration taking place.
Explanation. NIL.

Question Number. 52. Which of the following are advantages of using micro balloons in repairs to laminate honeycomb sandwich panels?.
Option A. Greater concentrations of resin in edges and corners, improved strength to weight ratio, less density, lower stress concentrations.
Option B. Less density, lower stress concentrations.
Option C. Improved strength to weight ratio, less density, lower stress.
Correct Answer is. Less density, lower stress concentrations.
Explanation. NIL.

Question Number. 53. The length and time that a catalyzed resin will remain in a workable state is called the.
Option A. shelf life.
Option B. service life.
Option C. pot life.
Correct Answer is. pot life.
Explanation. CAIP AL/7-6 para 4.2.

Question Number. 54. One method of inspecting a laminated fiberglass structure that has been subjected to damage is.
Option A. strip the damaged area of all paint and shine a strong light through the structure.
Option B. use an eddy current probe on both sides of the damaged area.
Option C. use dye-penetrant inspection procedures, exposing the entire damaged area to the penetrant solution.

Correct Answer is. strip the damaged area of all paint and shine a strong light through the structure.
Explanation. NIL.

Question Number. 55. When inspecting a composite panel using the ring test/tapping method,a dull thud may indicate.
Option A. an area of too much matrix between the fibers.
Option B. less than full strength curing of the matrix.
Option C. separation of the laminates.
Correct Answer is. separation of the laminates.
Explanation. NIL.

Question Number. 56. Superficial scars, scratches, surface abrasion, or rain erosion on fiberglass laminates can generally be repaired by applying.
Option A. one or more coats of suitable resin (room-temperature catalyzed) to the surface.
Option B. a sheet of polyethylene over the abraded surface and one or more coats of resin curedwith infrared heat lamps.
Option C. a piece of resin-impregnated glass fabric facing.
Correct Answer is. a sheet of polyethylene over the abraded surface and one or more coats of resincured with infrared heat lamps. OR one or more coats of suitable resin (room-temperature catalyzed)tothe surface.
Explanation.CAIP AL/7-6 para 7.2 a-d.

Question Number. 57. A potted compound repair on honeycomb can usually be made on damages less than.
Option A. 4 inches in diameter.
Option B. 2 inches in diameter.
Option C. 1 inch in diameter.

Correct Answer is. 1 inch in diameter.
Explanation. NIL.

Question Number. 58. What reference tool is used to determine how the fiber is to be oriented for a particular ply or fabric?.
Option A. Bias clock.
Option B. Weft clock.

Option C. Warp clock.
Correct Answer is. Warp clock.
Explanation. NIL.

Question Number. 59. The strength and stiffness of a properly constructed composite lay-up
depends primarily on.
Option A. the ability of the fibers to transfer stress to the matrix.
Option B. a 60% matrix to 40% fiber ratio.
Option C. the orientation of the plies to the load direction.
Correct Answer is. the orientation of the plies to the load direction.
Explanation. NIL.

Question Number. 60. Which fiber to resin (%) ratio for advanced composite wet lay-ups is generally considered the best?.
Option A. 60:40.
Option B. 50:50.
Option C. 40:60.
Correct Answer is. 40:60.
Explanation. NIL.

Question Number. 61. What is the material layer used within the vacuum bag pressure system to absorb excess resin during curing called?.
Option A. Breather.
Option B. Bleeder.
Option C. Release.
Correct Answer is. Bleeder.
Explanation. NIL.

Question Number. 62. When necessary, what type of cutting fluid is usually acceptable for
machining composite laminates?.
Option A. Water soluble oil.
Option B. Water only.
Option C. Water displacing oil.
Correct Answer is. Water only.
Explanation. NIL.

Question Number. 63. Fiberglass laminate damage not exceeding the first layer or ply can be repaired by.
Option A. filling with putty consisting of compatible resin and clean, short glass fibers.
Option B. sanding the damaged are until aerodynamically smooth.
Option C. trimming the rough adges and sealing with paint.
Correct Answer is. sanding the damaged are until aerodynamically smooth. OR filling with putty consisting of compatible resin and clean, short glass fibers.
Explanation. NIL.

Question Number. 64. Fiberglass damage that extends completely through a laminated sandwich structure.
Option A. may be filled with resin to eliminate dangerous stress concentrations.
Option B. must be repaired.
Option C. may be filled with putty which is compatible with the resin.
Correct Answer is. must be repaired.
Explanation. AC43 - must be repaired using a stepped-joint or scarfed repair.

Question Number. 65. Fiberglass laminate damage that extends completely through one facing and into the core.
Option A. can be repaired by using a typical facing patch.
Option B. requires replacement of the damaged core and facing.
Option C. cannot be repaired.
Correct Answer is. requires replacement of the damaged core and facing.
Explanation. AC43.

Question Number. 66. Which of the following, when added to wet resins, provide strength
forth repair of damaged fastener holes in composite panels?.
Option A. micro balloons, cotton flock and chopped fibers.
Option B. Cotton flock and chopped fibers.
Option C. Micro balloons and chopped fibers.
Correct Answer is. Cotton flock and chopped fibers.

Explanation. NIL.

Question Number. 67. The part of a replacement honeycomb core that must line up with the adjacent original is the.
Option A. cell edge.
Option B. cell side.
Option C. ribbon direction.
Correct Answer is. ribbon direction.
Explanation. NIL.

Question Number. 68. Which of the following is the definition of cure time?.
Option A. The period after which the surface of the compound no longer exhibits adhesive
properties.
Option B. The time required for the mixed compound to reach an initial rubbery state.
Option C. The time taken for the mixed compound to reach a final rubbery state.
Correct Answer is. The time required for the mixed compound to reach an initial rubbery state. OR The period after which the surface of the compound no longer exhibits adhesive properties.
Explanation. NIL.

Question Number. 69. In order to prevent dermatitis caused due to contact with polymer resin, one should.
Option A. avoid inhaling fumes.
Option B. remember to close the autoclave door during curing.
Option C. use disposable gloves or barrier cream.
Correct Answer is. remember to close the autoclave door during curing. OR use disposable gloves orbarrier cream.
Explanation.

03.2. Aircraft Materials - Wooden Structures.

Question Number. 1. With what would you check the bonded joints of a wooden aircraft structure?.

Option A. A feeler gauge.
Option B. A plastic strip.
Option C. A screwdriver.
Correct Answer is. A feeler gauge.
Explanation. AC43 Chapter 1 Section 3 Para 1- 29.,CAAIPs Leaflet 6-1 Figure 3.

Question Number. 2. What is an open assembly time?.
Option A. The time elapsing between the application of the adhesive and the assembly of the joint components.
Option B. The time between the adhesive being applied to the joint surfaces and their assembly.
Option C. The time elapsed from the adhesive being applied to the joint surfaces to them being clamped.
Correct Answer is. The time between the adhesive being applied to the joint surfaces and their assembly. OR The time elapsing between the application of the adhesive and the assembly of the joint components.
Explanation.

Question Number. 3. The defects not allowed at all on wooden structures are.
Option A. mineral streaks.
Option B. pitch pockets.
Option C. checks, shakes and splits.
Correct Answer is. checks, shakes and splits.
Explanation. A&P Technician Airframe Textbook 3-5.

Question Number. 4. The basic structure of an aircraft made of wood can be.
Option A. monocoque.
Option B. non-monocoque.
Option C. non-monocoque, monocoque, semi-monocoque.
Correct Answer is. non-monocoque, monocoque, semi-monocoque.
Explanation. NIL.

Question Number. 5. When a full inspection for corosion is to be carried out on a wooden CAAIPs Leaflet 2-4Page 7.CAIP AL/7-6para 4.aircraft you would.
Option A. Bring the aircraft into the hangar for 2 to 3 days prior to the inspection.
Option B. Jack and trestle the aircraft to the rigging position.
Option C. Remove all the fabric/cloth prior to inspection.
Correct Answer is. Remove all the fabric/cloth prior to inspection.
Explanation. AC43 Para 1-29.

Question Number. 6. For fungus to cause wood decay in a wood structure, the moisture content in the wood must be at least.
Option A. 20%.
Option B. 85%.
Option C. 5%.

Correct Answer is. 20%.
Explanation. AC43 Para 1-28 a.

Question Number. 7. The normal moisture content in the wood of a wooden aircraft structureis.
Option A. 10-12%.
Option B. 20-30%.
Option C. 0-2%.
Correct Answer is. 10-12%.
Explanation. AC43 Para. 1-29 g.

Question Number. 8. How is the moisture content within the wood of a wood aircraft structure determined?.
Option A. By inserting the probe of a moisture meter.
Option B. By measuring the size of the water stains at joints.
Option C. By weighing the wood structure before and after drying it.
Correct Answer is. By inserting the probe of a moisture meter.
Explanation. AC43 Para. 1-29 g.

Question Number. 9. Except where specified by the manufacturer, a wooden spar may be spliced.

Option A. at no point.
Option B. at any point except under the wing attachment fittings.
Option C. at any point.

Correct Answer is. at any point except under the wing attachment fittings.
Explanation. AC43 Para 1-40.

Question Number. 10. Replacement of a wooden spar is.
Option A. only permitted by the manufacturer.
Option B. a minor repair.
Option C. a major repair.
Correct Answer is. a major repair.
Explanation. AC43 Para. 1-41.

Question Number. 11. A crack is found in a wooden spar, you.
Option A. must replace the spar section.
Option B. might be able to repair the spar.
Option C. must replace the entire spar.
Correct Answer is. might be able to repair the spar.
Explanation. AC43 Para. 1-44.

Question Number. 12. Wood sealants used on wooden aircraft structures are for.
Option A. helping to prevent wood cracking.
Option B. improving aerodynamic efficiency.
Option C. reducing the requirement for sanding.
Correct Answer is. helping to prevent wood cracking.
Explanation. AC43 Para. 1-44 c.

Question Number. 13. To determine whether an aircraft wooden structure surface is compound curvature, you would use.
Option A. a curvature gauge.
Option B. a sheet of paper.
Option C. a trammel.
Correct Answer is. a sheet of paper.
Explanation. AC43 Para. 1-48.

Question Number. 14. To assist the bending of plywood, a heated bending former must be heated to a temperature of.
Option A. 300 °C.
Option B. 150 °C.
Option C. 100 °C.
Correct Answer is. 150 °C.
Explanation. AC43 Para.1- 49 b.

Question Number. 15. A splayed patch repair may be used on plywood damage which does not exceed.
Option A. 20 times the skin thickness.
Option B. 15 times the skin thickness.
Option C. 10 times the skin thickness.
Correct Answer is. 15 times the skin thickness.
Explanation. AC43 Para.1- 51 a.

Question Number. 16. A surface patch to a plywood structure may be a large as.
Option A. 50 sq.inch area.
Option B. 50 inch perimeter.
Option C. 50 inch diameter.
Correct Answer is. 50 inch perimeter.
Explanation. AC43 Para.1- 51 b.

Question Number. 17. The steepest slope permitted on the scarf of a scarfed plywood repair is.
Option A. 1 in 20.
Option B. 1 in 4.
Option C. 1 in 12.
Correct Answer is. 1 in 12.
Explanation. AC43 Para.1- 51 c.

Question Number. 18. The maximum size damage to plywood skin that may be repaired with a fabric patch is.
Option A. 3.0 inch diameter.
Option B. 0.5 inch diameter.
Option C. 1.0 inch diameter.

Correct Answer is. 1.0 inch diameter.
Explanation. AC43 Para 1-52.

Question Number. 19. The doubler used to support a scarfed patch plywood repair should bemade from plywood of a minimum.
Option A. 1/4 inch thick.
Option B. 1/8 inch thick.
Option C. 3/8 inch thick.
Correct Answer is. 1/4 inch thick.
Explanation. AC43 Para.1- 51 d and Figure 1-16.

Question Number. 20. An aircraft wooden structure must be surface finished and
sealed.
Option A. on both the outer and inner surfaces.
Option B. on the inner surfaces only.
Option C. on the outer surfaces only.
Correct Answer is. on both the outer and inner surfaces.
Explanation. AC43 Para 1-64.

Question Number. 21. Pine wood has a strength, compared to that of spruce.
Option A. less than.
Option B. exceeding.
Option C. the same as.
Correct Answer is. less than.
Explanation. AC43 Table 1-1.

Question Number. 22. The standard wood type for aircraft wood structures is.
Option A. spruce.
Option B. douglas fir.
Option C. pine.
Correct Answer is. spruce.

Explanation. AC43 Table 1-1.

Question Number. 23. Hard knots in wood are acceptable.
Option A. in certain locations.
Option B. never.
Option C. up to 3/8 inch diameter in any location.
Correct Answer is. in certain locations.
Explanation. AC43 Para 1-2.

Question Number. 24. A 'shake' in a piece of wood is a crack.
Option A. across annual rings.
Option B. induced by artificial stress.
Option C. between two annual rings.
Correct Answer is. between two annual rings.
Explanation. AC43 Para.1- 2.

Question Number. 25. Wood with checks, shakes or splits.
Option A. can be used providing the damage is repaired by gluing and clamping.
Option B. can be used for certain secondary structure.
Option C. must be rejected.
Correct Answer is. must be rejected.
Explanation. AC43 Para 1-2.

Question Number. 26. Compression wood.
Option A. is a hard-wood.
Option B. should be rejected.
Option C. is preferred because of its superior strength qualities.
Correct Answer is. should be rejected.
Explanation. AC43 Para 1-2.

Question Number. 27. Red heart and purple heart.
Option A. are types of hard-wood.
Option B. are forms of decay in wood.
Option C. are harmless natural defects in wood.
Correct Answer is. are forms of decay in wood.
Explanation. AC43 Para 1-2.

Question Number. 28. The greatest amount of shrinkage in wood is in which
direction?.
Option A. Tangential.
Option B. Radial.
Option C. The shrinkage is equal in tangential and radial directions.
Correct Answer is. Tangential.
Explanation. AC43 Para 1-2.

Question Number. 29. Shrinkage of wood is.
Option A. equal along and across the fibers.
Option B. least along the fibers.
Option C. least across the fibers.
Correct Answer is. least along the fibers.
Explanation. AC43 Para 1-2.

Question Number. 30. Shrinkage of wood is.
Option A. greatest in the longitudinal direction.
Option B. negligible in the longitudinal direction.
Option C. negligible in the radial direction.
Correct Answer is. negligible in the longitudinal direction.
Explanation. AC43 Para 1-2.

Question Number. 31. The maximum permissible grain deviation in wood is.
Option A. 1:8.
Option B. 1:20.
Option C. 1:15.
Correct Answer is. 1:15.
Explanation. AC43 Para 1-1.

Question Number. 32. Nails used on wood structures should be.
Option A. 50 mm apart.
Option B. 12 mm apart.
Option C. 25 mm apart.
Correct Answer is. 25 mm apart.

Explanation. AC43 Para 1-11 c.

Question Number. 33. Small (up-to 3/8 inch diameter) hard-knots are allowed in a wooden spar.
Option A. in the middle 1/3 portion.
Option B. nowhere.
Option C. in the outer 1/3 portions.
Correct Answer is. in the middle 1/3 portion.
Explanation. AC43 Para 1-1.

Question Number. 34. If metal fasteners are removed from an aircraft's wood structure, and are found to have corrosion on them, this can indicate.
Option A. acidity of the adjoining wood structure.
Option B. deterioration of the fastener.
Option C. decay of the adjoining wood structure.
Correct Answer is. decay of the adjoining wood structure.
Explanation. AC43 1-28 j.

Question Number. 35. Bolt holes through wooden structures should be.
Option A. sealed, and the sealant allowed to dry before fitting the bolt.
Option B. left unsealed and unvarnished inside the hole.
Option C. sealed with varnish and wet-assembled with the bolt before the varnish has dried.
Correct Answer is. sealed, and the sealant allowed to dry before fitting the bolt.
Explanation. AC43 1-71.

Question Number. 36. Wood end-grain.
Option A. has the same susceptibility to moisture ingress as the side of the grain.
Option B. is less susceptible to moisture ingress as the side of the grain.
Option C. is more susceptible to moisture ingress as the side of the grain.
Correct Answer is. is more susceptible to moisture ingress as the side of the grain.
Explanation. AC43 1-69.

Question Number. 37. In cases of elongated bolt holes in a wood spar or cracks in the vicinity of the bolt holes.
Option A. it is permissible to ream the hole, plug with hardwood and re-drill.
Option B. a new section of spar should be spliced in or the spar entirely replaced.
Option C. the spar may be reinforced by using hardwood reinforcing plates.
Correct Answer is. a new section of spar should be spliced in or the spar entirely replaced.
Explanation. AC43.

Question Number. 38. A faint line running across the grain of a wood spar generally indicates.
Option A. shear failure.
Option B. decay.
Option C. compression failure.
Correct Answer is. compression failure.
Explanation. AC43.

Question Number. 39. The I-beam wooden spar is routed to.
Option A. obtain uniform strength.
Option B. decrease weight.
Option C. increase strength.
Correct Answer is. decrease weight.
Explanation. NIL.

Question Number. 40. Pin knot clusters are permitted in wood aircraft structure
provided.
Option A. they have no mineral streaks.
Option B. no pitch pockets are within 12 inches.
Option C. they produce a small effect of grain direction.
Correct Answer is. they produce a small effect of grain direction.
Explanation. AC43.

Question Number. 41. Compression failures in wood aircraft structures are characterized by

buckling of the fibers that appear as streaks on the surface.
Option A. parallel to the grain.
Option B. at right-angles to the growth rings.
Option C. at right angles to the grain.
Correct Answer is. at right angles to the grain.
Explanation. NIL.

03.3. Aircraft Materials - Fabric Covering.

Question Number. 1. Fabrics may be fitted to airframe structures by.
Option A. always riveting.
Option B. wood nails.
Option C. tying on with string.
Correct Answer is. tying on with string.
Explanation. NIL.

Question Number. 2. Aircraft fabric covering is made from.
Option A. silk.
Option B. polyester.
Option C. nylon.
Correct Answer is. polyester.
Explanation. AC43 Para 2-3 a.

Question Number. 3. At manufacture, aircraft fabric is.
Option A. shrunk.
Option B. doped.
Option C. stretched.
Correct Answer is. stretched.
Explanation. AC43 Para 2-3 b.

Question Number. 4. Recovering or repairing of an aircraft with a fabric other than the original fabric type is.
Option A. a major modification and requires approval.
Option B. prohibited.
Option C. a minor modification, providing the fabric is the same strength as the original.
Correct Answer is. a major modification and requires approval.

Explanation. AC43 Para 2-5 NOTE.

Question Number. 5. Reinforcing tape used on aircraft fabric covering must have a minimum strength of.
Option A. 80 lb.
Option B. 40 lb.
Option C. 120 lb.
Correct Answer is. 40 lb.
Explanation. AC43 Para 2-5 a.

Question Number. 6. Lacing cord used on aircraft fabric covering must have a minimum breaking strength of.
Option A. 120 lb.
Option B. 80 lb.
Option C. 40 lb.
Correct Answer is. 40 lb.
Explanation. AC43 Para 2-5 c.

Question Number. 7. Fabric seams are preferable.
Option A. parallel to the line of flight.
Option B. spanwise to the line of flight.
Option C. oblique to the line of flight.
Correct Answer is. parallel to the line of flight.
Explanation. AC43 Para 2-7.

Question Number. 8. Single stitched machine sewn seams are permissible.
Option A. at all locations on the aircraft.
Option B. never.
Option C. only when positioned over a structure.
Correct Answer is. only when positioned over a structure.
Explanation. AC43 Para 2-7 a 1.

Question Number. 9. The minimum pitch of hand-sewn stitch is.
Option A. 1/4 inch.
Option B. equal to 10 times the thread thickness.
Option C. 4 inches.
Correct Answer is. 1/4 inch.

Explanation. AC43 Para 2-7 a 2.

Question Number. 10. Hand sewn stitch must be locked at a minimum of.
Option A. the end of the stitch only.
Option B. 20 stitch intervals.
Option C. 10 stitch intervals.
Correct Answer is. 10 stitch intervals.
Explanation. AC43 Para 2-7 a 2.

Question Number. 11. Fabric to be hand sewn must be doubled under at the edge to a minimum distance of.
Option A. 1/2 inch.
Option B. 3/8 inch.
Option C. 1/4 inch.
Correct Answer is. 3/8 inch.
Explanation. AC43 Para 2-7 a 2.

Question Number. 12. Holes are cut in fabric for inspection panels, spar fittings, drain grommets etc.
Option A. after doping.
Option B. before doping.
Option C. before attaching the fabric to the structure.
Correct Answer is. after doping.
Explanation. AC43 Para 2-9 a.

Question Number. 13. Aircraft fabric lacing cord is reinforced with.
Option A. epoxy.
Option B. wax.
Option C. lanolin.
Correct Answer is. wax.
Explanation. AC43 Para 2-10 d 2.

Question Number. 14. The dope applied to an aircraft's fabric covering causes
shrinkage.
Option A. on the last coat only.
Option B. on the first coat only.

Option C. on all coats.
Correct Answer is. on all coats.
Explanation. AC43 Para 2-20.

Question Number. 15. The two preferred types of dope used on aircraft fabric covering is.
Option A. cellulose and polyester.
Option B. cellulose and butyrate.
Option C. nitrate and butyrate.
Correct Answer is. nitrate and butyrate.
Explanation. AC43 Para 2-20.

Question Number. 16. Aircraft dope, during storage in adverse conditions in a store- room, will become.
Option A. acidic.
Option B. discoloured.
Option C. alkaline.

Correct Answer is. acidic.
Explanation. AC43 Para 2-20 b.

Question Number. 17. What type of dope is preferred for use on natural fiber aircraft covering?.
Option A. Nitrate.
Option B. Any type of dope is suitable.
Option C. Butyrate.
Correct Answer is. Nitrate.
Explanation. AC43 Para 2-20 c.

Question Number. 18. Which of the following is true regarding aircraft dope
type?.
Option A. Nitrate dope may be applied over the top of butyrate dope.
Option B. Butyrate dope may be applied over the top of nitrate dope.
Option C. Either type of dope may be applied over the top of any type of dope.

Correct Answer is. Butyrate dope may be applied over the top of nitrate dope.
Explanation. AC43 Para 2-20 c.

Question Number. 19. What type of shoes should be worn by the technician applying a dope finish to a fabric covered aircraft?.
Option A. Rubber soled.
Option B. Leather soled.
Option C. Plastic uppers.
Correct Answer is. Leather soled.
Explanation. AC43 Para 2-20 f table 2-3.

Question Number. 20. What are the limits of the environmental conditions for applying dope to a fabric covered aircraft?.
Option A. Relative humidity 50 - 70%, temperature range 40 ° to 60 °F.
Option B. Relative humidity 50 - 75%, temperature range 65 ° to 75 °F.
Option C. Relative humidity 20 - 60%, temperature range 65 ° to 75 °F.
Correct Answer is. Relative humidity 20 - 60%, temperature range 65 ° to 75 °F.
Explanation. AC43 Para 2-20 f table 2-4.

Question Number. 21. Applying dope to a fabric covered aircraft should be done
by.
Option A. spraying all coats to avoid brush marks.
Option B. spray all coats except the first three.
Option C. brushing all coats to ensure it is absorbed into the fabric.
Correct Answer is. spray all coats except the first three.
Explanation. AC43 Para 2-20 f table 2-4.

Question Number. 22. Regarding the thinning of aircraft dope.
Option A. under thinning is preferred to overthinking.
Option B. dope should be thinned with automotive thinners.
Option C. overthinking is preferred to under thinning.
Correct Answer is. overthinking is preferred to under thinning.
Explanation. AC43 Para 2-20 f table 2-4 and 2-20 c NOTE.

Question Number. 23. A retarder is added to aircraft dope to.
Option A. to extend the shelf life.
Option B. produce a smoother finish.
Option C. to retard the application time.
Correct Answer is. produce a smoother finish.
Explanation. AC43 Para 2-20 f table 2-4.

Question Number. 24. Doped fabric.
Option A. is not to be treated after application.
Option B. is treated with varnish.
Option C. is treated with wax compound.
Correct Answer is. is treated with wax compound.
Explanation. AC43 Para 2-20 f table 2-4.

Question Number. 25. Dope should be applied to an aircraft's fabric coating in a relative humidity not exceeding.
Option A. 50%.
Option B. 85%.
Option C. 65%.
Correct Answer is. 65%.
Explanation. AC43 Para 2-21 6.

Question Number. 26. Dressing out' of a fabric covering refers to.
Option A. the trimming of excess fabric after fitting.
Option B. applying finishing tapes, reinforcing patches, inspection ports etc.
Option C. laying the fabric out on the floor and cutting it to size prior to fitting to the aircraft.
Correct Answer is. applying finishing tapes, reinforcing patches, inspection ports etc.
Explanation. AC43 Para 2-21 d.

Question Number. 27. Coats of clear dope are applied to an aircraft's fabric.
Option A. before coats of aluminum pigmented dope are applied.
Option B. before or after coats of aluminum pigmented dope are applied, it does not matter.

Option C. after coats of aluminum pigmented dope are applied.
Correct Answer is. before or after coats of aluminum pigmented dope are applied, it does not matter.
Explanation. AC43 Para 2-21.

Question Number. 28. What is the reason for using aluminum -pigmented dope on a fabric covered aircraft?.
Option A. To provide an aluminum color to the aircraft.
Option B. To block UV radiation.
Option C. To provide strength.
Correct Answer is. To block UV radiation.
Explanation. AC43 Para 2-21.

Question Number. 29. Aircraft sheet plywood skins are.
Option A. sealed and varnished or painted.
Option B. sealed and doped.
Option C. covered in fabric.
Correct Answer is. covered in fabric.
Explanation. AC43 Para 2-22.

Question Number. 30. Blushing' of a doped fabric surface is an indication of.
Option A. moisture entering into the wood/fabric structure during service.
Option B. moisture condensing on the surface during drying of the dope.
Option C. oil contamination of the doped fabric.
Correct Answer is. moisture condensing on the surface during drying of the dope.
Explanation. AC43 Para 2-23.

Question Number. 31. Orange peeling of a doped surface may be caused by.
Option A. dope viscosity too low.
Option B. dope viscosity too high.
Option C. air temperature too low.
Correct Answer is. dope viscosity too high.
Explanation. AC43 Para 2-23 c.

Question Number. 32. Orange peeling of a doped surface may be caused by.
Option A. Orange peeling of a doped surface may be caused by.
Option B. air temperature too low.
Option C. spray gun pressure too low.
Correct Answer is. spray gun pressure too low.
Explanation. AC43 Para 2-23 c.

Question Number. 33. Butyrate dope burns.
Option A. slower than nitrate dope.
Option B. faster than nitrate dope.
Option C. the same rate as nitrate dope.
Correct Answer is. slower than nitrate dope.
Explanation. AC43 Para 2-32.

Question Number. 34. Fabric coated with nitrate dope can be differentiated from fabric coated in butyrate dope by.
Option A. carrying out a burn test.
Option B. smelling the fabric.
Option C. observing the color.
Correct Answer is. carrying out a burn test.
Explanation. AC43 Para 2-32.

Question Number. 35. If the fabric on a wood/fabric aircraft has lost its strength.
Option A. the fabric can be treated with a rejuvenator.
Option B. the fabric can be treated with additional coats of the approved type of dope.
Option C. the fabric must be replaced.

Correct Answer is. the fabric can be treated with additional coats of the approved type of dope. ORthe fabric must be replaced.
Explanation. AC43 Para 2-35.

Question Number. 36. When repairing a section of aircraft fabric with a new fabric patch.

Option A. all the dope must be removed from the parent fabric faying surface before the patch isapplied.
Option B. the patch can be applied to the parent fabric without preparation.
Option C. all the aluminum -pigmented dope layers must be removed from the parent fabric faying surface before the patch is applied.

Correct Answer is. the patch can be applied to the parent fabric without preparation. OR all the aluminum -pigmented dope layers must be removed from the parent fabric faying surface before the patch is applied.
Explanation. AC43 Para 2-42 b.

Question Number. 37. When does an aircraft fabric covering repair become a major repair?.
Option A. When the repair extends over a wing rib.
Option B. When the repair extends over three adjacent wing ribs.
Option C. When the repair extends over two adjacent wing ribs.
Correct Answer is. When the repair extends over three adjacent wing ribs. OR When the repair extends over two adjacent wing ribs
Explanation. AC43 Para 2-42 d.

Question Number. 38. Where the edge of a new fabric section will be located within 1 inch of a structural member to which the fabric is attached by rib lacing or other methods, the new fabric section should.
Option A. be extended 3 inches past the structural member.
Option B. be extended to meet the structural member.
Option C. be designated a major repair.
Correct Answer is. be extended 3 inches past the structural member.
Explanation. AC43 Para 2-42 f.

Question Number. 39. What width of finishing tape should be used on a tear in a fabric cover which is 10 inches long?.
Option A. 2 inches.
Option B. 6 inches.
Option C. 4 inches.
Correct Answer is. 4 inches.
Explanation. AC43 2-44 a.

Question Number. 40. What width of finishing tape should be used on a tear in a fabric cover which is 20 inches long?.
Option A. 6 inches.
Option B. 2 inches.
Option C. 4 inches.
Correct Answer is. 6 inches.
Explanation. AC43 2-44 c.

Question Number. 41. Lines of stitching of a fabric repair is locked at the end
with.
Option A. a hitch knot.
Option B. a half hitch knot.
Option C. a double half hitch knot.
Correct Answer is. a double half hitch knot.
Explanation. AC43 2-43 Figure 2-13.

Question Number. 42. Wrinkles in a fabric covering of a wood/fabric aircraft are.
Option A. not permitted.
Option B. a minor aerodynamic detriment.
Option C. permitted only if they are temporary due to damp/wet weather conditions.
Correct Answer is. permitted only if they are temporary due to damp/wet weather conditions.
Explanation. AC43 2-30 b (3) NOTE.

Question Number. 43. The threads per inch of Grade 'A' aircraft fabric is.
Option A. 60-64.
Option B. 80-84.
Option C. 110- 115.
Correct Answer is. 80-84.
Explanation. AC43 2-6 Table 2-1.

Question Number. 44. When and how is finishing tape applied on fabric covered

aircraft?.
Option A. Doped on immediately prior to the finish coat.
Option B. Sewed or laced on before dope is applied.
Option C. Doped on after the first or second coat of dope.
Correct Answer is. Doped on after the first or second coat of dope.
Explanation. AC43.

Question Number. 45. The determining factor in the selection of the correct weight of textile fabric to be used in covering any type of aircraft is the.
Option A. maximum wing loading.
Option B. speed of the aircraft.
Option C. speed of the aircraft and the maximum wing loading.
Correct Answer is. speed of the aircraft and the maximum wing loading.
Explanation. AC43.

Question Number. 46. How many fabric thicknesses will be found in a French-fell seam?.
Option A. Five.
Option B. Three.
Option C. Four.
Correct Answer is. Four.
Explanation. The edges of the fabric are folded over each other, so the threads of a double row of stitches passes through four thicknesses of fabric.

Question Number. 47. Finishing tape (surface tape) is used for what purpose?.
Option A. To prevent 'ripple formation' in covering fabric.
Option B. To provide additional wear resistance over the edges of fabric forming structures.
Option C. To provide additional anti-tear resistance under reinforcement tape.
Correct Answer is. To provide additional wear resistance over the edges of fabric forming structures.
Explanation. AC43.

Question Number. 48. Moisture, mildew, chemicals and acids have no effect on.
Option A. glass fabric.
Option B. linen fabric.
Option C. Dacron fabric.
Correct Answer is. Dacron fabric.
Explanation. AC43 page 2-35 paragraph(1).
http://www.ultralightnews.com/pilotslounge/cleaning_dacron.htm

Question Number. 49. The strength classification of fabric used in aircraft covering is based upon.
Option A. bearing strength.
Option B. shear strength.
Option C. tensile strength.
Correct Answer is. tensile strength.
Explanation. NIL.

Question Number. 50. Fabric rejuvenator.
Option A. penetrates the fabric and restores fungicidal resistance.
Option B. restores fabric strength and tautness to at least the minimum acceptable level.
Option C. restores the condition of the dope coatings.
Correct Answer is. restores fabric strength and tautness to at least the minimum acceptable level. OR restores the condition of the dope coatings.
Explanation. NIL.

Question Number. 51. When testing the strength of Grade A cotton fabric covering an aircraft that requires only intermediate grade, the minimum acceptable strength the fabric must have is.
Option A. 56 pounds per inch warp and weft.
Option B. 70% of its original strength.
Option C. 70% of the original strength for intermediate fabric.
Correct Answer is. 70% of the original strength for intermediate fabric.
Explanation. NIL.

Question Number. 52. What is used to slow the drying time of some dope finishes to prevent blush?.

Option A. Rejuvenator.
Option B. Reducer.
Option C. Retarder.
Correct Answer is. Retarder.
Explanation. NIL.

Question Number. 53. Aluminum -pigment in dope is used primarily to.
Option A. exclude sunlight from the fabric.
Option B. provide a silver colour.
Option C. aid in sealing out moisture from the fabric.
Correct Answer is. exclude sunlight from the fabric.
Explanation. NIL.

04a. Corrosion.

Question Number. 1. From the following list of metals, which is most cathodic?.
Option A. Nickel.
Option B. Magnesium.
Option C. Stainless steel.
Correct Answer is. Stainless steel.
Explanation. NIL.

Question Number. 2. Intergrannular corrosion is caused by.
Option A. improperly assembled components.
Option B. improper heat treatment.
Option C. dissimilar metal contact.
Correct Answer is. improper heat treatment.
Explanation. NIL.

Question Number. 3. Corrosion caused by electrolytic action is the result of.
Option A. contact between two unlike metals.
Option B. excessive anodization.
Option C. the wrong quenching agent.
Correct Answer is. contact between two unlike metals.
Explanation. NIL.

Question Number. 4. Corrosion may be regarded as the destruction of metal by.
Option A. electrochemical action.
Option B. hydroelectric action.
Option C. electromechanical action.

Correct Answer is. electrochemical action.
Explanation. Corrosion is electrochemicqal action. BL/4-1 2.

Question Number. 5. Exfoliation corrosion is sometimes referred to as.
Option A. layer corrosion.
Option B. filiform corrosion.
Option C. sub-surface corrosion.
Correct Answer is. layer corrosion.
Explanation. NIL.

Question Number. 6. When dissimilar metals are brought together, or the same metal in different states, one metal forms the anode and the other the cathode. Which will suffer from corrosion?.
Option A. Both will corrode equally.
Option B. The cathode.
Option C. The anode.
Correct Answer is. The anode.
Explanation. The anode always corrodes.

Question Number. 7. In corrosion, the electrode that loses electrons is.
Option A. the cathode.
Option B. either the cathode or the anode depending upon the electrolyte.
Option C. the anode.
Correct Answer is. either the cathode or the anode depending upon the electrolyte.
Explanation. The anode loses electrons.

Question Number. 8. Which of these is a common cause of corrosion?.
Option A. Water in fuel.
Option B. Spilled battery acid.

Option C. Untreated metal.
Correct Answer is. Spilled battery acid.
Explanation. Spilled battery acid is sure to cause corrosion.

Question Number. 9. What is stress corrosion?.
Option A. Corrosion in an area under cyclic loading.
Option B. Corrosion due to fretting.
Option C. Corrosion in an area under continuous loading.
Correct Answer is. Corrosion in an area under continuous loading.
Explanation. Stress corrosion is caused by a stressed area being anodic to a non-stressed area. Do not confuse with corrosion-fatigue. BL/4-1 3.1.6.

Question Number. 10. Electrochemical reaction is caused by the contact of.
Option A. bonding.
Option B. moisture on the surface of the metal.
Option C. dissimilar metals.
Correct Answer is. moisture on the surface of the metal.
Explanation. Dissimilar metals causes galvanic corrosion, but pure metal in contact with water causes electro-chemical corrosion.

Question Number. 11. Chemical attack is a direct result of.
Option A. intergranular corrosion.
Option B. cathodic & anodic changes in the material.
Option C. filiform corrosion.
Correct Answer is. cathodic & anodic changes in the material.
Explanation. A&P Mechanics General Handbook Page 171.

Question Number. 12. Galvanic corrosion is caused by.
Option A. incorrect heat treatments or incorrect alloying.
Option B. cyclic stressing and a decrease in cross sectional area.
Option C. the joining of 2 dissimilar metals.
Correct Answer is. the joining of 2 dissimilar metals.
Explanation. NIL.

Question Number. 13. In the galvanic series, the most noble metal will, if joined to another metal.

Option A. always be at the top of the table. Option
Option B. corrode before the less noble metal.
Option C. allow the less noble metal to corrode first. Correct
Correct Answer is. allow the less noble metal to corrode first.
Explanation. NIL. http://www.mcnallyinstitute.com/Charts/galvanic-series.html

Question Number. 14. Stress corrosion is associated with.
Option A. cyclic loading and a corrosion pit.
Option B. a corrosion pit in a member under a compressive load.
Option C. a corrosion pit in a member under stress.
Correct Answer is. a corrosion pit in a member under stress.
Explanation. NIL.

Question Number. 15. Corrosion will spread more rapidly when metals are exposed to.
Option A. cold climates.
Option B. high temperatures.
Option C. dry climates.
Correct Answer is. high temperatures.
Explanation. NIL.

Question Number. 16. Which is the following correct statement?.
Option A. Selenious acid is used for the re-protection of aluminum alloys.
Option B. The chemical test for bronze is nitric acid which produces a white precipitate.
Option C. All corrosion is a chemical action.
Correct Answer is. The chemical test for bronze is nitric acid which produces a white precipitate. OR All corrosion is a chemical action.
Explanation. NIL.

Question Number. 17. In a poorly produced repair to skin structure, where would stress corrosion start?.
Option A. Radiate from the corner or sharp edges.
Option B. Along the edges of repair.
Option C. Form internally to produce surface corrosion.
Correct Answer is. Radiate from the corner or sharp edges.

Explanation. NIL.

Question Number. 18. Some metals are inherently stable. What does this suggest?.
Option A. They strongly resist corrosion.
Option B. They are highly prone to corrosion.
Option C. They try to revert to their natural state.
Correct Answer is. They strongly resist corrosion.
Explanation. NIL.

Question Number. 19. The oxide film formed on the surface of aluminum is.
Option A. non-porous.
Option B. porous.
Option C. hard and porous.
Correct Answer is. non-porous.
Explanation. That is why aluminum does not corrode.

Question Number. 20. Corrosion control begins at the.
Option A. production stage.
Option B. manufacturing stage.
Option C. design stage.
Correct Answer is. design stage.
Explanation. NIL.

Question Number. 21. Aluminum is.
Option A. not resistant to corrosion.
Option B. highly resistant to corrosion.
Option C. reasonably resistant to corrosion.
Correct Answer is. highly resistant to corrosion.
Explanation. NIL.

Question Number. 22. When galvanic corrosion takes place, which part corrodes?.
Option A. Anode.
Option B. Oxide film coating.
Option C. Cathode.

Correct Answer is. Anode.
Explanation. NIL.

Question Number. 23. Corrosion caused by galvanic action is the result of.
Option A. contact between two unlike metals.
Option B. excessive anodization.
Option C. excessive etching.
Correct Answer is. contact between two unlike metals.
Explanation. NIL.

04b. Corrosion.

Question Number. 1. What sort of corrosion would a magneto be likely to encounter if completely enclosed?.
Option A. None, providing the magneto is completely enclosed.
Option B. Direct chemical attack.
Option C. Pitting.
Correct Answer is. Direct chemical attack.
Explanation. BL/4-1 3.1.8.

Question Number. 2. What are the signs of fretting corrosion?.
Option A. Black powder or cocoa staining.
Option B. Intergranular cracking.
Option C. Flaking.
Correct Answer is. Black powder or cocoa staining.
Explanation. CAIP BL/4-1 para 3.1.5.

Question Number. 3. Black streaks back from a rivet hole signify.
Option A. galvanic corrosion.
Option B. intergrannular corrosion.
Option C. fretting.
Correct Answer is. fretting.
Explanation. Fretting corrosion is identified by black / grey streaks. BL/4-1 3.1.5.

Question Number. 4. When a steel part is welded, corrosion occurs because.

Option A. it is affected by spatter.
Option B. the strip has become anodic.
Option C. paint has been removed.
Correct Answer is. the strip has become anodic.
Explanation. BL/4-1 3.1.4.

Question Number. 5. Intergranular corrosion.
Option A. can be recognized by a grey powder deposit.
Option B. may have no visual surface indication.
Option C. can be recognized by its flaking and lifting of the material layers.
Correct Answer is. may have no visual surface indication.
Explanation. BL/4-1 2.3.2.

Question Number. 6. Active flux does what?.
Option A. Protects.
Option B. Cleans.
Option C. Both cleans and protects.
Correct Answer is. Cleans.
Explanation. NIL.

Question Number. 7. Jointing compound is used for what reason?.
Option A. To prevent dissimilar metal corrosion.
Option B. To bond the components together.
Option C. To make the components easier to disassemble.
Correct Answer is. To prevent dissimilar metal corrosion.
Explanation. Jointing compound is used to prevent dissimilar metal contact.

Question Number. 8. Galvanic action caused by dissimilar metal contact may best be prevented by.
Option A. applying a non-porous dielectric material between the surfaces.
Option B. Special precautions are not required if they are properly bonded.
Option C. priming both the surfaces with a light coat of zinc chromate primer.

Correct Answer is. Special precautions are not required if they are properly bonded. OR applying anon-porous dielectric material between the surfaces.
Explanation. Jointing compound is a non-porous dielectric.

Question Number. 9. After welding, stainless steel is susceptible to a corrosion known as.
Option A. weld deterioration.
Option B. weld decay.
Option C. weld rot.
Correct Answer is. weld decay.
Explanation. Corrosion after welding is called 'weld decay'. BL/6-16 4.5.1 & BL/4-1.

Question Number. 10. The lifting or flaking of the metal at the surface due to delamination of grain boundaries caused by the pressure of corrosion is.
Option A. exfoliation.
Option B. electrolysis.
Option C. trans granulation.
Correct Answer is. electrolysis.
Explanation. NIL.

Question Number. 11. The electrolytic process that forms an oxide film on the surface of aluminum alloys is known as.
Option A. galvanizing.
Option B. anodizing.
Option C. electroplating.
Correct Answer is. anodizing.
Explanation. NIL.

Question Number. 12. What is the indication of fretting corrosion on aluminum
alloy?.
Option A. Black powder.
Option B. Brown powder.
Option C. White powder.

Correct Answer is. Black powder.
Explanation. Fretting corrosion is identified by a black / grey powder streak.

Question Number. 13. What action is taken to protect integral tanks from corrosion due to micro-biological growth?.
Option A. The inside of the tank is coated with yellow chromate.
Option B. Rubber liners are installed in the tank.
Option C. A biocidal additive is used in the fuel.
Correct Answer is. A biocidal additive is used in the fuel.
Explanation. NIL.

Question Number. 14. What type of corrosion attacks grain boundaries of aluminum alloys which are improperly or inadequately heat treated?.
Option A. Stress corrosion.
Option B. Intergranular corrosion.
Option C. Surface corrosion.
Correct Answer is. Intergranular corrosion.
Explanation. NIL.

Question Number. 15. The artificial production of a film of oxide on the surface of aluminum or any of its alloys is commonly called.
Option A. alodizing.
Option B. parco lubrizing.
Option C. anodizing.
Correct Answer is. anodizing.
Explanation. Anodizing is an artificially produced layer of oxide on the surface of aluminum (or titanium).

Question Number. 16. Intergrannular corrosion in structural aluminum alloy parts.
Option A. are not likely to occur in parts fabricated from heat-treated sheet aluminum .
Option B. may be detected by the white, powdery deposit formed on the surface of the metal.
Option C. cannot always be detected by surface indications.

Correct Answer is. may be detected by the white, powdery deposit formed on the surface of the metal. OR cannot always be detected by surface indications.
Explanation. NIL.

Question Number. 17. Corrosion will spread more rapidly when metals are exposed to.
Option A. dry climates.
Option B. cold climates.
Option C. high temperatures.
Correct Answer is. high temperatures.
Explanation. Higher temperatures always accelerate corrosion. AC43 6-3.

Question Number. 18. Magnesium alloy components are protected by.
Option A. an electro process.
Option B. a chemical process.
Option C. a painted process.
Correct Answer is. a chemical process.
Explanation. NIL.

Question Number. 19. Corrosion products should be removed from magnesium alloys by the useof.

Option A. a solution of 10% by weight of chromic acid in distilled water with 0.1% by volume of sulphuric acid.
Option B. a solution of 10% by volume of chromic acid in distilled water with 1% phosphoric acid.
Option C. aluminum wool.
Correct Answer is. a solution of 10% by volume of chromic acid in distilled water with 1% phosphoric acid. OR a solution of 10% by weight of chromic acid in distilled water with 0.1% by volume of sulphuricacid.
Explanation. NIL.

Question Number. 20. If it is necessary to remove corrosion from a steel component in -situ, the base of a suitable solution for this purpose is.
Option A. chromic acid.
Option B. phosphoric acid.

Option C. nitric acid.
Correct Answer is. phosphoric acid.
Explanation. NIL.

Question Number. 21. A type of protection which is applicable to magnesium alloys is the.
Option A. phosphate process.
Option B. chromating process.
Option C. coslettising process.
Correct Answer is. chromating process.
Explanation. NIL.

Question Number. 22. Heavy corrosion deposits on clad aluminum alloys should be removed.
Option A. mechanically using a pneumatic vibrator.
Option B. chemically by use of trichloroethylene.
Option C. chemically by use of phosphoric acid.
Correct Answer is. chemically by use of phosphoric acid.
Explanation. BL/4-2 2.4.3(ii).

Question Number. 23. What action should be taken on finding intergrannular
corrosion?.
Option A. Replace complete component part.
Option B. De-corrode and reprotect.
Option C. Renew corroded area by patching.
Correct Answer is. Replace complete component part.
Explanation. NIL.

Question Number. 24. Anodic treatment of aluminum alloy gives.
Option A. a purple finish.
Option B. a shorter life due to hardening.
Option C. a pure coating of aluminum oxide on the surface.
Correct Answer is. a pure coating of aluminum oxide on the surface.
Explanation. NIL.

Question Number. 25. Corrosion at the grain boundaries is called.

Option A. intergrannular.
Option B. fretting.
Option C. filiform.
Correct Answer is. intergrannular.
Explanation. NIL.

Question Number. 26. Fretting corrosion occurs where.
Option A. two material are subject to very slight movement between the two.
Option B. a deep scratch increases to become fretting corrosion.
Option C. pitting corrosion is allowed to become more pronounced.
Correct Answer is. two material are subject to very slight movement between the two.
Explanation. Fretting is corrosion combined with small relative movement.

Question Number. 27. What is used to remove corrosion from magnesium?.
Option A. Phosphate acid solution.
Option B. Chromic acid solution.
Option C. Sulphuric acid solution.
Correct Answer is. Chromic acid solution.
Explanation. Chromic acid solution is used to remove corrosion from magnesium alloys. AC43 6- 31.

Question Number. 28. Surface corrosion on stainless steel is identified by.
Option A. red rust.
Option B. white film.
Option C. black pitting.
Correct Answer is. black pitting.
Explanation. Surface corrosion on stainless steel is a black pitting. AC43 6-5.

Question Number. 29. Hooks, wires and other suspension devices used in an anodic bath should be made of.
Option A. brass or copper.
Option B. aluminum or titanium.

Option C. steel or copper.
Correct Answer is. aluminum or titanium.
Explanation. CAIPs BL/7- 1 Para.4. BL/7- 1 4.1.

Question Number. 30. What are the signs of fretting corrosion on steel?.
Option A. Dark staining around area.
Option B. Surface cracking as corrosion breaks through to surface of component.
Option C. Rust on surface.
Correct Answer is. Surface cracking as corrosion breaks through to surface of component. OR Dark staining around area.
Explanation. Fretting corrosion is caused when there is some relative movement between parts, causing a fine dark powdery paste of corrosion products. BL/4-1 Para.3.1.5.

Question Number. 31. Spilled mercury on aluminum .
Option A. increases susceptibility to hydrogen embrittlement
Option B. may cause impaired corrosion resistance if left in prolonged contact.
Option C. causes rapid and severe corrosion in prolonged contact.
Correct Answer is. may cause impaired corrosion resistance if left in prolonged contact. OR causes rapid and severe corrosion in prolonged contact.
Explanation. BL/4-10 Para.2.

Question Number. 32. Inter crystalline corrosion.
Option A. is detectable by x-rays.
Option B. is the same as exfoliation corrosion.
Option C. always appears as small surface cracks.

Correct Answer is. is detectable by x-rays.
Explanation. NIL.

Question Number. 33. The usual manufacturers anti-corrosion process to be applied to Fe aircraft parts is.
Option A. cadmium plating.
Option B. anodising.

Option C. metal spraying.
Correct Answer is. cadmium plating.
Explanation. NIL.

Question Number. 34. Chromate treatment is applied to.
Option A. Al alloys.
Option B. Fe alloys.
Option C. magnesium alloys.
Correct Answer is. magnesium alloys.
Explanation. NIL.

Question Number. 35. Anti-corrosion treatment used on Magnesium is.
Option A. chromating.
Option B. electro-plating.
Option C. phosphating.
Correct Answer is. chromating.
Explanation. BL/4-3 3.1.3.

Question Number. 36. Fretting corrosion occurs with.
Option A. water trapped between moving parts.
Option B. vibration in bolted parts.
Option C. improper heat treatment.
Correct Answer is. vibration in bolted parts.
Explanation. BL/4-1 3.1.5.

Question Number. 37. Intergranular corrosion is also known as what?.
Option A. Stress corrosion.
Option B. Exfoliation.
Option C. Galvanic.

Correct Answer is. Exfoliation.
Explanation. BL/4-1 2.3.3 '[exfoliation is] A less harmful form of intergranular attack'.

Question Number. 38. During construction, sharp internal corners and inaccessible places should be avoided to reduce.
Option A. filiform corrosion.

Option B. fretting corrosion.
Option C. crevice corrosion.
Correct Answer is. crevice corrosion.
Explanation. NIL.

Question Number. 39. To check the interior of tubular members for corrosion
attack.
Option A. any form of test is acceptable.
Option B. ultra sonic testing is necessary.
Option C. dye penetrant testing should be used.
Correct Answer is. ultra sonic testing is necessary.
Explanation. NIL.

Question Number. 40. Anodising is a form of.
Option A. artificial protection.
Option B. metallic coating.
Option C. sacrificial protection.
Correct Answer is. artificial protection.
Explanation. NIL.

Question Number. 41. The Alocrom 1200 process was designed to treat.
Option A. chromium plating.
Option B. small surfaces.
Option C. surfaces too large for dip treatment.
Correct Answer is. small surfaces.
Explanation. NIL.

Question Number. 42. The artificial production of a film of oxide on the surface of aluminum or any of its alloys is commonly called.
Option A. anodizing.
Option B. parco lubrizing.
Option C. alodizing.
Correct Answer is. anodizing.
Explanation. NIL.

Question Number. 43. Alodizing protects alloy metal from corrosion and does what else?.
Option A. Makes a good surface for paint to adhere to.
Option B. Makes the surface alkaline.
Option C. Seals the surface from moisture.
Correct Answer is. Makes a good surface for paint to adhere to.
Explanation. NIL.

Question Number. 44. When cleaning aircraft faying surfaces, a cause for concern is.
Option A. corrosion acting on the end faces of panels.
Option B. sharp corners etc trapping corrosive chemicals.
Option C. leaks into the fuselage.
Correct Answer is. corrosion acting on the end faces of panels.
Explanation. NIL.

Question Number. 45. The form of corrosion most likely to cause stress concentration is.
Option A. Surface Corrosion.
Option B. Fretting Corrosion.
Option C. Pitting Corrosion.
Correct Answer is. Pitting Corrosion.
Explanation. NIL.

Question Number. 46. Lead acid battery fluid has been found to be leaking on the surface of the aircraft structure. What substance would you use to neutralize the acid?.
Option A. Sulphur and Lime.
Option B. Hot distilled water.
Option C. Sodium bicarbonate of soda.

Correct Answer is. Sodium bicarbonate of soda.
Explanation. CAIP BL/4-1 para 4.1.3.

Question Number. 47. What colour is the corrosion found on the surface of aluminum alloys?.
Option A. White/Grey.

Option B. Green/Blue.
Option C. Black.
Correct Answer is. White/Grey.
Explanation. NIL.

Question Number. 48. Corrosion on copper is identified by.
Option A. red/brown rust.
Option B. black powder.
Option C. green discolouration.
Correct Answer is. green discolouration.
Explanation. NIL.

Question Number. 49. A composite flap panel has corrosion. What NDT method will you use to detect?.
Option A. Low voltage x-ray.
Option B. Coin tap test.
Option C. High voltage x-ray.
Correct Answer is. Low voltage x-ray.
Explanation. Leaflet 6-9 Appendix 1 Paragraph 4.

Question Number. 50. When examining a piece of metal through a magnifying glass, hair line cracks would indicate.
Option A. crevice corrosion.
Option B. intergrannular corrosion.
Option C. surface corrosion.
Correct Answer is. intergrannular corrosion.
Explanation. NIL.

Question Number. 51. In the anodic film inspection and sealing test, if a good seal has been accomplished
.
Option A. the dye mark will not rub off.
Option B. the dye mark has no importance.
Option C. the dye mark will rub off.
Correct Answer is. the dye mark will not rub off.
Explanation. NIL.

Question Number. 52. Aluminum alloy parts are often protected by the.
Option A. Alocrom plating.
Option B. chromium plating process.
Option C. Alocrom 1200 process.
Correct Answer is. Alocrom 1200 process.
Explanation. NIL. http://www.amberelect.co.uk/page12.htm

Question Number. 53. Corrosion is always completely removed.
Option A. to prevent further damage.
Option B. to fit new parts.
Option C. to permit the extent of damage to be assessed.
Correct Answer is. to permit the extent of damage to be assessed.
Explanation. NIL.

Question Number. 54. Corrosion on a copper alloy can be recognised by.
Option A. blue/green deposit.
Option B. white deposit.
Option C. grey deposit.
Correct Answer is. blue/green deposit.
Explanation. NIL.

Question Number. 55. Which of the following is a temporary protective measure?.
Option A. Sacrificial protection.
Option B. Chromating.
Option C. Paint finish.
Correct Answer is. Chromating.
Explanation. NIL.

Question Number. 56. Which anti-corrosion chemical treatment is normally applied to aluminum alloys?.
Option A. Pure aluminum .
Option B. Anodising.
Option C. Cadmium.
Correct Answer is. Anodising.
Explanation. Alclad is not considered a chemical treatment.

Question Number. 57. Spilled mercury on aluminum causes.
Option A. greyish powder, fuzzy deposit or whiskery growth.
Option B. yellowish stains on surface of the metal.
Option C. black pits going into brown rust.
Correct Answer is. greyish powder, fuzzy deposit or whiskery growth.
Explanation. BL/4-10 2.3 (i).

Question Number. 58. A non- electrolytic chemical treatment for aluminum alloys to increase corrosion resistance and paint bonding qualities is called.
Option A. alodizing.
Option B. anodizing.
Option C. dichromating.
Correct Answer is. alodizing.
Explanation. Alodizing is a (non-electrolytic) deposition of oxide film.

Question Number. 59. Which of the following are acceptable to use in cleaning anodized surfaces?.
Option A. Steel wool, aluminum wool, fiber bristle brush.
Option B. Aluminum wool, fiber bristle brush.
Option C. Brass wire brush, stainless steel wire brush.
Correct Answer is. Aluminum wool, fiber bristle brush.
Explanation. NIL.

Question Number. 60. A primary cause of intergranular corrosion is.
Option A. improper heat treatment.
Option B. improper application of primer.
Option C. dissimilar metal contact.
Correct Answer is. improper heat treatment.
Explanation. NIL.

Question Number. 61. Which of these materials is the most anodic?.
Option A. Magnesium.
Option B. Cadmium.
Option C. 7075-T6 aluminum alloy.
Correct Answer is. Magnesium.
Explanation. NIL.

Question Number. 62. Which of these materials is the most cathodic?.
Option A. 2024 aluminum alloy.
Option B. Zinc.
Option C. Stainless steel.
Correct Answer is. Stainless steel.
Explanation. NIL.

Question Number. 63. Galvanic corrosion is most likely to be most rapid and severe when.
Option A. the surface area of the anodic metal is smaller than the surface area of the cathodic material.
Option B. the surface area of the cathodic metal and the anodic material are approximately the same.
Option C. the surface area of the cathodic metal is smaller than the surface area of the anodic material.
Correct Answer is. the surface area of the cathodic metal and the anodic material are approximately the same. OR the surface area of the anodic metal is smaller than the surface area of the cathodic material.
Explanation. NIL.

05.1. Fasteners - Screw Threads.

Question Number. 1. The pitch of a screw thread is.
Option A. crest to root.
Option B. 2 * crest to root.
Option C. crest to crest.
Correct Answer is. crest to root.
Explanation. Pitch is crest to crest. BL/3-2 3.

Question Number. 2. A single start thread the lead is.
Option A. 2 * pitch.
Option B. 1 * pitch.
Option C. ½ * pitch.
Correct Answer is. 1 * pitch.
Explanation. Lead = pitch * starts.

Question Number. 3. A wire thread insert tap is.
Option A. supplied in a fitting kit.
Option B. slightly larger than the hole.
Option C. slightly smaller than the hole.
Correct Answer is. supplied in a fitting kit.
Explanation. BL/2-3 2.2.2.

Question Number. 4. Multi-start threads.
Option A. increase the lead and decrease the pitch.
Option B. increase the lead without increasing the pitch.
Option C. increase the lead and the pitch.
Correct Answer is. increase the lead without increasing the pitch.
Explanation. Lead = pitch * starts.

Question Number. 5. Buttress threads are used.
Option A. to transmit power in both directions.
Option B. to transmit power on one direction.
Option C. on nuts and bolts.
Correct Answer is. to transmit power on one direction.
Explanation. Buttress threads are used to transmit power in one direction (like some vice lead screws).

Question Number. 6. The lead on a single start thread is.
Option A. 1 * the pitch.
Option B. 2 * the pitch.
Option C. 1/2 the pitch.
Correct Answer is. 1 * the pitch.
Explanation. Lead = pitch * starts.

Question Number. 7. Colour identification of an aluminum rivet is.
Option A. black.
Option B. violet.
Option C. green.
Correct Answer is. black.
Explanation. A pure aluminum rivet is black anodized. BL/6- 27 Table 1.

Question Number. 8. For a wire insert thread repair, the hole is tapped using.
Option A. the same size.
Option B. a special tap supplied with the kit.
Option C. the next size up.
Correct Answer is. a special tap supplied with the kit.
Explanation. BL/6-22 3.2.2.

Question Number. 9. Most commonly used thread form in aviation is.
Option A. V thread.
Option B. round thread.
Option C. buttress.
Correct Answer is. V thread.
Explanation. V thread is the most commonly used thread form.

Question Number. 10. Pitch of a screw thread is defined as.
Option A. distance from the center of one crest to the next.
Option B. difference between major diameter and minor diameter.
Option C. distance between the crest and the root of the thread.
Correct Answer is. distance from the center of one crest to the next.
Explanation. Pitch is crest to crest.

Question Number. 11. The angle of a screw thread is.
Option A. half the inclusive angle of the thread sides.
Option B. the inclusive angle of the thread sides.
Option C. the distance the thread moves in one turn.
Correct Answer is. the inclusive angle of the thread sides.
Explanation. NIL.

Question Number. 12. The tang of a thread insert.
Option A. may left it in the insert after installation.
Option B. is removed with a hammer and a punch.
Option C. must be removed.

Correct Answer is. may left it in the insert after installation.
Explanation. CAP 562 Leaflet 2-10 3.2.5.

Question Number. 13. A thread insert may be removed by.
Option A. a blade removal tool.
Option B. a hammer and punch.
Option C. a pre-wind insertion tool.
Correct Answer is. a blade removal tool.
Explanation. CAAIPs leaflet 2-10, page 4, paragraph 3.3.

Question Number. 14. A metric screw thread angle is. 60 °.
Option A. 7 °.
Option B. 57 °.
Option C. 60 °.
Correct Answer is.
Explanation. NIL.

Question Number. 15. Which thread type has the better vibration resistance?.
Option A. A fine thread.
Option B. A course thread.
Option C. Coarseness or fineness of thread has no bearing on the vibration resistance.
Correct Answer is. A fine thread.
Explanation. NIL.

Question Number. 16. Which of the following thread designations is most fatigue resistant?.
Option A. UNF.
Option B. UNC.
Option C. UNJF.
Correct Answer is. UNJF.
Explanation. NIL.

Question Number. 17. Which thread type has a 55 ° angle?.
Option A. Metric.
Option B. Whitworth.
Option C. UNF.
Correct Answer is. Whitworth.
Explanation. NIL.

Question Number. 1. When fitting a hyloks.
Option A. they should be lubricated.
Option B. each hylock should be torqued, the torque calculated for each time.
Option C. the hole should be drilled so it is an interference fit.
Correct Answer is. each hylock should be torqued, the torque calculated for each time. OR the holeshould be drilled so it is an interference fit.
Explanation. Hiloks are pre-lubricated. Hole is drilled 0.0015 inch interference. Hi-lok/Hi-tique installation guide can be download from Tutorial Support Section.

Question Number. 2. What sort of surface treatment would you find on a magnesium casting?.
Option A. Anodizing.
Option B. Phosphating.
Option C. Chromating.
Correct Answer is. Chromating.
Explanation. NIL.

Question Number. 3. What is the nominal length of a UNF bolt?.
Option A. Under head to end of the threads.
Option B. Under head to screw threads (i.e. plain shank).
Option C. The length of the threads.
Correct Answer is. Under head to screw threads (i.e. plain shank).
Explanation. Nominal length from head to thread.

Question Number. 4. Where should you not use a nyloc nut?.
Option A. Temperatures above 120 °C.
Option B. Temperatures above 200 °C.
Option C. Temperatures above 250 °C.
Correct Answer is. Temperatures above 120 °C.
Explanation. 120 °C or 250 °F.

Question Number. 5. What is the nominal screw length?.

Option A. The overall length of a countersunk screw and the non-threaded portion of a bolt.
Option B. The overall length of a bolt (from under the head) and the overall length of a screw(including the head).
Option C. The length of thread for a bolt, overall length for a countersunk screw.
Correct Answer is. The overall length of a countersunk screw and the non-threaded portion of a bolt.
Explanation.

Question Number. 6. A unified thread is identified by.
Option A. an 'X' on the head.
Option B. a raise ring on the head.
Option C. 2 or 3 rings on the head.
Correct Answer is. 2 or 3 rings on the head.
Explanation. Contiguous rings.

Question Number. 7. An AN steel bolt is identified by what marking on the
head?.
Option A. A dash.
Option B. 14E.
Option C. An 'x'.
Correct Answer is. An 'x'.
Explanation. An AN steel bolt is identified with an 'x'. BL/2-7 Fig 1.

Question Number. 8. A British close tolerance bolt is identified by.
Option A. a raised ring on the head.
Option B. an 'X' on the head.
Option C. a dropped collar under the head.
Correct Answer is. a raised ring on the head.
Explanation. A British close tolerance bolt is identified with a raised ring on the head.

Question Number. 9. A blind fastener described as external sleeve and internally threaded would be.
Option A. a cherry lock.

Option B. a rivnut.
Option C. a jo bolt.
Correct Answer is. a jo bolt.
Explanation. A jo-bolt is externally sleeved and internally threaded. BL/6-28.

Question Number. 10. Studs which have a size larger thread at one end are called.
Option A. stepped studs.
Option B. shouldered studs.
Option C. plain studs.
Correct Answer is. stepped studs.
Explanation. Stepped studs have a size larger at one end.

Question Number. 11. A bolt with a raised dash is.
Option A. AN standard.
Option B. close tolerance.
Option C. Corrosion Resistant Steel.
Correct Answer is. Corrosion Resistant Steel.
Explanation. NIL.BL/2-3.

Question Number. 12. A dowel will take what loads?.
Option A. shear.
Option B. tensile.
Option C. torsion.
Correct Answer is. shear.
Explanation. A dowel takes shear loads.

Question Number. 13. Dzuz Fasteners provide.
Option A. for easy hammering into position.
Option B. a close tolerance fit.
Option C. quick release fasteners at inspection panels.
Correct Answer is. quick release fasteners at inspection panels.
Explanation. Dzus fasteners are quick release fasteners.

Question Number. 14. The initials U.N.C when related to aircraft bolts stands for.

Option A. United National Countersunk.
Option B. Unified National Coarse.
Option C. Unified National Centred.
Correct Answer is. Unified National Coarse.
Explanation. UNC = Unified National Course. UNF = Unified National Fine.

Question Number. 15. Capped nuts are used so.
Option A. to prevent leaks from pipe ends.
Option B. the part is not over torqued as the bolt touches the captive part first.
Option C. to ensure that it is dry bolted.
Correct Answer is. the part is not over torqued as the bolt touches the captive part first. OR toensure that it is dry bolted.
Explanation. Capped nuts provide an air/fluid tight seal.

Question Number. 16. A bolt part number AN25C15 when compared to a bolt part number AN25-15 has.
Option A. a less expensive design and product costs.
Option B. a higher resistance to corrosion.
Option C. a higher pitch thread.
Correct Answer is. a higher resistance to corrosion.
Explanation. 2= clevis bolt, 5 = diameter in 16ths (5/16ths in), C = Corrosion resistant steel, 15 = length in 8ths (15/8 = 1 7/8 in.). BL/6-27 3.1.2.

Question Number. 17. The head marking on a close tolerance BSF bolt is.
Option A. a series of dots on the head face.
Option B. a raised disk on the head face.
Option C. a lowered ring under the hexagon.
Correct Answer is. a raised disk on the head face.
Explanation. A close tolerance bolt has a raised disc on the head BL/2-3 Para.2.2.
Question Number. 18. In the drawing, what letter represents the nominal length of a BSF bolt?.
Option A. A.
Option B. B.
Option C. C.

Correct Answer is. A.
Explanation. Be careful not to mark answer a) on your exam just because it is A on the drawing. BL/2-3 Fig.2.

Question Number. 19. An aluminum alloy bolt may be identified by.
Option A. its color (dyed black).
Option B. the letter A stamped on the head.
Option C. its color (dyed green).
Correct Answer is. its color (dyed green).
Explanation. BL/2-3 2.2.

Question Number. 20. A (British) 3/8 inch dia. UNF bolt will have the diameter code letter.
Option A. N.
Option B. G.
Option C. J.
Correct Answer is. J.
Explanation. BL/2-3 Table 2.

Question Number. 21. An AN steel bolt is identified by.
Option A. on head.
Option B. X on head.
Option C. plain bolt.
Correct Answer is. X on head.
Explanation. BL/2-7.

Question Number. 22. Rivnuts were originally used for.
Option A. securing structural parts.
Option B. securing rubber de-icing boots.
Option C. securing cabin floorings.
Correct Answer is. securing rubber de-icing boots.
Explanation. BL/6-28 5.4.

Question Number. 23. Fork end fittings on control rod ends should have.
Option A. anti-vibration compound.
Option B. 0.002 inch axial movement.
Option C. bolt heads fitted upwards.

Correct Answer is. bolt heads fitted upwards.
Explanation. NIL.

Question Number. 24. The AN526 truss-head screw.
Option A. provides a good clamping force.
Option B. is a widely used recesses head machine screw.
Option C. is a pan-head screw.
Correct Answer is. is a pan-head screw.
Explanation. AC43 Para.7- 17.

Question Number. 25. Capped nuts are used.
Option A. prevent overtightening due to the threaded portion being restricted by the cap.
Option B. to provide a dry torque joint.
Option C. to stop leaks.
Correct Answer is. to stop leaks.
Explanation. NIL.

Question Number. 26. A pin in a fork end fitting is subjected to what loading?.
Option A. Shear.
Option B. Tensile.
Option C. Torsion.
Correct Answer is. Shear.
Explanation. NIL.

Question Number. 27. Hylocks.
Option A. require lubrication of the screw part only.
Option B. are pre-lubricated.
Option C. do not require lubrication.
Correct Answer is. are pre-lubricated.
Explanation. NIL.

Question Number. 28. UNF means.
Option A. unified fine.
Option B. union national fine.
Option C. united nations fine.

Correct Answer is. unified fine.
Explanation. BL/3-2 Para 1.1.1. (ii).

Question Number. 29. A clevis bolt in a control cable fork end would be loaded
in.
Option A. shear.
Option B. tension.
Option C. both tension and shear.
Correct Answer is. shear.
Explanation. NIL.

Question Number. 30. Capped nuts are used.
Option A. to provide dry bolting of the joints.
Option B. to lock the nut to the bolt.
Option C. to stop leaks due to metal caps fitted on the heads.
Correct Answer is. to stop leaks due to metal caps fitted on the heads.
Explanation. NIL.

Question Number. 31. A main difference between Lockbolt/Hucbolt tension and shear fasteners(other than their application) is in the.
Option A. shape of the head.
Option B. method of installation.
Option C. number of locking collar grooves.
Correct Answer is. number of locking collar grooves.
Explanation. shear lockbolt has two locking grooves, and the tension lockbolt has five grooves.

Question Number. 32. One of the main advantages of the Hi-Lok type fasteners over earlier generations is that.
Option A. they can be installed with ordinary hand-tools.
Option B. they can be removed and reused again.
Option C. the squeezed on collar installation provides a more secure, tighter fit.
Correct Answer is. they can be installed with ordinary hand-tools.
Explanation. NIL.

Question Number. 33. The markings on the head of a Dzus fastener identify the.
Option A. body diameter, type of head and length of the fastener.
Option B. body type, head diameter and type of material.
Option C. manufacturer and type of material.
Correct Answer is. body diameter, type of head and length of the fastener.
Explanation. A letter identifies type of head, a number identifies body diameter in 1/16 inch increments and another number identifies stud length in 1/100ths inch.

Question Number. 34. The Dzus turn lock fastener consists of a stud, grommet, and receptacle. The stud length is measured in.
Option A. sixteenths of an inch.
Option B. tenths of an inch.
Option C. hundredths of an inch.
Correct Answer is. hundredths of an inch.
Explanation. NIL.

Question Number. 35. Threaded rivets (Rivnuts) are commonly used to.
Option A. join two or more pieces of sheet metal where shear strength is desired.
Option B. attach parts or components with screws to sheet metal.
Option C. join two or more pieces of sheet metal where bearing strength is desired.
Correct Answer is. attach parts or components with screws to sheet metal.
Explanation. NIL.

Question Number. 36. Aircraft bolts with a cross or asterisk marked on the bolt-head are.
Option A. made of aluminum alloy.
Option B. a standard steel bolts.
Option C. close tolerance bolts.
Correct Answer is. a standard steel bolts.
Explanation. NIL.

Question Number. 37. A bolt with a single dash on the head is classified as an.
Option A. NAS standard aircraft bolt.
Option B. AN corrosion resistant steel bolt.
Option C. NAS close tolerance bolt.
Correct Answer is. AN corrosion resistant steel bolt.
Explanation. NIL.

Question Number. 38. A bolt with an 'X' inside a triangle on the head is classified as an.
Option A. NAS standard aircraft bolt.
Option B. NAS close tolerance bolt.
Option C. AN corrosion resistant steel bolt.
Correct Answer is. NAS close tolerance bolt.
Explanation. Standard Aviation Maintenance Handbook Page 7-1.

Question Number. 39. Aircraft bolts are usually manufactured with a.
Option A. class 1 fit for the threads.
Option B. class 2 fit for the threads.
Option C. class 3 fit for the threads.
Correct Answer is. class 3 fit for the threads.
Explanation. NIL.

Question Number. 40. The cage of an Instrument Mounting nut is made from.
Option A. steel.
Option B. brass.
Option C. phosphor bronze.
Correct Answer is. phosphor bronze.
Explanation. Standard Aviation Maintenance Handbook Page 7-83.

Question Number. 41. The speed nut of an Instrument Mounting nut is made
from.
Option A. brass.
Option B. steel.
Option C. phosphor bronze.

Correct Answer is. brass.
Explanation. Standard Aviation Maintenance Handbook Page 7- 83.

Question Number. 42. Instrument Mounting nuts are.
Option A. soldered in place during manufacture.
Option B. prevented from dropping behind the instrument panel by magnetism.
Option C. non-magnetic.
Correct Answer is. prevented from dropping behind the instrument panel by magnetism. OR non -magnetic.
Explanation. NIL.

Question Number. 43. The length of a clevis bolt.
Option A. includes the head and the thread.
Option B. is the plain shank portion only.
Option C. includes the threads but not the head.

Correct Answer is. includes the threads but not the head.
Explanation. Standard Aviation Maintenance Handbook Page 7-4.

Question Number. 1. How many times can a locking plate be used?.
Option A. indefinitely providing it is a good fit around the component to be locked.
Option B. once, then discarded.
Option C. 3 times, then discarded.
Correct Answer is. indefinitely providing it is a good fit around the component to be locked.
Explanation. CAAIPs Leaflet 2-5 5.1.

Question Number. 2. The taper of a standard taper pin is.
Option A. 1 in 48.
Option B. 1 in 36.
Option C. 1 in 20.
Correct Answer is. 1 in 48.
Explanation. 1 in 48.

Question Number. 3. When using a spring washer, the plain washer would be
fitted.
Option A. between spring and part.
Option B. between head and spring.
Option C. under the nut.
Correct Answer is. between spring and part.
Explanation. The plain washer is to protect the surface of the part from the edge of the spring washer. BL/6-13 3.

Question Number. 4. How many times can you use a locking plate?.
Option A. Until all the tabs have been broken off.
Option B. As long as it remains serviceable.
Option C. Once only.
Correct Answer is. As long as it remains serviceable.
Explanation. BL/6-13 5.

Question Number. 5. Wire locking approach angles should not be less than.

Option A. 45 °.
Option B. 90 °.
Option C. 10 °.
Correct Answer is. 45 °.
Explanation. BL/6-13 7.

Question Number. 6. A spring type washer when used on an aluminum component must be used.
Option A. with a plain washer.
Option B. by itself.
Option C. with a tab washer.
Correct Answer is. with a plain washer.
Explanation. A spring washer must always be used with a plain washer.

Question Number. 7. Nickel alloy steel split pins can be used.
Option A. repeatedly provided they remain a good fit.
Option B. only once, because the legs are spread and bent.
Option C. with a spring washer and a stiff nut.
Correct Answer is. only once, because the legs are spread and bent.
Explanation. Split pins can only be used once.

Question Number. 8. A pre-load indicating washer is correctly loaded when.
Option A. the inner ring rotates.
Option B. the inner ring is gripped.
Option C. the outer ring is gripped.
Correct Answer is. the outer ring is gripped.
Explanation. A preload washer is correctly loaded when the outer ring is gripped. AL/7-8.

Question Number. 9. The advantage of circlips is.
Option A. it can be used for both inner and external applications.
Option B. Both a and b.
Option C. it is cheap.
Correct Answer is. Both a and b.
Explanation. Circlips are cheap and can be used for internal and external applications.

Question Number. 10. A press fit requires.
Option A. the hole to be expanded by heat.
Option B. some sort of driving force.
Option C. the shaft to be shrunk by cooling.
Correct Answer is. some sort of driving force.
Explanation. A press fit requires some form of driving force.

Question Number. 11. A non metallic locknut is.
Option A. never used over 250 °F.
Option B. never torqued.
Option C. never re-used.
Correct Answer is. never used over 250 °F.
Explanation. 250 °F (120 °C) is the maximum temperature for nylon or fiber insert nuts.

Question Number. 12. Which can be re-used?.
Option A. Locking plate, circlip, spring washer.
Option B. Shake proof washer, spring washer, locking plate.
Option C. Tab washer, circlip, locking plate.
Correct Answer is. Locking plate, circlip, spring washer.
Explanation. Leaflet 2-5 3.3.

Question Number. 13. A tab washer has been removed after fitment for a short time from a nonessential system, the tab washer may be.
Option A. re-used.
Option B. re-used if a spare is not available.
Option C. not re-used.
Correct Answer is. not re-used.
Explanation. used unless it is multi-tab and there are unused tabs - old tabs to be broken off. BL/6-13 3.5.3.

Question Number. 14. Taper pins are subject to what loads?.
Option A. Tensile.
Option B. Compressive.
Option C. Shear.
Correct Answer is. Shear.

Explanation. Taper pins can only take shear loads. AC43 7-101.

Question Number. 15. In the drawing, both bolts are correctly wire locked when.
Option A. both A and B are right hand threads.
Option B. A is a right hand thread and B is a left hand thread.
Option C. both A and B are left hand threads.
Correct Answer is. both A and B are right hand threads.
Explanation. The wire locking is maintaining tightness clockwise in both A and B. AC34.

Question Number. 16. A turnbuckle locknut is a.
Option A. stiff nut.
Option B. slotted nut.
Option C. castle nut.
Correct Answer is. stiff nut.
Explanation. NIL.

Question Number. 17. A spring washer.
Option A. may be used a second time provided it is fitted the reverse way round.
Option B. maybe used more than once provided it continues to provide an efficient lock.
Option C. must not be used more than once.
Correct Answer is. maybe used more than once provided it continues to provide an efficient lock.
Explanation. NIL.

Question Number. 18. An internal circlip can be used to.
Option A. retain a ball bearing in a housing.
Option B. to do both of the above.
Option C. retain a ball bearing on a shaft.
Correct Answer is. retain a ball bearing in a housing.
Explanation. NIL.

Question Number. 19. A washer having both twisted teeth and spring actions is.

Option A. AN970 large-area flat washer.
Option B. AN936 shake-proof lock washer.
Option C. AN935 split-ring lock washer.
Correct Answer is. AN936 shake-proof lock washer.
Explanation. AC43 Table 7-14.

Question Number. 20. Split pins.
Option A. may be used only once.
Option B. can be used more than once but depends on the material of the split pin.
Option C. may be used more than once.
Correct Answer is. may be used only once.
Explanation. CAAIPs Leaflet 2-5, 2.5.

Question Number. 21. How is the locking feature of the fiber-type locknut obtained?.
Option A. By a fiber insert held firmly in place at the base of the load carrying section.
Option B. By the use of an unthreaded fiber locking insert.
Option C. By making the threads in the fiber insert slightly smaller than those in the load carryingsection.
Correct Answer is. By the use of an unthreaded fiber locking insert.
Explanation. NIL.

Question Number. 22. Split pins are made from.
Option A. brass or Low carbon steel - cadmium plated,.
Option B. brass or stainless steel.
Option C. Low carbon steel - cadmium plated, or stainless steel.
Correct Answer is. Low carbon steel - cadmium plated, or stainless steel.
Explanation. Standard Aviation Maintenance Handbook Page 7-35, CAAIPs Leaflet 2-5, 2. 05.4. Fasteners - Aircraft rivets.

Question Number. 1. Forming a solution treated rivet gives it 75% of its hardness. What givesit the other 25%?.
Option A. Leave at room temperature for four hours.
Option B. Precipitation treat the component when forming is complete.
Option C. Put them in a refrigerator.

Correct Answer is. Leave at room temperature for four hours.
Explanation. NIL.

Question Number. 2. If D or DD rivets are not formed in time , or removed from the freezer in time, they.
Option A. must be discarded.
Option B. must be re-heat treated before use.
Option C. can be re-heat treated once then discarded.
Correct Answer is. must be re-heat treated before use.
Explanation. NIL.

Question Number. 3. A joggle in a removed rivet is indication of what type of partial failure?.
Option A. Bearing.
Option B. Shear.
Option C. Compression.
Correct Answer is. Shear.
Explanation. NIL.

Question Number. 4. How is a British aluminum rivet identified?.
Option A. Black anodic finish.
Option B. Natural anodised finish.
Option C. Violet anodic finish.
Correct Answer is. Black anodic finish.
Explanation. A British aluminum rivet is black anodised.

Question Number. 5. A BS rivet made from L36 would be what color and marking?.
Option A. Black anodic with an 'A'.
Option B. Natural anodic with no marking.
Option C. Green anodic with an 'X'.
Correct Answer is. Black anodic with an 'A'.
Explanation. An L36 rivet is anodised black.

Question Number. 6. What do the letters and numbers on a British rivet mean?.
Option A. Material specification only.

Option B. Material and finish.
Option C. Head shape, material and finish.
Correct Answer is. Head shape, material and finish.
Explanation. Example SP80 is snap head, al alloy, violet finish. BL/6-27 3.

Question Number. 7. A natural finish aluminum alloy rivet with a D on it is.
Option A. hiduminium L86.
Option B. aluminum L36.
Option C. duralumin L37.
Correct Answer is. duralumin L37.
Explanation. L37 is aluminum alloy with a D. BL/6-27.

Question Number. 8. A 5% magnesium rivet is identified by.
Option A. violet anodise with 'S' on it.
Option B. green anodise with 'X' or an '8' on it.
Option C. black anodise with 'A' on it.
Correct Answer is. green anodise with 'X' or an '8' on it.
Explanation. 5% magnesium is green anodised with an 'X' or an '8'.

Question Number. 9. What metal is suitable for riveting magnesium alloy?.
Option A. Monel metal.
Option B. 5056 aluminum alloy.
Option C. 1100 aluminum alloy.
Correct Answer is. 5056 aluminum alloy.
Explanation. BL/6-27 5.1 and AC43 7-1 para.d.

Question Number. 10. What metal is suitable for riveting alloy steel?.
Option A. Aluminum alloy.
Option B. Monel metal.
Option C. Mild steel.
Correct Answer is. Monel metal.
Explanation. BL/6-27 5.1.

Question Number. 11. An aluminum alloy L37 rivet identification is.
Option A. X embossed.

Option B. O embossed.
Option C. D embossed.
Correct Answer is. D embossed.
Explanation. An aluminum alloy L37 (Duralumin) rivet is identified with an 'D'.

Question Number. 12. Rivet allowance is.
Option A. 1.5d.
Option B. 1d plus the thickness of the material.
Option C. 1.5d plus the thickness of the material.
Correct Answer is. 1.5d.
Explanation. Rivet allowance is 1.5 * diameter.

Question Number. 13. D and DD rivets are refrigerated to.
Option A. precipitation harden.
Option B. increase age hardening.
Option C. retard age hardening.
Correct Answer is. retard age hardening.
Explanation. Refrigeration retards age hardening.

Question Number. 14. What do you do to 2017 and 2024 rivets after heat treatment?.
Option A. Leave for a minimum of 2 hours before using.
Option B. refrigerate for a minimum of 2 hours before using.
Option C. Use immediately or refrigerate.
Correct Answer is. Use immediately or refrigerate.
Explanation. NIL.

Question Number. 15. An American rivet with a cross on the head is.
Option A. 2124 aluminum alloy.
Option B. 2117 aluminum alloy.
Option C. 5056 aluminum alloy.
Correct Answer is. 5056 aluminum alloy.
Explanation. A cross on the head of a rivet indicates it is 5056 al.alloy.

Question Number. 16. A countersunk rivet of the ‘SP’ series has a head style of.

Option A. 20 °.
Option B. 90 °.
Option C. 100 °.
Correct Answer is. 100 °.
Explanation. SP series rivets are 100 degree csk. BL/6-27 3.3.

Question Number. 17. The coding of a British rivet indicates.
Option A. length and diameter.
Option B. head type and color.
Option C. material and head type.
Correct Answer is. material and head type.
Explanation. Coding such as SP80 means al.alloy and snap head. BL/6- 27 8.

Question Number. 18. A factor which determines the minimum space between rivets is the.
Option A. thickness of the material being riveted.
Option B. diameter of the rivets being used.
Option C. length of the rivets being used.
Correct Answer is. diameter of the rivets being used.
Explanation. Rivet spacing (single row) is 4 * diameter. AC43 4- 16.

Question Number. 19. Joggles in removed rivet shanks would indicate partial.
Option A. torsion failure.
Option B. shear failure.
Option C. bearing failure.
Correct Answer is. shear failure.
Explanation. NIL.

Question Number. 20. A rivet that has 5% magnesium is identified as.
Option A. anodic violet and has an X.
Option B. anodic green and has an X.
Option C. natural and has an m.
Correct Answer is. anodic green and has an X.
Explanation. 5% magnesium rivets are green anodized. BL/6-27 Table 1.

Question Number. 21. Identification of British aluminum alloy rivets is with.
Option A. a part number on the head.
Option B. a letter and number code.
Option C. a colour and number stamped on the head.
Correct Answer is. a colour and number stamped on the head.
Explanation. Aluminum alloy rivets are colour coded with a number or letter on the head.

Question Number. 22. If you can only gain limited access to both sides of a structure, what would you use to repair the structure?.
Option A. A hylok.
Option B. A blind rivet.
Option C. A pop rivet.
Correct Answer is. A hylok.
Explanation. Pop rivets and blind rivets cannot be used in place of solid rivets. Jeppesen A&PAirframe Handbook Pg.155.

Question Number. 23. Alloy rivets are heat treated by.
Option A. solution treating.
Option B. annealing.
Option C. anodising.
Correct Answer is. solution treating.
Explanation. Al.Alloy rivets are solution heat treated.

Question Number. 24. When a solid rivet is formed it only holds 75% of its shear strength, theother 25% comes from.
Option A. leaving assembly for 4 days to age harden.
Option B. heating the completed assembly.
Option C. cooling completed assembly.
Correct Answer is. leaving assembly for 4 days to age harden.
Explanation. NIL.

Question Number. 25. A rivet with no marking has the material code.
Option A. AD.
Option B. A.
Option C. D.

Correct Answer is. A.
Explanation. NIL.

Question Number. 26. Rivet MS20426 has what head type?.
Option A. CSK.
Option B. Universal.
Option C. Round.
Correct Answer is. CSK.
Explanation. CAIP BL/6-27 table 4.

Question Number. 27. What is meant by the term Pitch Ratio?.
Option A. The area of contact between the two sheets of metal when joining by rivets.
Option B. The distance between the hole and the edge of the material.
Option C. The distance between two holes.
Correct Answer is. The distance between two holes.
Explanation. CAIP BL/6- 29 (Rivet Pitch).

Question Number. 28. The length of solid rivets is in graduations of.
Option A. 1/16 inch.
Option B. 1/8 inch.
Option C. 1/4 inch.
Correct Answer is. 1/16 inch.
Explanation. CAIP BL/6-27.

Question Number. 29. What would be the diameter and length of a solid rivet if the following markings are given, AS 162-408?.
Option A. ¼ inch dia, ½ inch length.
Option B. ½ inch dia, 1 inch length.
Option C. 1/8 inch dia, ½ inch length.
Correct Answer is. 1/8 inch dia, ½ inch length.
Explanation. CAIP BL/6-27.

Question Number. 30. What would the marking .5 indicate after the normal part number of asolid rivet?.
Option A. The rivet length in graduations of 1/8 inch.
Option B. The diameter of the rivet is half an inch.

Option C. Indicates close tolerance rivet.
Correct Answer is. Indicates close tolerance rivet.
Explanation. CAIP BL/6-27 para 3.

Question Number. 31. What is the pressure range for the Avdel Riveter type F?.
Option A. 60 to 80 psi.
Option B. 20 to 60 psi.
Option C. 40 to 60 psi.
Correct Answer is. 60 to 80 psi.
Explanation. 60 to 80 psi.

Question Number. 32. What is the length of the operation stroke of the Avdel Riveter type F?.
Option A. ½ inch.
Option B. 7/8 inch.
Option C. 1 inch.
Correct Answer is. ½ inch.
Explanation. 1/2 inch stroke.

Question Number. 33. If a sheet of aluminum alloy of 0.032 and 0.064 is to be joined together the rivet should be.
Option A. 0.032 plus 2D.
Option B. 0.096 plus 1.5 D.
Option C. 0.064 plus 1D.
Correct Answer is. 0.096 plus 1.5 D.
Explanation. Rivet allowance is 1.5D. Sheet thickness is 0.032 + 0.064 inches.

Question Number. 34. Where would a pop rivet with a break stem mandrel be
used?.
Option A. In a closed structure.
Option B. Where the head can be retrieved.
Option C. Any situation calling for a pop rivet.
Correct Answer is. In a closed structure.

Explanation. A pop rivet is not a truly blind rivet because the tail falls away and has to be retrieved. However, the break-stem pop rivet has a head which stays with the rivet after breaking.

Question Number. 35. A chobert rivet gun may be used.
Option A. until the end has worn 0.002 inch below nominal diameter.
Option B. indefinately.
Option C. once only.
Correct Answer is. until the end has worn 0.002 inch below nominal diameter.
Explanation. 0.002 inch is the wear limit on a chobert rivet gun. BL/6-29 8.2.1.

Question Number. 36. Avdel rivets are closed by.
Option A. a tapered mandrel.
Option B. broaching.
Option C. squeezing.
Correct Answer is. broaching.
Explanation. Avdel rivets are closed by broaching. BL/6-29 8.2.2.

Question Number. 37. Countersunk rivets have two angles of countersink, these
are.
Option A. 100 - 115 degrees.
Option B. 125 - 135 degrees.
Option C. 100 -160 degrees.
Correct Answer is. 100 - 115 degrees.
Explanation. None of these are correct, but since there are 3 countersink angles (90, 100, 120) c is closest. BL/6-27 3.2.

Question Number. 38. On a CHERRY MAX rivet, after the riveting process the mandrel section orstem is.
Option A. is ground down flush to rivet head.
Option B. discarded.
Option C. remains in the rivet sleeve to provide mechanical strength.
Correct Answer is. remains in the rivet sleeve to provide mechanical strength.

Explanation. The stem remains in the rivet after it is broken off. A collar holds it in place AC43 4 -57, 4-24.

Question Number. 39. A 'HUCK' rivet is similar in design to a.
Option A. blind rivet.
Option B. dome head rivet.
Option C. cherry rivet.
Correct Answer is. cherry rivet.
Explanation. The Huck rivet is similar in design to the cherry rivet. But both are blind rivets. AC43 4-24.

Question Number. 40. On a structural repair, what type of rivet would you use when the backside cannot be accessed?.
Option A. Pop rivet.
Option B. Hi-loc rivet.
Option C. Blind rivet.
Correct Answer is. Blind rivet.
Explanation. By elimination, no such thing as a hi-loc rivet, and pop rivets may cause a FOD problem due to the stem falling out. BL/6-28 Para.2.

Question Number. 41. What material is suitable for riveting steel?.
Option A. Aluminum alloy.
Option B. Monel.
Option C. Copper.
Correct Answer is. Monel.
Explanation. BL/6-27 5.1. Really mild steel should be used (see AC43 7-1 para.e) but that is not an answer given.

Question Number. 42. Cadmium plated rivets should not be used where the temperature may exceed.
Option A. 120 °C.
Option B. 250 °C.
Option C. 200 °C.
Correct Answer is. 250 °C.
Explanation. BL/6-27 5.1.

Question Number. 43. What rivets should be used with nickel alloy steel?.

Option A. Aluminum Alloy.
Option B. Mild Steel.
Option C. Monel.
Correct Answer is. Monel.
Explanation. AC43 Page 7- 2 Para.g.

Question Number. 44. What is an advantage of a double flare on aluminum
tubing?.
Option A. Ease of construction.
Option B. It is more resistant to the shearing effect of torque.
Option C. It is less resistant to the shearing effect of torque.
Correct Answer is. It is more resistant to the shearing effect of torque.
Explanation. NIL.

Question Number. 45. What type loads cause the most rivet failures?.
Option A. Bearing.
Option B. Shear.
Option C. Head.
Correct Answer is. Head.
Explanation. NIL.

Question Number. 46. Rivet's main strength quality is to resist.
Option A. tensile loads.
Option B. shear loads.
Option C. torsion.
Correct Answer is. shear loads.
Explanation. NIL.

Question Number. 47. A plate 10 inches by 5 inches is to be riveted with 3 rows of rivets, with the normal 4D rivet spacing and 2 D edge distance. The rivets are AN460AD4-6. How many rivets are required?.
Option A. 60.
Option B. 52.
Option C. 56.
CorrectAnswer is. 60.

Explanation. Rivet diameter = 4/32 = 1/8 inch. If it is to be riveted along the 10 inch length, subtract the edge distances (2 * 1/4 inch) = 9 and a 1/2 inches. 4D = 1/2 inch. You can fit 20 rivets in 9 1/2 inches. 3 * 20 = 60.

Question Number. 48. A new rivet made of aluminum alloy is.
Option A. anodised with 's'.
Option B. anodised with 'x'.
Option C. anodised with 'd'.
Correct Answer is. anodised with 'x'.
Explanation. Of the aluminum alloy rivets, L86 is violet with an 's' and L58 is green with an 'x', but L86 (hiduminium) is no longer made.

Question Number. 49. What type of heat treatment can be used on DD rivets?.
Option A. Annealing.
Option B. Precipitation.
Option C. Solution Treatment.
Correct Answer is. Solution Treatment.
Explanation. NIL.

Question Number. 50. The general rule for finding the proper rivet diameter is.
Option A. three times the thickness of the thickest sheet.
Option B. three times the thickness of the material to be joined.
Option C. two times the rivet length.
Correct Answer is. three times the thickness of the material to be joined. OR three times the thickness of the thickest sheet.
Explanation. NIL.

Question Number. 51. Cherrymax and Olympic-Lok rivets.
Option A. utilize a pulling tool for installation.
Option B. may be installed with ordinary hand tools.
Option C. utilize a rivet gun, special rivet set, and bucking bar for installation.
Correct Answer is. utilize a rivet gun, special rivet set, and bucking bar for installation.
Explanation. NIL.

Question Number. 52. Hole filling fasteners (for example, MS20470 rivets) should not be used incomposite structures primarily because of the.
Option A. increased possibility of fretting corrosion in the fastener.
Option B. difficulty in forming a proper shop head.
Option C. possibility of causing delamination.
Correct Answer is. possibility of causing delamination.
Explanation. NIL.

Question Number. 53. The dimensions of an MS20430AD-4-8 rivets are.
Option A. 1/8 inch in diameter and 1/2 inch long.
Option B. 4/16 inch in diameter and 8/32 inch long.
Option C. 1/8 inch in diameter and 1/4 inch long.
Correct Answer is. 1/8 inch in diameter and 1/4 inch long.
Explanation. AC 43.13-1B Chap 4 fig 4-4 on page 4-16.

Question Number. 54. The primary alloying agent of 2024-T36 rivets is indicated by the number.
Option A. 20.
Option B. 2.
Option C. 24.
Correct Answer is. 2.
Explanation. CAIP BL/6-27 para 4.1.

Question Number. 55. Most rivets used in aircraft construction have.
Option A. a raised dot.
Option B. dimples.
Option C. smooth heads without markings.
Correct Answer is. dimples.
Explanation. Most rivets are 2117.

Question Number. 56. MS20426AD-6-5 indicates a countersunk rivet which has.
Option A. a shank length of 5/16 inch (excluding head).
Option B. an overall length of 5/16 inch.
Option C. a shank length of 5/32 inch (excluding head).
Correct Answer is. an overall length of 5/16 inch.

Explanation. NIL.

Question Number. 57. Which rivet may be used as received without further
treatment?.
Option A. 2017-T3.
Option B. 2117-T3.
Option C. 2024-T4.
Correct Answer is. 2117-T3.
Explanation. 2117 is an 'AD' rivet.

Question Number. 58. The information on rivet grip length is in which rivet code quadrant?.
Option A. NW.
Option B. SE.
Option C. NE.
Correct Answer is. SE.
Explanation. NAS-523.

Question Number. 59. The NE rivet quadrant gives information on.
Option A. diameter and manufactured head location.
Option B. fastener identity.
Option C. head data.
Correct Answer is. diameter and manufactured head location.
Explanation. NAS-523.

Question Number. 60. A square around the NW digit in the quadrant of a fastner would indicate.
Option A. interference fit fastener.
Option B. hi-lock to be used.
Option C. fluid tight fastner.
Correct Answer is. fluid tight fastner.
Explanation. NIL.

Question Number. 61. The four quadrants on a quadrant rivet code system are
designated.

Option A. N, S, E, W.
Option B. top-left, top-right, bottom-left, bottom-right.
Option C. NW, NE, SE, SW.
Correct Answer is. NW, NE, SE, SW.
Explanation. NIL.

06a. Pipes and Unions.

Question Number. 1. When replacing a hydraulic pipe, where would you find the correct replacement part?.
Option A. Parts catalogue.
Option B. Maintenance schedule.
Option C. Maintenance manual.
Correct Answer is. Parts catalogue.
Explanation. NIL.

Question Number. 2. How are flexible hoses categorised?.
Option A. By maximum pressure.
Option B. By diameter.
Option C. By length.
Correct Answer is. By maximum pressure.
Explanation. NIL.

Question Number. 3. What are the rigid pipes on gas turbine engines made from?.
Option A. Stainless steel.
Option B. Aluminum alloy.
Option C. Copper.
Correct Answer is. Stainless steel.
Explanation. Stainless steel has a high resistance to heat. BL/6-15 3.3.1.

Question Number. 4. How would you test a hydraulic hose?.
Option A. Pressure test 2.0 * working pressure.
Option B. Pressure test 1.5 * working pressure.
Option C. Pressure test 1.0 * working pressure.
Correct Answer is. Pressure test 1.5 * working pressure.
Explanation. AL/3- 13 8.4.

Question Number. 5. To prevent damage to seals on fitment you would.
Option A. compress and stretch them.
Option B. use a cardboard protector over the threaded portions.
Option C. use grease.
Correct Answer is. use a cardboard protector over the threaded portions.
Explanation. Use cardboard protection to prevent damage to seals when fitting them. AC43 9- 15.

Question Number. 6. Flexible pipes are identified by.
Option A. length.
Option B. diameter.
Option C. material.
Correct Answer is. material.
Explanation. NIL.

Question Number. 7. A pipe carrying lubricant would be identified by the color.
Option A. white.
Option B. yellow.
Option C. white and yellow.
Correct Answer is. yellow.
Explanation. Standard Aviation Maintenance Handbook Page 128/129.

Question Number. 8. Which material is a hydraulic fluid hose made from?.
Option A. Rubber.
Option B. Butyl.
Option C. Teflon.

Correct Answer is. Teflon.
Explanation. Jeppesen A&P General Textbook 10-16, CAAIP Leaflet 5-5 paragraph 2.2.2.

Question Number. 9. Hydraulic pipes are made from.
Option A. 1100 or 2020 H14.
Option B. annealed steel.
Option C. 5056 or 7075.

Correct Answer is. annealed steel.
Explanation. A&P General Textbook Page 10- 2.

Question Number. 10. The continuous coloured line on a hose assembly.
Option A. identifies hose material.
Option B. will assist in detection of any twist in an installed hose.
Option C. identifies fluid compatibility of hose.
Correct Answer is. will assist in detection of any twist in an installed hose.
Explanation. The 'lay line' will indicate twist in the hose.

Question Number. 11. The storage life of a flexible hose can be up to but not
exceeding.
Option A. 5 years.
Option B. 2 years.
Option C. 4 years.
Correct Answer is. 5 years.
Explanation. Leaflet 5-5 3.1.

Question Number. 12. The markings on a flexible hose must include the.
Option A. internal bore size.
Option B. manufacturers name.
Option C. date of manufacture.
Correct Answer is. date of manufacture.
Explanation. Leaflet 5-5 4.

Question Number. 13. When fitting a replacement flexible hose.
Option A. use the old one to apply the 'set',
Option B. ensure adequate clearance between the hose and the aircraft structure.
Option C. always pressure test before fitting.
Correct Answer is. ensure adequate clearance between the hose and the aircraft structure.
Explanation. NIL.

Question Number. 14. MIL-H-5606 hydraulic fluid O-rings are identified with a.

Option A. blue dot.
Option B. yellow dot.
Option C. yellow and white dot.
Correct Answer is. blue dot.
Explanation. Jeppesen A&P Airframe Technician Textbook

Question Number. 15. What type of material would hydraulic pipes on an undercarriage leg or bay be made from?.
Option A. Stainless steel, annealed, 14H.
Option B. 7075, H14.
Option C. 1100, 2024, in half hard state.
Correct Answer is. Stainless steel, annealed, 14H.
Explanation. NIL.

Question Number. 16. A metal pipe has a small indentation. What are the limits?.
Option A. 5% internal diameter.
Option B. 10% of external diameter.
Option C. No dent on a bend.
Correct Answer is. No dent on a bend.
Explanation. AC43 9-30c.

Question Number. 17. An aircraft pipe has a number stamped on it. It is the.
Option A. fluid it is carrying.
Option B. aircraft system.
Option C. serial number.
Correct Answer is. serial number.
Explanation. NIL.

Question Number. 18. The length of a straight hose assembly is measured.
Option A. between the outer faces of the union nuts.
Option B. between the extremities of the two nipples.
Option C. along the colored line.
Correct Answer is. between the extremities of the two nipples.
Explanation. Leaflet 5-5 2.4.

Question Number. 19. Metal tubing fluid lines are sized by wall thickness and.
Option A. outside diameter and 1/32 inch increments.
Option B. inside diameter and 1/16 inch increments.
Option C. outside diameter and 1/16 inch increments.
Correct Answer is. outside diameter and 1/16 inch increments.
Explanation. NIL.

Question Number. 20. A certain amount of slack must be left in a flexible hose during installation because, when under pressure, it.
Option A. expands in length and contracts in diameter.
Option B. contracts in length and expands in diameter.
Option C. expands in length and diameter.
Correct Answer is. contracts in length and expands in diameter.
Explanation. NIL.

Question Number. 21. The term 'cold flow' is generally associated with.
Option A. welding and sheet metal.
Option B. rubber hose.
Option C. vaporizing fuel.
Correct Answer is. rubber hose.
Explanation. deep permanent impression left in a flexible hose by the pressure of hose clamps and supports.

Question Number. 22. Flexible lines must be fitted with a slack.
Option A. of 5 - 8 % of the length.
Option B. of at least 10 - 12 % of the length.
Option C. to allow maximum flexing during operation.
Correct Answer is. of 5 - 8 % of the length.
Explanation. NIL.

Question Number. 23. The material specifications for a certain aircraft require that a replacement oil line be fabricated from3/4 inch, 0.072 5052-0 aluminum alloy tubing. What is the inside dimension of this tubing?.
Option A. 0.688 inch.

Option B. 0.606 inch.
Option C. 0.750 inch.
Correct Answer is. 0.606 inch.
Explanation. Subtract 2x wall thickness from the outside diameter.

Question Number. 24. Excessive stress on fluid or pneumatic metal tubing caused by expansion and contraction due to temperature changes can best be avoided by.
Option A. providing bends in the tubing.
Option B. using short, straight sections of tubing between fixed parts of the structure of the aircraft.
Option C. not subjecting the aircraft to sudden changes in temperature.
Correct Answer is. using short, straight sections of tubing between fixed parts of the structure of the aircraft. OR providing bends in the tubing.
Explanation. AC65-9A

Question Number. 25. Flexible hose used in aircraft systems is classified in size according tothe.
Option A. outside diameter.
Option B. inside diameter.
Option C. wall thickness.
Correct Answer is. inside diameter.
Explanation. NIL.

Question Number. 26. Which tubings have the characteristics (high strength, abrasion resistance) necessary for use in a high pressure (3,000 PSI) hydraulic system for operation of landing gear and flaps?.
Option A. 1100-1/2H or 3003-1/2H aluminum alloy.
Option B. Corrosion resistant steel annealed 1/4H.
Option C. 2024-T or 5052-0 aluminum alloy.
Correct Answer is. Corrosion resistant steel annealed 1/4H.
Explanation. NIL.

Question Number. 27. A gas or fluid line marked with the letters PHDAN.
Option A. is a high pressure line. The letters mean Pressure High, Discharge at Nacelle.
Option B. is carrying a substance which may be dangerous to personnel.

Option C. is carrying a substance which cannot be made non-toxic.
Correct Answer is. is carrying a substance which may be dangerous to personnel.
Explanation. PHDAN means Physically Dangerous to personnel.

Question Number. 28. A 3/8 inch aircraft high pressure flexible hose compared to a 3/8 inch metal tubing used in the same system will.
Option A. have equivalent flow characteristics.
Option B. have about the same OD.
Option C. usually have interchangeable applications.
Correct Answer is. have equivalent flow characteristics.
Explanation. NIL.

06b. Pipes and Unions.

Question Number. 1. How do you assemble a banjo hose?.
Option A. Put a washer on the outside of the banjo only.
Option B. Put a washer on the inside of the banjo only.
Option C. Put washer either side of the banjo.
Correct Answer is. Put washer either side of the banjo.
Explanation. NIL.

Question Number. 2. A 0.5 in. diameter pipe is to be joined using standard nuts and fittings. What coupling would you use?.
Option A. AN8- 8852-1.
Option B. AN8- 8852-2.
Option C. AN8- 8852-8.
Correct Answer is. AN8- 8852-8.
Explanation. Pipes are graded in 1/16 inch steps. The last dash number is the number of 16ths. i.e.8/16 = 0.5 inches.

Question Number. 3. To install a flare less coupling.
Option A. turn until torque is felt plus 3 flats (half turn).
Option B. hand tight plus 2 flats.
Option C. turn until torque is felt plus 2 flats.
Correct Answer is. turn until torque is felt plus 2 flats.
Explanation. BL/6-15 9.3.

Question Number. 4. A Skydrol hydraulic seal would be made of.
Option A. butyl rubber, ethelene propylene or Teflon Phosphate Ester based.
Option B. natural rubber vegetable based.
Option C. synthetic rubber mineral based.
Correct Answer is. butyl rubber, ethelene propylene or Teflon Phosphate Ester based.
Explanation. CAIPs AL/3-21.

Question Number. 5. Adapter nipples are not required on.
Option A. pipe to externally coned adapter.
Option B. pipe to pipe coupling.
Option C. pipe to internally coned adapter.
Correct Answer is. pipe to externally coned adapter.
Explanation. BL/6-15 Figure 1.

Question Number. 6. A butyl rubber seal is made from.
Option A. silicon rubber.
Option B. synthetic rubber.
Option C. latex natural rubber.
Correct Answer is. synthetic rubber.
Explanation. NIL.

Question Number. 7. What is the color of an steel flared-tube fitting?.
Option A. Black.
Option B. Red.
Option C. Blue.
Correct Answer is. Black.
Explanation. Steel AN fittings are black, aluminum AN fittings are blue.

Question Number. 8. Which statement about Military Standard (MS) flareless fittings is correct?.
Option A. During installation, MS flareless fittings are normally tightened by turning the nut a specified amount after the sleeve and fitting sealing surface have made contact, rather than being torqued.
Option B. MS flareless fittings must be tightened to a specific torque.

Option C. MS flareless fittings should not be lubricated prior to assembly.
Correct Answer is. MS flareless fittings must be tightened to a specific torque. OR During installation, MS flareless fittings are normally tightened by turning the nut a specified amount after the sleeve and fitting sealing surface have made contact, rather than being torqued.
Explanation. NIL.

Question Number. 9. A flexible sealing element subject to motion is a.
Option A. gasket.
Option B. packing.
Option C. compound.
Correct Answer is. packing.
Explanation. NIL.

07. Springs.

Question Number. 1. Coil springs are made from.
Option A. carbon or alloy steels with high working stress.
Option B. low carbon steels with high working stress.
Option C. carbon or high alloy steels with low working stress.
Correct Answer is. carbon or high alloy steels with low working stress.
Explanation. Spring steel is hardened (therefore high carbon) steel or alloy steel and work under low stress so they remain within the elastic region.

Question Number. 2. What load are spring hooks subjected to?.
Option A. Bending.
Option B. Tension.
Option C. Compressive.
Correct Answer is. Bending.
Explanation. Spring hooks are under bending stress.

Question Number. 3. Steel music wire is.
Option A. used for lower strength springs.
Option B. made of high carbon or nickel alloy.
Option C. used for high strength springs and as progressive- rate springs.
Correct Answer is. used for lower strength springs.
Explanation. NIL.

Question Number. 4. A spring should be inspected for correct.
Option A. length, strength and squareness.
Option B. width, strength and squareness.
Option C. width, length and strength.
Correct Answer is. length, strength and squareness.
Explanation. NIL.

08. Bearings.

Question Number. 1. Needle roller bearings.
Option A. can accept a small amount of misalignment.
Option B. are susceptible to brinelling.
Option C. are designed to carry axial loads.
Correct Answer is. are susceptible to brinelling.
Explanation. NIL.

Question Number. 2. When rotating a ball bearing by hand, a regular click indicates.
Option A. a cracked ring.
Option B. damage to the balls.
Option C. intergranular corrosion in the outer ring.
Correct Answer is. a cracked ring.
Explanation. NIL.

Question Number. 3. A journal load is.
Option A. compression.
Option B. radial.
Option C. axial.
Correct Answer is. radial.
Explanation. NIL.

Question Number. 4. What kind of bearing is used in a landing system?.
Option A. Needle roller bearing.
Option B. Tapered roller bearing.
Option C. Caged ball bearing.
Correct Answer is. Tapered roller bearing.
Explanation. NIL.

Question Number. 5. Spherical roller bearings resist what loads?.
Option A. Large radial but no thrust.
Option B. Large radial and moderate thrust.
Option C. Large thrust and moderate radial.

Correct Answer is. Large radial and moderate thrust.
Explanation. Radial' means outward, 'thrust' means axial. BL/6-14 2.3.3.

Question Number. 6. Where are needle roller bearings used?.
Option A. High speed operations.
Option B. Where is fluid damped bearing used.
Option C. Where there are space restrictions.
Correct Answer is. Where there are space restrictions.
Explanation. Needle roller bearings are used where there are space restrictions.

Question Number. 7. Loads on tapered roller bearings are.
Option A. thrust only.
Option B. radial only.
Option C. radial and thrust.
Correct Answer is. radial and thrust.
Explanation. Taper roller bearings can take radial and thrust loads. BL/6 - 14 2.3.2.

Question Number. 8. A Hardy Spicer coupling has what type of bearings?.
Option A. Ball Bearings.
Option B. Needle bearings.
Option C. Plain bearings.
Correct Answer is. Needle bearings.
Explanation. A hardy splicer is a universal coupling as found on vehicle drive shafts and they are fitted with needle bearings.

Question Number. 9. A self aligning bearing is a.
Option A. angular bearing.
Option B. precision bearing.
Option C. radial bearing.
Correct Answer is. radial bearing.
Explanation. A self aligning bearing is a radial bearing.

Question Number. 10. A crankshaft would be fitted with a.
Option A. cylindrical roller bearing.
Option B. taper roller bearing.

Option C. spherical roller bearing.
Correct Answer is. spherical roller bearing.
Explanation. CAIP BL/5-2 para. 2.2.3.

Question Number. 11. Where heat is likely to be transmitted through a bearing.
Option A. group 2 bearings are used.
Option B. group 4 bearings are used.
Option C. group 3 bearings are used.
Correct Answer is. group 4 bearings are used.
Explanation. Group 4 bearings have the greatest clearance.

Question Number. 12. Shielded ball bearings are inspected by.
Option A. running at operating speed and listening for signs of wear.
Option B. dismantling and inspecting.
Option C. rotating slowly by hand.
Correct Answer is. rotating slowly by hand.
Explanation. A feel test is the most likely inspection. The run test is not done at operating speed.

Question Number. 13. Thrust bearings take.
Option A. radial loads.
Option B. journal loads.
Option C. sideloads.
Correct Answer is. side loads.
Explanation. Thrust bearings take side loads.

Question Number. 14. A single row ball bearing is best suited to accepting.
Option A. radial loads only.
Option B. axial loads only.
Option C. axial and radial Loads.
Correct Answer is. radial loads only.
Explanation. A single row ball bearing carries radial loads only BL/6-14 2.

Question Number. 15. Taper roller bearings are used for which of the following

purposes?.
Option A. To transmit radial loads whilst resisting axial movement.
Option B. To transmit thrust loads with radial loads.
Option C. To permit axial movement whilst resisting radial load.
Correct Answer is. To transmit thrust loads with radial loads.
Explanation. Taper roller bearings transmit thrust and radial loads equally. BL/6-14 Para.2.3.2.

Question Number. 16. The stationary race of a journal bearing is normally.
Option A. a spigoted fit.
Option B. an interference fit.
Option C. a push fit.
Correct Answer is. an interference fit.
Explanation. BL/6-14 5.1.

Question Number. 17. Inspection of bearings is normally carried out.
Option A. in situ.
Option B. when dismantled.
Option C. when removed from an assembly.
Correct Answer is. in situ.
Explanation. BL/6-14 6.2.

Question Number. 18. Damage to the shield of a bearing should result in.
Option A. no action.
Option B. replacement of the shield.
Option C. rejection of the bearing.
Correct Answer is. rejection of the bearing.
Explanation. BL/6- 14 6.2.1 (iii).

Question Number. 19. A watermark on a bearing indicates.
Option A. bearing running dry.
Option B. intergranular corrosion.
Option C. lack of lubrication.
Correct Answer is. intergranular corrosion.
Explanation. Intergranular corrosion (on some stainless steels) looks like a thin line on the surface of the metal - known as water stain.

Question Number. 20. Needle bearings resist.
Option A. radial and axial load.
Option B. axial load only.
Option C. radial load only.
Correct Answer is. radial load only.
Explanation. NIL.

Question Number. 21. When silica gel has absorbed moisture the colour changes
to.
Option A. pink.
Option B. white.
Option C. blue.
Correct Answer is. pink.
Explanation. CAAIPs Leaflet 1-8 Page 3.

Question Number. 22. A thrust bearing is designed so that.
Option A. it transmits radial loads, therefore limiting axial movement.
Option B. it transmits axial loads, therefore limiting radial movement.
Option C. it transmits axial loads, therefore limiting axial movement.
Correct Answer is. it transmits axial loads, therefore limiting axial movement.
Explanation. NIL.

Question Number. 23. Lubrication of roller bearings and needle bearings are.
Option A. at low pressure via a tube.
Option B. under pressure.
Option C. by hand.
Correct Answer is. by hand.
Explanation. But it depends what type of lubricant is used and the bearing application.

Question Number. 24. Silica gel is used for moisture control during storage, when serviceable itis colored.
Option A. blue.

Option B. white.
Option C. pink.
Correct Answer is. blue.
Explanation. NIL.

09. Transmissions.

Question Number. 1. How do you check a chain for elongation?.
Option A. Apply a load, measure chain and use 5% max formula to check extension.
Option B. Apply a load, measure chain and use 2% max formula to check extension.
Option C. Hang the chain under its own weight, measure chain and use 2% max formula to checkextension.
Correct Answer is. Apply a load, measure chain and use 2% max formula to check extension.
Explanation. CAAIPS Leaflet 5-4 para 6.3.

Question Number. 2. How do you store a chain?.
Option A. Oiled and coiled in greaseproof paper.
Option B. Lay uncoiled and flat in greaseproof paper.
Option C. Hanged so they do not kink.
Correct Answer is. Oiled and coiled in greaseproof paper.
Explanation. CAAIPs leaflet 5-4 para 6.7.

Question Number. 3. Epicyclic gears are used on.
Option A. shafts rotating on axis 90 degrees from each other.
Option B. shafts rotating on the same axis.
Option C. shafts rotating on offset axis.
Correct Answer is. shafts rotating on the same axis.
Explanation. A turboprop reduction gearbox is a good example of an epicyclic gear system.

Question Number. 4. What is the purpose of the guard, where a control chain goes around a sprocket?.
Option A. Stops the chain coming off if it goes slack.
Option B. Protects personnel when carrying out maintenance.

Option C. Prevents entry of foreign bodies.
Correct Answer is. Stops the chain coming off if it goes slack.
Explanation. NIL.

Question Number. 5. Worm drives operate in shafts which are.
Option A. 90 degrees to each other and in a differing plane.
Option B. 90 degrees to each other and in the same plane.
Option C. parallel to each other and in the same plane.
Correct Answer is. 90 degrees to each other and in a differing plane.
Explanation. NIL.

Question Number. 6. The pattern of a gear is the.
Option A. the path they take when the gear is rotating.
Option B. profile of the gear teeth.
Option C. mark it leaves on a mating gear.
Correct Answer is. mark it leaves on a mating gear.
Explanation. The test involves painting the surface of a gear tooth then running the gear, then inspecting the 'pattern' worn into the painted surface.

Question Number. 7. How is the change in direction of a control chain, in two planes, achieved?.
Option A. By using a pulley.
Option B. By using bi-planer blocks.
Option C. By using spring clips.
Correct Answer is. By using bi-planer blocks.
Explanation. AL/3- 2 Figure 4.

Question Number. 8. How is a non-reversible chain different from a normal
chain?.
Option A. By use of a chain guard.
Option B. Every second outer plate is extended in one direction.
Option C. Different end fittings.

Correct Answer is. Every second outer plate is extended in one direction.
Explanation. AL/3- 2.

Question Number. 9. When not under load where should a pair of gears sit?.
Option A. In the middle.
Option B. On the toe.
Option C. On the heel.
Correct Answer is. In the middle.
Explanation. NIL.

Question Number. 10. For a pair of gears to operate properly, they must have.
Option A. lash and pattern.
Option B. end play and thrust.
Option C. pattern and profile.
Correct Answer is. lash and pattern.
Explanation. See Jeppesen Helicopter Maintenance.

Question Number. 11. The teeth on the smaller wheel of a bevel gear are called
the.
Option A. heel.
Option B. toe.
Option C. foot.
Correct Answer is. toe.
Explanation. See Jeppesen Helicopter Maintenance.

Question Number. 12. The correct meshing of gears is found by observing the marks made during a gear mesh test. On what part of the tooth should the marks be?.
Option A. Top.
Option B. Bottom.
Option C. Middle.
Correct Answer is. Middle.
Explanation. See Jeppesen Helicopter Maintenance.

Question Number. 13. What type of gear would be used on a propeller reduction

gearbox?.
Option A. Split epicyclic.
Option B. Bevel.
Option C. Epicyclic.
Correct Answer is. Epicyclic.
Explanation. NIL.

Question Number. 14. Where would you find the inspection interval for chains?.
Option A. Overhaul manual.
Option B. Maintenance schedule.
Option C. Maintenance manual.
Correct Answer is. Maintenance schedule.
Explanation. Time intervals are only in the Maintenance Schedule.

Question Number. 15. A feather key locates a gear on a shaft and permits.
Option A. positive drive and axial movement.
Option B. positive drive with the gear firmly locked.
Option C. a positive and strong drive for transmissions.
Correct Answer is. positive drive and axial movement.
Explanation. A feather key allows axial movement.

Question Number. 16. A worm drive creates.
Option A. a drive in 2 planes and transmits both directions.
Option B. a drive in 1 plane but transmits both directions.
Option C. a drive in 2 planes but transmits 1 direction only.
Correct Answer is. a drive in 2 planes but transmits 1 direction only.
Explanation. NIL.

Question Number. 17. The teeth of a gear would normally be.
Option A. nitrided.
Option B. tempered.
Option C. case hardened.
Correct Answer is. case hardened.
Explanation. Hardening right through the gear teeth would make them brittle and tend to break.

Question Number. 18. If a chain is removed for routine maintenance.
Option A. it must be proof checked to full load.
Option B. it must be proof checked to ½ max load.
Option C. it does not have to be proof checked.
Correct Answer is. it does not have to be proof checked.
Explanation. AL/3- 2 6.6.

Question Number. 19. On gear teeth, the wear pattern should be.
Option A. the middle of the tooth most worn.
Option B. even from top to bottom.
Option C. the top edge most worn.
Correct Answer is. the middle of the tooth most worn.
Explanation. NIL.

Question Number. 20. On bevel gear teeth, the wear pattern should be.
Option A. at the center of the tooth.
Option B. greatest at the heel, least at the toe.
Option C. greatest at the toe, tapering off to the heel.
Correct Answer is. at the center of the tooth.
Explanation. NIL.

Question Number. 21. Bevel gears are.
Option A. all over case hardened.
Option B. heel is hardened.
Option C. toe is hardened.
Correct Answer is. all over case hardened.
Explanation. Bevel gears are all over case hardened.

Question Number. 22. A chain is checked for stiff links by.
Option A. hanging by hand by measure and sight.
Option B. stretching out and measuring.
Option C. running the chain over a finger by 180 degrees.
Correct Answer is. running the chain over a finger by 180 degrees.
Explanation. AL/3- 2 6.4.

Question Number. 23. During an inspection interval one segment of a long chain is found to be defective, the solution to this is to.
Option A. replace 3 segment either side of the deficiency.
Option B. replace the whole chain.
Option C. replace the particular segment and run components to check for serviceability.
Correct Answer is. replace the whole chain.
Explanation. The chain cannot be repaired. It must be replaced. Leaflet 5-4.

Question Number. 24. The teeth of a gear would normally be.
Option A. tempered.
Option B. case hardened.
Option C. nitrided.
Correct Answer is. case hardened.
Explanation. The teeth of a gear are normally case hardened by flame cooling and water spray quenching.

Question Number. 25. Non-reversible chains can.
Option A. only be moved in one direction.
Option B. only be fitted in one direction.
Option C. not be fitted through pressure bulkheads.
Correct Answer is. only be fitted in one direction.
Explanation. Leaflet 5-4 4.3.2.

Question Number. 26. The large diameter on a bevel gear is called the.
Option A. foot.
Option B. toe.
Option C. heel.
Correct Answer is. heel.
Explanation. The large diameter is the heel, the small diameter is the toe.

Question Number. 27. How do you check a chain for elongation?.
Option A. Lay flat on a table, apply tensile load and measure.
Option B. Adjust the end fittings.
Option C. Hang chain up, check sight line and measure.
Correct Answer is. Lay flat on a table, apply tensile load and measure.

Explanation. CAAIPs Leaflet 5-4 para 6.3.

Question Number. 28. Drive planes on an epicyclic gear are.
Option A. around a common axis of the plane.
Option B. at different angles to the plane.
Option C. at right angles to the plane.
Correct Answer is. around a common axis of the plane.
Explanation. NIL.

Question Number. 29. Compared with the spur gears, spiral gears have.
Option A. have mechanical advantages.
Option B. less stress concentration on gears.
Option C. more wear resistance.
Correct Answer is. less stress concentration on gears.
Explanation. NIL.

Question Number. 30. The clutch which can overrun the driving member, is known as.
Option A. overload clutches.
Option B. no-slip clutches.
Option C. freewheel clutches.
Correct Answer is. freewheel clutches.
Explanation. NIL.

Question Number. 31. A gear system, or gear train, is made up of gears that are.
Option A. driven and driver.
Option B. idler.
Option C. driven, driver and idler.
Correct Answer is. driven, driver and idler.
Explanation. NIL.

10. Control Cables.

Question Number. 1. When is a turnbuckle not in safety?.
Option A. When a small diameter wire can be passed through the inspection hole.

Option B. When you can see daylight through the hole.
Option C. When a wire of the same diameter as the inspection hole can be passed through.
Correct Answer is. When a wire of the same diameter as the inspection hole can be passed through.
Explanation. NIL.

Question Number. 2. How do you check a turnbuckle is in safety?.
Option A. Use the inspection hole or count the threads showing.
Option B. Ensure that the turnbuckle cannot be turned by hand.
Option C. Make sure no threads are showing at either end of the turnbuckle.
Correct Answer is. Use the inspection hole or count the threads showing.
Explanation. NIL.

Question Number. 3. British aircraft cables are classified by their.
Option A. breaking load in hundredweights.
Option B. breaking loads in lbf, where 1 lbf = 4.448N.
Option C. diameter and breaking load in Hundredweights.
Correct Answer is. breaking load in hundredweights.
Explanation. NIL.

Question Number. 4. Cables are preferred to other control systems because.
Option A. single braid allows for 2 way directions.
Option B. they are strong and light.
Option C. they maintain slight mechanical advantage over push/pull systems.
Correct Answer is. they are strong and light.
Explanation. Cable control systems are strong and light. Jeppesen A&P Airframe Handbook Pg.143.

Question Number. 5. Turnbuckles, depending on type, are locked by.
Option A. stiffnuts.
Option B. locknuts and wire.
Option C. castleated nuts and splitpins.

Correct Answer is. locknuts and wire.
Explanation. AC43 7-43.

Question Number. 6. Cable tension is maintained by.
Option A. a grommet.
Option B. a cable tension regulator.
Option C. a fairlead.
Correct Answer is. a cable tension regulator.
Explanation. A cable tension regulator maintains cable tension.

Question Number. 7. To correctly tension cables it can help to.
Option A. take up initial slack by additional pulleys.
Option B. have control surface locks in to support weight and adjust turnbuckles equally.
Option C. use a cable run with turnbuckles at least every eight feet.
Correct Answer is. have control surface locks in to support weight and adjust turnbuckles equally.
Explanation. AL/3- 7.

Question Number. 8. British turnbuckles are checked for safety by.
Option A. attempting to pass a hardened pin probe through the inspection hole.
Option B. attempting to pass locking wire through the hole.
Option C. looking through the hole and checking for threads showing.
Correct Answer is. attempting to pass a hardened pin probe through the inspection hole.
Explanation. CAIPs AL/3-7.

Question Number. 9. Turnbuckles are correctly fitted when.
Option A. both rods are seen to touch in the inspection hole.
Option B. both rods enter the barrel by the same amount.
Option C. the inspection hole is blind or the required number of threads are showing.
Correct Answer is. the inspection hole is blind or the required number of threads are showing.
Explanation. AC43 7-166.

Question Number. 10. How is the diameter of a cable measured?.
Option A. Diameter of one wire multiplied by the number of wires.
Option B. Overall diameter.
Option C. Diameter of one wire only.
Correct Answer is. Overall diameter.
Explanation. NIL.

Question Number. 11. 9 * 16 cable is.
Option A. 9 strands of 16 wires.
Option B. 9 cables having 16 turns per inch.
Option C. cable size 9/16 inch diameter.

Correct Answer is. 9 strands of 16 wires.
Explanation. BL/6-24 2.2.

Question Number. 12. Turnbuckles are used to.
Option A. join the two ends of the cable.
Option B. adjust major tension on the cable.
Option C. adjust minor tension on the cable.
Correct Answer is. adjust minor tension on the cable.
Explanation. NIL.

Question Number. 13. A turnbuckle is in safety when.
Option A. the colour on the threads is showing.
Option B. it is lockwired.
Option C. the witness hole is covered or the amount of threads showing at the cable end is in accordance with the Maintenance Manual.
Correct Answer is. the witness hole is covered or the amount of threads showing at the cable end is in accordance with the Maintenance Manual.
Explanation. NIL.

Question Number. 14. A turnbuckle can be safetied by.
Option A. teflon lock nuts.
Option B. lock nuts and safety wirelocking.
Option C. doesn't require to be safety locked.
Correct Answer is. lock nuts and safety wirelocking.
Explanation. NIL.

Question Number. 15. Spring locking clips for turnbuckles can be used on.
Option A. no flying control cables.
Option B. all flying control cables.
Option C. only on trim control cables.
Correct Answer is. all flying control cables.
Explanation. NIL.

Question Number. 16. What is the small hole on a swaged turnbuckle for?.
Option A. To check for moisture deposits.
Option B. To check if correct amount of cable has been inserted before swaging.
Option C. To alloy the turnbuckle to be wire locked.
Correct Answer is. To check if correct amount of cable has been inserted before swaging.
Explanation. NIL.

Question Number. 17. When checking the safety of turnbuckles you should use
what?.
Option A. Visual check.
Option B. Wire the same diameter as the inspection hole.
Option C. Wire smaller than inspection hole.
Correct Answer is. Wire the same diameter as the inspection hole.
Explanation. NIL.

Question Number. 18. Cable minimum breakage strain for British and American is measured by.
Option A. hundredweight for British, c.s.a. and pounds for American.
Option B. hundredweight for British, c.s.a. hundredweight for American.
Option C. pounds for both.
Correct Answer is. hundredweight for British, c.s.a. and pounds for American.
Explanation. CAAIPs Leaflet 2-12 Table 1 is British, Table 2 is American.

Question Number. 19. If a pulley shows signs of wear on one side.
Option A. the cable is too tightly tensed.

Option B. the pulley is too large for the cable.
Option C. the cable is misaligned.
Correct Answer is. the cable is misaligned.
Explanation. Jepperson A&P Technician Airframe Textbook page 1-45, figure 1-84.

Question Number. 20. A 7x7 cable has seven strands each of.
Option A. fourteen wires.
Option B. seven wires.
Option C. one wire.
Correct Answer is. seven wires.
Explanation. Jepperson A&P Technician Airframe Textbook page 1-41.

Question Number. 21. Cable stops are manufactured from.
Option A. stainless steel.
Option B. copper.
Option C. magnesium alloy.
Correct Answer is. copper.
Explanation. AC43 7-148e P.7- 33.

Question Number. 22. Pulleys are manufactured from.
Option A. brass and phenolic resin.
Option B. tungum and high tensile steel.
Option C. stainless steel and nylon.
Correct Answer is. brass and phenolic resin.
Explanation. Phenolic resin also known as Micarta or Tufnol.

Question Number. 23. In a Teleflex flexible control system, the Teleflex cable consists of.
Option A. multi strand steel wires and is used primarily as a single one way device operated from acontrol lever.
Option B. a high tensile steel wire with a right or left hand helix wire wound on to it. The system can operate in two directions.
Option C. a flexible seven or nineteen strand steel cable used for the operation of manual flying controls.
Correct Answer is. a high tensile steel wire with a right or left hand helix wire wound on to it. The system can operate in two directions.

Explanation. NIL.

Question Number. 24. A cable tension regulator will be installed in a flying control system to.
Option A. automatically compensate for low cable tension caused by worn cables.
Option B. compensate for rapid movement of the controls by taking up the slack.
Option C. allow for variations in temperature which will vary the cable tension.
Correct Answer is. allow for variations in temperature which will vary the cable tension.
Explanation. NIL.

Question Number. 25. Aircraft flying control cables are normally classified by the.
Option A. circumference of the cable and overall length.
Option B. number of strands it contains and the number of wires in each strand.
Option C. minimum breaking load or the diameter in inches.
Correct Answer is. minimum breaking load or the diameter in inches.
Explanation. British cables are classified by the minimum breaking load - American cables by diameter (only).

Question Number. 26. 7 * 7 cable has seven stranded wires each with.
Option A. 7 wires.
Option B. 14 wires.
Option C. 49 wires.
Correct Answer is. 7 wires.
Explanation. 7 strands make 1 wire. 7 Wires make 1 cable.

Question Number. 27. Tension regulators on aero planes with fully metal bodies are used to.
Option A. set up the necessary tension.
Option B. maintain the necessary tension.
Option C. relax the tension in cold conditions.
Correct Answer is. maintain the necessary tension.

Explanation. Tension is set up by adjustments of the turnbuckles and tension regulators keep tension the same over varying operating temperatures.

Question Number. 28. What is the smallest size cable that may be used in aircraft primary control systems?.
Option A. 5/16 inch.
Option B. 1/4 inch.
Option C. 1/8 inch.
Correct Answer is. 1/8 inch.
Explanation. CFR 23.689.

Question Number. 29. How are changes in direction of a control cable accomplished?.
Option A. Bellcranks.
Option B. Fairleads.
Option C. Pulleys.
Correct Answer is. Pulleys.
Explanation. NIL.

Question Number. 30. A flight control cable is replaced if.
Option A. single wires are blended together.
Option B. the protective fluid coating is missing.
Option C. a wire is 20% worn.
Correct Answer is. single wires are blended together.
Explanation. AC43 7-149 g.

11. Electrical Cables and Connectors.

Question Number. 1. A 14 gauge cable when compared to an 18 gauge cable has.
Option A. the same current rating.
Option B. higher current rating.
Option C. lower current rating.
Correct Answer is. higher current rating.
Explanation. A 14 gauge cable is thicker than an 18 gauge cable.

Question Number. 2. In a front release connector, the pin will be.
Option A. released from the front and extracted from the rear.
Option B. released from rear and extracted from the front.
Option C. released from the front and extracted from the front.
Correct Answer is. released from the front and extracted from the rear.
Explanation. CAAIPs Leaflet 9-3 8.3.2.

Question Number. 3. An interconnect cable has what insulation?.
Option A. same thickness as airframe cable.
Option B. thicker than airframe cable.
Option C. thinner than airframe cable.
Correct Answer is. thinner than airframe cable.
Explanation. NIL.

Question Number. 4. Why is the ground side of an electrical power conductor usually connected to a male connector?.
Option A. To make installation of the connector easier.
Option B. To reduce the chance of an accidental short.
Option C. To reduce the chance of corrosion affecting the pins.
Correct Answer is. To reduce the chance of an accidental short.
Explanation. Jepperson A&P Technician Airframe textbook Ch7-61.

Question Number. 5. Maximum temperature of tin coated copper cable is.
Option A. 200 °C.
Option B. 260 °C.
Option C. 105 °C.
Correct Answer is. 105 °C.
Explanation. Normally 130 °C. This figure of 105 °C is for old obsolete cables.

Question Number. 6. Plug pins are numbered.
Option A. from the outside in - clockwise.
Option B. from the inside out - clockwise.
Option C. from the inside out - anticlockwise.
Correct Answer is. from the inside out - clockwise.

Explanation. Pallett Aircraft Electrical Systems Pg 91. This should be challenged, as there are many different types and many different numbering systems.

Question Number. 7. Equipment wire.
Option A. is flexible and suitable for soldering.
Option B. can be used for interconnect wiring.
Option C. has thicker insulation than interconnect wire.
Correct Answer is. is flexible and suitable for soldering.
Explanation. NIL.

Question Number. 8. In the wiring code shown, what does the number 6 (4th number from theleft) represent? 1EF6B22 NMS V.
Option A. Cable number.
Option B. Circuit function.
Option C. Cable size.
Correct Answer is. Cable number.
Explanation. EEL/3-1 9.1.

Question Number. 9. An aluminum oxide layer on a conductor will do what when the temperature is increased?.
Option A. Remain the same.
Option B. Become thicker.
Option C. Become thinner.
Correct Answer is. Become thicker.
Explanation. Oxides of metals always become thicker with elevated temperatures.

Question Number. 10. What is a coaxial cable?.
Option A. A single conductor.
Option B. Two or more conductors.
Option C. A twisted pair of conductors.
Correct Answer is. Two or more conductors.
Explanation. A coaxial cable is a single shielded cable. But Palletts's Aircraft Electrical systemsdescribes it as 'two or more separate conductors' Page 86. Sometimes the outer shielding isconsidered a conductor (and sometimes carries signal).

Question Number. 11. 'X' on an electrical cable indicates.
Option A. emergency power.
Option B. AC power.
Option C. control system.
Correct Answer is. AC power.
Explanation. X' indicates AC power.

Question Number. 12. What must you be careful with a hot stamped cable?.
Option A. Corrosion.
Option B. Peeling of the insulation.
Option C. Wet arc tracking.
Correct Answer is. Wet arc tracking.
Explanation. Hot stamping has been known to cause wet arc tracking. CAAIPs Leaflet 11-5 Para.8.2.

Question Number. 13. What is the effect of aluminum oxide on aluminum electrical cable?.
Option A. Insulates.
Option B. Reduces resistance.
Option C. Provides strength.
Correct Answer is. Insulates.
Explanation. All metal oxides are insulators.

Question Number. 14. What amperage is an 18 swg cable?.
Option A. 1 amp.
Option B. 10 amp.
Option C. 5 amp.
Correct Answer is. 10 amp.
Explanation. 18 swg is a 10 amp cable.

Question Number. 15. A co-axial cable is better than a normal cable because.
Option A. there is an electrostatic field around it which helps to reduce the electromagnetic field.
Option B. weight for weight it can carry more signal.

Option C. it has less resistance.
Correct Answer is. there is an electrostatic field around it which helps to reduce the electromagnetic field.
Explanation. The shielding in a coaxial cable converts the electromagnetic field into electrical energy.

Question Number. 16. What is the danger if a silver coated connector comes into contact with glycol deicing fluid.
Option A. Fire hazard.
Option B. Corrosion.
Option C. Wet arc tracking.
Correct Answer is. Fire hazard.
Explanation. Silver coated connectors and glycol deicing fluid is a fire hazard. CAAIPs.

Question Number. 17. When silver coated connectors are used in unpressurised parts of the aircraft.
Option A. wet track arcing can occur.
Option B. separation of the coating can occur.
Option C. corrosion can occur.
Correct Answer is. corrosion can occur.
Explanation. Red Plague. CAAIPs Leaflet 11-5 Para.8.7.

Question Number. 18. The conductor in Tersil cable is.
Option A. stainless steel.
Option B. nickel plated copper.
Option C. tinned copper.
Correct Answer is. nickel plated copper.
Explanation. The conductor in tersil cable is nickel plated copper. Pallett Aircraft Electrical Systems Page 83.

Question Number. 19. A cable is marked NYVIN 22. The 22 represents the.
Option A. current/weight ratio.
Option B. cross sectional area.
Option C. current rating.
Correct Answer is. cross sectional area.
Explanation. The 22 represents the cross sectional area. EEL/9-3 2.

Question Number. 20. Copper is an inferior conductor to aluminum when comparing.
Option A. weight for weight.
Option B. CSA with CSA.
Option C. load for load.
Correct Answer is. weight for weight.
Explanation. Aluminum is better than copper when you compare weight to weight (CSA = cross sectional area).

Question Number. 21.Silver plated copper wire has a maximum working temp of.
Option A. 250 °C.
Option B. 300 °C.
Option C. 200 °C.
Correct Answer is. 200 °C.
Explanation. Leaflet 11-5 7.2.1.

Question Number. 22. For an electrical cable to be fireproof it must be able to stand 1100 °Cfor.
Option A. 20 mins.
Option B. 10 mins.
Option C. 15 mins.
Correct Answer is. 15 mins.
Explanation. Fireproof -15 minutes, fire resistant -5 minutes. Leaflet 11-5 5.5.

Question Number. 23. Oxide on exposed silver plated wires is.
Option A. non corrosive.
Option B. a conductor.
Option C. an insulator.
Correct Answer is. an insulator.
Explanation. Any metal oxide is an insulator. Leaflet 11-5.

Question Number. 24. On a rear insert plug the tool is used to.
Option A. insert the pins from the front and extracted from the rear.
Option B. insert the pins from the rear and extract from the front.

Option C. insert the pins from the rear and extract from the rear.
Correct Answer is. insert the pins from the rear and extract from the rear.
Explanation. All electrical pins are inserted from the rear. The difference is how they are removed.

Question Number. 25. Nickel coated cables temperature range is.
Option A. 200 to 250 °C.
Option B. 150 to 200 °C.
Option C. 100 to 150 °C.
Correct Answer is. 200 to 250 °C.
Explanation. Tin coated copper - 135 °C. Silver coated copper -200 °C. Nickel coated copper -260 °C. CAAIPs Leaflet 11-5 Para.7.2.

Question Number. 26. Aluminum wiring when flexed will.
Option A. have a higher resistance.
Option B. have no effect.
Option C. work harden and embrittle.
Correct Answer is. work harden and embrittle.
Explanation. Flexing aluminum wire will work harden it. CAAIPs Leaflet 9-3.

Question Number. 27. A foot operated hydraulic swaging tools is checked for fluid level.
Option A. vertically.
Option B. horizontally.
Option C. only when operating pressure is reached.
Correct Answer is. horizontally.
Explanation. NIL.

Question Number. 28. On a hydraulic swaging tool, the swage is formed when.
Option A. the bypass valve closes and ram is neutrally loaded.
Option B. the bypass valve opens and ram is neutrally loaded.
Option C. swage pressure is reached on the gauge.
Correct Answer is. the bypass valve opens and ram is neutrally loaded.
Explanation. Leaflet 9-3 Para.7.5.7 e (iii).

Question Number. 29. Interference in ribbon cables can be prevented by.
Option A. the use of a common earth return between signal wires in the cable.
Option B. grounding alternate wires so that signal wires are never adjacent.
Option C. using alternate return wires so that the cable differences cancel each other out.
Correct Answer is. grounding alternate wires so that signal wires are never adjacent.
Explanation. An 80 wire ribbon cable, 40 of them will be grounded to the metal connector at each end. The connector will be 40 pin.

Question Number. 30. H.T. leads are.
Option A. multi-strand, single-core, screened.
Option B. single-strand, single-core, screened.
Option C. multi-strand, multi-core, screened.
Correct Answer is. multi-strand, single-core, screened.
Explanation. Most HT leads are multi-strand single core.

Question Number. 31. If the cross sectional area of a cable is increased, what will happen to the voltage drop?.
Option A. Decrease.
Option B. Increase.
Option C. Stay the same.
Correct Answer is. Decrease.
Explanation. NIL.

Question Number. 32. The cross sectional area of a copper crimp barrel is.
Option A. larger than an aluminum one.
Option B. smaller than an aluminum one.
Option C. same as an aluminum one.
Correct Answer is. smaller than an aluminum one.
Explanation. NIL.

Question Number. 33. Electrical cable on aircraft is mainly made from copper

because.
Option A. it offers low resistance to current flow.
Option B. it more malleable.
Option C. it does not oxidise.
Correct Answer is. it offers low resistance to current flow.
Explanation. NIL.

Question Number. 34. When crimping, what chapter in the ATA system should you refer to?.
Option A. 20.
Option B. 24.
Option C. 12.
Correct Answer is. 20.
Explanation. Chapter 20 is 'Standard Practices'.

Question Number. 35. Interconnect cables.
Option A. employ thinner insulation than airframe types.
Option B. are used for equipment wire in the unified system.
Option C. are the cable through the MEC to the engine.
Correct Answer is. employ thinner insulation than airframe types.
Explanation. CAAIPS Leaflet 11-5. 4.3.

Question Number. 36. The first step for the coaxial cable to attach to the end fitting is.
Option A. use a tooling hold between the assembly and cable.
Option B. the outer covering is cut back to expose the braided outer conductors.
Option C. back-off the insulator and connect with conductor.
Correct Answer is. the outer covering is cut back to expose the braided outer conductors.
Explanation. Aircraft Electrical Systems 3rd edition by EHJ Pallet; Chap 4 pg 87.

Question Number. 37. A fire resistant cable must maintain adequate insulation in a fire for.
Option A. 10 minutes.
Option B. 5 minutes.

Option C. 30 minutes.
Correct Answer is. 5 minutes.
Explanation. CAAIPs leaflet 11-5, page 5, paragraph 4.5 (note the difference from a 'Fireproof' cable para 4.6).

Question Number. 38. When silver coated connectors are used in unpressurised parts of the aircraft.
Option A. wet track arcing can occur.
Option B. red plague can occur.
Option C. separation of the coating can occur.
Correct Answer is. red plague can occur.
Explanation. Red Plague. CAAIPs Leaflet 11-5 Para.8.7.

Question Number. 39. Knuckling is a problem on earlier aircraft cables due to.
Option A. hot stamping of cables.
Option B. too much flux.
Option C. wires being pulled through too hard.
Correct Answer is. wires being pulled through too hard.
Explanation. External document….
http://www.caa.co.uk/docs/33/AIL0140.PDF

Question Number. 40. Cable current ratings are based on a conductor temperature rise of 40 °C and if the maximum design ambient temperature is continuously exceeded they should be.
Option A. multiplied by the 'K' factor.
Option B. divide by the 'K' factor.
Option C. halved.
Correct Answer is. multiplied by the 'K' factor.
Explanation. NIL.

Question Number. 41. Which of the following types of electrical wire is likely to be used for connection of thermo-couples around the jet-pipe of a turbine engine?.
Option A. Nyvin.
Option B. Tersil.
Option C. Fepsil.

Correct Answer is. Fepsil.
Explanation. Aircraft Electrical Systems Pallett Page 83/4.

Question Number. 42. The main reason why crimped joints are preferable to soldered joints is.
Option A. the quality of crimped joints will be constant.
Option B. no flux is needed.
Option C. there is no heat required.
Correct Answer is. there is no heat required.
Explanation. NIL.

Question Number. 43. In the cable identification '2 P 215 A 28 N' the position of the letter P indicates.
Option A. that it is a Pneumatics system cable.
Option B. the circuit function.
Option C. which segment the cable is in.
Correct Answer is. the circuit function.
Explanation. CAAIPs Leaflet 9-3 para 9.

Question Number. 44. Crimping terminals are colour coded. The colour indicates.
Option A. the type of crimping tool to be used only.
Option B. the wire size to be used with that crimp only.
Option C. both the crimping tool and the size of the wire to be used.
Correct Answer is. both the crimping tool and the size of the wire to be used.
Explanation. AC65-15A A&P Mech. Airframe handbook page 449.

Question Number. 45. A 14 SWG electrical cable when compared to a 18 SWG cable can carry.
Option A. less current.
Option B. the same current.
Option C. more current.
Correct Answer is. more current.
Explanation. 14 SWG is a bigger cross sectional area than 18 SWG.

Question Number. 46. Co-axial cables are used.

Option A. as they are able to handle high current.
Option B. as the fields due to current flow in the inner and outer cancel each other out.
Option C. as they produce an electrostatic field around them which prevents HIRF interference.
Correct Answer is. as the fields due to current flow in the inner and outer cancel each other out.
Explanation. Aircraft Electrical System 3rd editin By EHJ Pallet; last para on pg 86.

Question Number. 47. Direct removal connector pins are fitted from the rear.
Option A. are fitted from the front but removed from the rear.
Option B. and removed from the rear.
Option C. and removed from the front.
Correct Answer is. and removed from the rear.
Explanation. NIL.

Question Number. 48. When installing coaxial cable, it should be secured along its entire length.
Option A. at 2-foot intervals.
Option B. at 1-foot intervals.
Option C. wherever the cable sags.
Correct Answer is. at 2-foot intervals.
Explanation. NIL.

Question Number. 49. Which of the following factors must be taken into account when determining the wire size to use for an aircraft installation?.
Option A. Allowable power loss, permissible voltage drop, current carrying capability of the conductor, type of load (continuous or intermittent).
Option B. Mechanical strength, allowable power loss, resistance of current return path through the aircraft structure, permissible voltage drop.
Option C. Allowable power loss, resistance of current return path through the aircraft structure, current carrying capability of the conductor, type of load (continuous or intermittent).
Correct Answer is. Mechanical strength, allowable power loss, resistance of current return path through the aircraft structure, permissible voltage

drop. OR Allowable power loss, permissible voltage drop, current carrying capability of the conductor, type of load (continuous or intermittent).
Explanation. NIL.

Question Number. 50. How should splices be arranged if several are to be located in an electrical wire bundle?.
Option A. Enclosed in a conduit.
Option B. Grouped together to facilitate inspection.
Option C. Staggered along the length of the cable.
Correct Answer is. Staggered along the length of the cable.
Explanation. NIL.

Question Number. 51. When approved, splices may be used to repair manufactured harnesses of installed wiring. The maximum number of splices permitted between any two connectors is.
Option A. two.
Option B. one.
Option C. three.
Correct Answer is. one.
Explanation. AC 43 para. 11-167 (c).

Question Number. 52. The most common method of attaching a pin or socket to an individualwire in an MS electrical connector is by.
Option A. crimping.
Option B. soldering.
Option C. crimping and soldering.
Correct Answer is. crimping.
Explanation. NIL.

Question Number. 53. The pin section of an AN/MS connector is normally installed on.
Option A. the power supply side of the circuit.
Option B. either side of a circuit (makes no difference).
Option C. the ground side of the circuit.
Correct Answer is. the ground side of the circuit.
Explanation. NIL.

Question Number. 54. The primary considerations when selecting electric cable size are.
Option A. the voltage and amperage of the load it must carry.
Option B. the system voltage and cable length.
Option C. current-carrying capacity and allowable voltage drop.
Correct Answer is. current-carrying capacity and allowable voltage drop.
Explanation. NIL.

Question Number. 55. How does the routing of coaxial cables differ from the routing of electrical wires?.
Option A. Coaxial cables are routed at right angles to stringers and ribs.
Option B. Coaxial cables are routed as directly as possible.
Option C. Coaxial cables are routed parallel with stringers and ribs.
Correct Answer is. Coaxial cables are routed as directly as possible.
Explanation. NIL.

Question Number. 56. The socket section of an AN/MS connector is normally installed on.
Option A. the power supply side of the circuit.
Option B. the ground side of the circuit.
Option C. either side of a circuit (makes no difference).
Correct Answer is. the power supply side of the circuit.
Explanation. NIL.

Question Number. 57. In the American Wire Gauge (AWG) system of numbers used to designate electrical wire sizes, the number assigned to a size is related to its.
Option A. cross sectional area.
Option B. combined resistance and current-carrying capacity.
Option C. current-carrying capacity.
Correct Answer is. cross sectional area.
Explanation. NIL.

Question Number. 58. Where electrical cables pass through holes in bulkheads, formers, ribs, firewalls etc., the wires should be protected from chafing by.
Option A. wrapping with electrical tape.

Option B. wrapping with plastic.
Option C. using a suitable grommet.
Correct Answer is. using a suitable grommet.
Explanation. NIL.

12.

Question Number. 1. When carbon is fully dissolved in iron and therefore uniformly distributed in solid solution, the metallurgical structure is called.
Option A. Ferrite.
Option B. Austenite.
Option C. Pearlite.
Correct Answer is. Austenite.
Explanation. NIL.

Question Number. 2. When one carbon atom chemically combines with 3 iron atoms, the result is called.
Option A. Marten site.
Option B. Pearlite.
Option C. Cementite or Iron Carbide.
Correct Answer is. Cementite or Iron Carbide.
Explanation. NIL.

Question Number. 3. Cementite laminated with ferrite in alternate layers produces.
Option A. Ferrite/Iron.
Option B. Pearlite.
Option C. Martensite.
Correct Answer is. Pearlite.
Explanation. NIL.

Question Number. 4. Pearlite combines the properties of.
Option A. martensite and iron carbide.
Option B. cementite and Martensite.
Option C. ferrite and cementite.
Correct Answer is. ferrite and cementite.
Explanation. NIL.

Question Number. 5. The amount of carbon necessary to produce a totally pearlitic structure is.
Option A. 1.0%.
Option B. 0.83%.
Option C. 1.83%.
Correct Answer is. 0.83%.
Explanation. NIL.

Question Number. 6. The properties of ferritic metal are that it is both.
Option A. strong without being brittle.
Option B. strong but too hard and brittle.
Option C. soft and weak.
Correct Answer is. soft and weak.
Explanation. NIL.

Question Number. 7. The properties of cementite metal are that it is both.
Option A. soft and weak.
Option B. strong but too hard and brittle.
Option C. strong without being brittle.
Correct Answer is. strong but too hard and brittle.
Explanation. NIL.

Question Number. 8. The properties of pearlitic metal are that it is both.
Option A. soft and weak.
Option B. strong without being brittle.
Option C. strong but too and hard and brittle.
Correct Answer is. strong without being brittle.
Explanation. NIL.

Question Number. 9. When heating a straight carbon steel, there is a hesitation (slight pause)in the temperature rise before it increases a further 200oC. This hesitation is known as the.
Option A. Lower Critical Point.
Option B. Upper Critical Point.
Option C. Eutectic Point.

Correct Answer is. Lower Critical Point.
Explanation. NIL.

Question Number. 10. Referring to a iron/carbon phase diagram, when talking about U.C.P and L.C.P, the point where the two meet is known as the.
Option A. eutectic point.
Option B. hesitation point.
Option C. point of no return.
Correct Answer is. eutectic point.
Explanation. NIL.