Question block created by wizard

1. The term 'Ferrous' applies to the group of metals having as their principal element....

- (a) iron.

o (b) aluminium.
o (c) lead.

If choice a is selected set score to 1.

2. The properties of alloy steel can be altered by....

o (a) nickel and chrome.

- (b) some element or elements other than carbon, or jointly with carbon.

o (c) carbon.

If choice b is selected set score to 1.

3. The first digit in the SAE identification index system shows....

- (a) alloy element.

o (b) percentage of carbon.
o (c) carbon element.

If choice a is selected set score to 1.

4. Heating and cooling of ferrous materials....

o (a) may not vary the internal structure of steel.
o (b) may not vary the internal structure of carbon.

- (c) may vary the internal structure of steel.

If choice c is selected set score to 1.

5. What determines the final structure of steel?

o (a) The alloy elements and the size.

- (b) The rate of cooling.

o (c) A fast heating and the form.

If choice b is selected set score to 1.

6. The purpose of annealing in heat treatment is....

- (a) to soften the steel.

o (b) to harden the steel.
o (c) to recrystallization.

If choice a is selected set score to 1.

7. The annealing process involves....

o (a) large water-soaking cooling.
o (b) rapid cooling.

- (c) slow cooling.

If choice c is selected set score to 1.

8. Hardened carbon steel is obtained by....

- (a) heating little above its critical point and large water soaking cooling.

o (b) slow heating below its critical point and large water soaking cooling.
o (c) heating little above its critical point and slow cooling.

If choice a is selected set score to 1.

9. Normalising is the process of heating the steel....

o (a) slowly to its annealing temperature and then water soak cool it.
o (b) rapidly to its annealing temperature and then allowing it to cool freely in the air.

- (c) slowly to its annealing temperature and then allowing it to cool freely in the air.

If choice c is selected set score to 1.

10. Molybdenum is often added to nickel chrome steels to....

o (a) softening of basic steel complex.
o (b) enhance by quench and tempering.

- (c) prevent temper brittleness.

If choice c is selected set score to 1.

11. Which of the next answers is a disadvantage of steel?

- (a) High density.

o (b) High resistance to corrosion.
o (c) Very soft.

If choice a is selected set score to 1.

12. When 3% nickel is added to mild steel, it....

o (a) increases corrosion resistance.

- (b) increases the strength and shock resistance of the steel.

o (c) prevents temper brittleness.

If choice b is selected set score to 1.

13. The addition of what element to non-alloyed steel increases the tensile strength, hardness and brittleness.

- (a) carbon

o (b) pure mercury
o (c) nickel

If choice a is selected set score to 1.

14. Which property of steel will improve, if there is an alloy formed between steel and molybdenum?

o (a) Heat resistance.

- (b) Annealing.

o (c) Corrosion resistance.

If choice b is selected set score to 1.

15. Many different metals are required in the repair of aircraft.

This is a result of the varying needs with respect to....

- (a) strength, weight, durability and resistance to deterioration.

- o (b) strength, weight, durability and resistance sun.
- o (c) colour of metal and the heat strength.

If choice a is selected set score to 1.

16. Plain carbon steel owes its properties to the presence of....

- • (a) carbon.
- o (b) stainless steel.
- o (c) alloy abilities to be heated.

If choice a is selected set score to 1.

17. The various heat - treatment processes can be classified as....

- o (a) limited to cold soaking processing.
- • (b) annealing, normalizing, hardening and tempering.
- o (c) annealing only.

If choice b is selected set score to 1.

18. When Carbon steel is heated to a temperature a little above its upper critical point, then cooled by large water soaking. This process is described as?

- o (a) Annealing
- o (b) Tempering.
- • (c) Hardening

If choice c is selected set score to 1.

19. When steel is cold - worked, hammered, bent, rolled, stresses and strain are set up and its crystal structure is disturbed.

The metal becomes....

- o (a) flexible and strong.
- o (b) soft.
- • (c) brittle and weakened.

If choice c is selected set score to 1.

20. To overcome the deficiencies of plain-carbon steels....

- o (a) case hardening was developed.
- • (b) alloy steels have been developed.
- o (c) sand blasting was included in their development.

If choice b is selected set score to 1.

21. Why do we add 1% of aluminium to "Cres 14-4 PH"?

- o (a) In order to be able to deform the material.
- o (b) To reduce the hardening temperature.
- • (c) To harden the material.

If choice c is selected set score to 1.

22. A method by which hardness can be measured is....

- o (a) colour testing.
- o (b) hammer strike testing.
- • (c) Brinell testing.

If choice c is selected set score to 1.

23. If a material is subjected to repeated or cyclic stress it would be tested for....

- • (a) fatigue strength.
- o (b) softness.
- o (c) hardness.

If choice a is selected set score to 1.

24. Which material property is tested, when you measure the resistance of a metal to permanent (plastic) deformation?

- • (a) Hardness.
- o (b) Colour appearance.
- o (c) Softness.

If choice a is selected set score to 1.

25. Testing for hardness, tensile strength, fatigue strength and impact resistance is to test....

- o (a) the principal chemical element.
- o (b) corrosion depth.
- • (c) the properties of the material.

If choice c is selected set score to 1.

26. The tensile strength of a material is defined by which test?

- o (a) Yield stress test.
- • (b) Tensile strength test.
- o (c) Shore scleroscope test.

If choice b is selected set score to 1.

27. What type of test should be performed, if a material is subjected to repeated or cyclic stress ?

- o (a) Static test.
- • (b) Fatigue strength test.
- o (c) Flexibility test.

If choice b is selected set score to 1.

28. Fatigue test machines vary in design, but are generally based around the....

- o (a) Macqueen principal.
- • (b) Wohler principal.
- o (c) Scleroscope principal.

If choice b is selected set score to 1.

29. What is the position of the specimen during an Izod impact test?

- o (a) Horizontal
- • (b) Vertical.
- o (c) Both are possible.

If choice b is selected set score to 1.

30. What is the most important factor in the fatigue process?

- (a) Tension stress level.

o (b) Size axis.
o (c) Number of cut-outs.

If choice a is selected set score to 1.

31. The impact tests are normally carried out at a temperature of....

- (a) 20 ^{o}C.

o (b) 15 ^{o}C.
o (c) 25 ^{o}C.

If choice a is selected set score to 1.

32. The three most commonly used aluminium alloy elements are....

o (a) copper, carbon and zinc.

- (b) copper, magnesium and zinc.

o (c) carbon, magnesium and zinc.

If choice b is selected set score to 1.

33. The rigidity of a material is the ability of a material to resist....

o (a) stress when subjected to elastic deformation.

- (b) elastic deformation when subjected to stress.

o (c) elastic deformation when subjected to temperature changes.

If choice b is selected set score to 1.

34. How is the conductance of aluminium relative to copper?

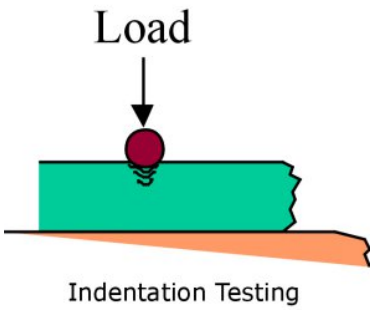
Aluminium has a...

o (a) higher electrical conductivity than copper.
o (b) no electrical conductivity.

- (c) lower electrical conductivity than copper.

If choice c is selected set score to 1.

35. The ability of material to suffer indentation or penetration without fracture is known as....



Indentation Testing

o (a) brittleness.
o (b) mechanability.

- (c) hardness.

If choice c is selected set score to 1.

36. White metal is used for....

- (a) bearings subject to heavy loads.

o (b) piston engines.
o (c) protecting steel.

If choice a is selected set score to 1.

37. The strength of aluminium alloy can be increased by....

o (a) thicken it.
o (b) heating.

- (c) cold working.

If choice c is selected set score to 1.

38. Solution treatment is applied to....

- (a) aluminium-copper alloys.

o (b) aluminium-brass alloys.

o (c) aluminium-lead alloys.

If choice a is selected set score to 1.

39. To identify aluminium wrought alloys....

- (a) a four-digit numerical designation is used.

o (b) a six-digit numerical designation is used.
o (c) a five-digit numerical designation is used.

If choice a is selected set score to 1.

40. For the heat treatment of aluminium alloys....

o (a) usually an oil bath is used.

- (b) usually a salt bath is used.

o (c) usually a water bath is used.

If choice b is selected set score to 1.

41. For which aluminium alloys does precipitation hardening start at room temperature?

o (a) Al - Fe alloys.

- (b) Al - Cu alloys.

o (c) Al - Zn alloys.

If choice b is selected set score to 1.

42. This is the ability of a material to resist elastic deformation when subjected to stress is described as....

o (a) stability.
o (b) tongue and groove.

- (c) rigidity.

If choice c is selected set score to 1.

43. Aluminium (Al) is known for its light-weight, with....

- (a) good conductivity.

- o (b) high corrosive erosion state.
- o (c) poor conductivity.

If choice a is selected set score to 1.

44. Bauxite is crushed and treated with caustic soda solution to produce....

- o (a) aluminium combined with cadmium and water.
- o (b) aluminium and nickel.
- • (c) aluminium oxide combined with water.

If choice c is selected set score to 1.

45. Aluminium alloys can be classified based on....

- o (a) fabrication method only.
- • (b) fabrication method or harden-ability.
- o (c) resist elastic deformation when subjected to stress.

If choice b is selected set score to 1.

46. The alloys used for brazing are composed mainly of....

- o (a) iron, manganese.
- • (b) copper and zinc.
- o (c) nickel, tin and lead.

If choice b is selected set score to 1.

47. This is an aluminium base alloy containing copper, magnesium, manganese and silicon. It is almost as strong as mild steel and is widely used in sheet form. What metal is this?

- o (a) Copper.
- o (b) Magnesium.
- • (c) Duralumin.

If choice c is selected set score to 1.

48. One of the most important ranges of nickel alloys is....

- (a) nimonics.

o (b) hiduminium.
o (c) soft solder.

If choice a is selected set score to 1.

49. Witch metal has a good resistance to atmospheric corrosion and is used for protecting steel?

- (a) Zinc

o (b) White Metal
o (c) Tin

If choice a is selected set score to 1.

50. Reduce the grain size, cold work and alloy the aluminium with other elements. These are three methods of....

o (a) increasing aluminium resistance to corrosion.
o (b) decreasing the strength of hardness of aluminium.

- (c) increasing the strength and hardness of aluminium.

If choice c is selected set score to 1.

51. The only non-ferrous metal that is liquid at room temperatures is....

o (a) aluminium.
o (b) lead.

- (c) mercury.

If choice c is selected set score to 1.

52. Which metal is a very light metal, being about $^{2}/_{3}$ of the weight of aluminium?

- (a) Magnesium.

o (b) Copper.
o (c) Bronze.

If choice a is selected set score to 1.

53. Which metal is mainly an alloy of tin and lead?

- o (a) Gold.
- • (b) Soft solder.
- o (c) Copper.

If choice b is selected set score to 1.

54. What is the name given to a range of alloys using tin, copper, antimony and lead?

- o (a) Tin.
- o (b) Zinc.
- • (c) White Metal.

If choice c is selected set score to 1.

55. To increase the strength of an aluminium alloy it must be subject to....

- o (a) cooled very quickly.
- o (b) only mechanically worked.
- • (c) heat treatment or mechanical working.

If choice c is selected set score to 1.

56. By subjecting the aluminium alloy to heat treatment or mechanical working or by varying the percentages of the alloying elements, These treatments mentioned will provide....

- o (a) flexibility.
- • (b) strength.
- o (c) great increase of conductive.

If choice b is selected set score to 1.

57. What does the second digit of the material-code of non-ferro materials indicate?

- o (a) Solid material

- (b) The number of modifications.

o (c) % Basic alloy element.

If choice b is selected set score to 1.

58. Why do we add Cryolite to aluminium oxide?

o (a) To bind the aluminium powder.
o (b) To solve the impurities.

- (c) To form an electrolyte which will melt at a low temperature.

If choice c is selected set score to 1.

59. What symbol gives the greatest hardness of a non-ferrous material?

o (a) HX4
o (b) HX6

- (c) HX8

If choice c is selected set score to 1.

60. When adding copper as an alloying element to aluminium. What is the group of these aluminium alloys?

o (a) 6xxx alloys.
o (b) 7xxx alloys.

- (c) 2xxx alloys.

If choice c is selected set score to 1.

61. When adding magnesium and silicon as alloying elements to aluminium. What is the group of these aluminium alloys?

o (a) 7xxx alloys.

- (b) 6xxx alloys.

o (c) 3xxx alloys.

If choice b is selected set score to 1.

62. When adding zinc as alloying elements to aluminium. What is the group of aluminium alloys?

- o (a) 5xxx alloys.
- o (b) 6xxx alloys.
- • (c) 7xxx alloys.

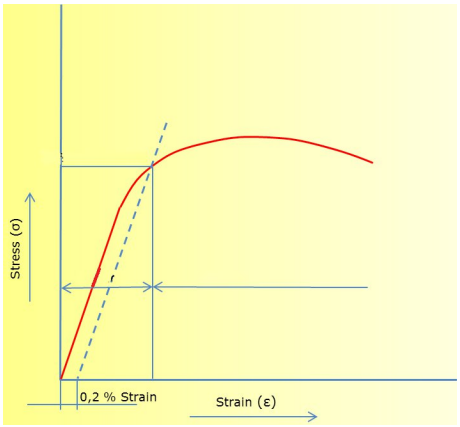
If choice c is selected set score to 1.

63. What are three primary methods by which hardness can be measured?

- o (a) Brinell - Vickers - Ford.
- o (b) Brinell - Airbus - Rockwell.
- • (c) Brinell - Vickers - Rockwell.

If choice c is selected set score to 1.

64. In what area is the offset yield point in the stress-strain diagram of a non-ferro metal?



- o (a) Plastic field.
- o (b) Ultimate stress field.
- • (c) Elastic field.

If choice c is selected set score to 1.

65. In a tension strain diagram for steel we have a yield stress point.

What is the name of this point at a non-ferro metal?

- • (a) Off set yield point.

- o (b) Elasticity point.
- o (c) Ultimate stress point.

If choice a is selected set score to 1.

66. Thermosets will remain....

- o (a) hard if the heat is applied.
- • (b) soft for a short time and then harden if the heat continues to be applied.
- o (c) soft if the heat continues to be applied.

If choice b is selected set score to 1.

67. Modern aircraft windshields are made from?

- • (a) Thermoplastics
- o (b) Thermosets
- o (c) Resins

If choice a is selected set score to 1.

68. Carbon fibres are....

- o (a) less stronger than glass fibres.
- o (b) less stiffer than glass fibres.
- • (c) stiffer than glass fibres.

If choice c is selected set score to 1.

69. The main disadvantage of glass fibres is....

- o (a) bad strength / weight ratio.
- o (b) high production costs.
- • (c) the lack of stiffness.

If choice c is selected set score to 1.

70. Ceramic fibres are....

- o (a) light but expensive.
- o (b) used in low temperature applications.

- (c) heavy and expensive.

If choice c is selected set score to 1.

71. Cleavage happens when....

o (a) no separation of the plates is attempted.

- (b) separation of the plates is attempted at one end of the joint only.

o (c) separation of the plates is attempted at both ends of the joint.

If choice b is selected set score to 1.

72. One of the advantages of using adhesives is....

o (a) low thermal expansion.
o (b) high electrical and thermal conductivity.

- (c) no weakening of the component due to absence of holes.

If choice c is selected set score to 1.

73. How are the two components of a two component sealant identified?

The base sealing compound and the....

o (a) softener.
o (b) epoxy.

- (c) accelerator.

If choice c is selected set score to 1.

74. What is made by firing clay and used in high temperature applications?

o (a) carbon fibre.

- (b) ceramic.

o (c) aramid fibre.

If choice b is selected set score to 1.

75. Composites usually have good internal damping characteristics and are less prone to vibration resonance's.

Where high strength, combined with stiffness is required, then....

- (a) Carbon Fibre Reinforced Plastic (CFRP) is used.

o (b) Aramid Fibre Reinforced Plastic (AFRP) is used.
o (c) Glass Fibre Reinforced Plastic (GFRP) is used.

If choice a is selected set score to 1.

76. What is an advantage of Carbon Fibre Reinforced products?

- (a) Considerable weight savings over conventional materials.

o (b) It is very easy to shape or mould.
o (c) Can be used at very high temperatures.

If choice a is selected set score to 1.

77. What is one of the primary advantages of plastic?

o (a) Lack of strength.
o (b) Low stiffness

- (c) Vibration dampening.

If choice c is selected set score to 1.

78. What is an example of a material of thermoset matrix?

o (a) Silicon carbide.
o (b) Aramid fibre

- (c) Polyester.

If choice c is selected set score to 1.

79. Carbon fibre....

o (a) is lighter and stiffer than fibre glass.

- (b) both answers are correct.

o (c) has a higher impact resistance.

If choice b is selected set score to 1.

80. Controlled ventilation, protective clothing, and anti-fire/explosion particles are absolutely essential when working with....

- o (a) rubber substances.
- o (b) metal alloy development.
- • (c) adhesives and sealants.

If choice c is selected set score to 1.

81. What is the most important activity we have to do when mixing sealant?

- o (a) No precautionary measures need to be taken.
- o (b) A little more hardener needs to be used.
- • (c) Good ventilation is necessary.

If choice c is selected set score to 1.

82. Why do we use sealant?

- • (a) To prevent contact corrosion.
- o (b) To stick parts together.
- o (c) As a ground layer for paint.

If choice a is selected set score to 1.

83. What is the ideal relative humidity for sealant curing?

- • (a) 50% humidity.
- o (b) 20% humidity.
- o (c) 30% humidity.

If choice a is selected set score to 1.

84. What is the ideal temperature for sealant curing?

- o (a) 15 ^{o}C .
- o (b) 20 ^{o}C .
- • (c) 25 ^{o}C .

If choice c is selected set score to 1.

85. Adhesive joints are liable to experience what main types of stress?

- o (a) Compression.
- • (b) Tensile, Shear, Cleavage and Peel.
- o (c) Vibration and Peeling.

If choice b is selected set score to 1.

86. What are the three most important considerations when using adhesives in aircraft construction?

- o (a) Production speed, and good chemical resistance.
- • (b) Fail stress, creep behaviour, durability.
- o (c) High temperature resistance, vibration and humidity.

If choice b is selected set score to 1.

87. What kind of stress will adhesive joints experience?

- • (a) Peel.
- o (b) Pressure.
- o (c) Compressive strain.

If choice a is selected set score to 1.

88. What is commonly used as an inspection for composite material?

- o (a) Magnaflux
- o (b) Dye Penetrant
- • (c) Coin tapping

If choice c is selected set score to 1.

89. Some defects in composite material are not visible. Which defect cannot be detected with a visual inspection?

- • (a) De-lamination
- o (b) Lightning strike damage

- o (c) Bulges

If choice a is selected set score to 1.

90. The repair of composites can be found in....

- • (a) SRM

- o (b) AMM
- o (c) NTM

If choice a is selected set score to 1.

91. Which composite repair technique is the quickest solution?

- • (a) Hot curing

- o (b) Cold curing
- o (c) Vacuum bag curing

If choice a is selected set score to 1.

92. Ultrasonic testing uses....

- o (a) low frequency sound waves.
- o (b) normal frequency sound waves.

- • (c) high frequency sound waves.

If choice c is selected set score to 1.

93. There are a variety of non-destructive inspection techniques on composites available to help determine the extent and degree of damage.

What is the most common inspection technique?

- o (a) Destructive coupon.
- o (b) Floatation testing.

- • (c) Tap test.

If choice c is selected set score to 1.

94. Resin damage is caused by many factors, such as....

- o (a) water and warm climates.

- (b) polish (wax base) water combined with operation in a cold environment.

- (c) fire or excessive heat, UV rays, paint stripper, or impacts.

If choice c is selected set score to 1.

95. Ideally, composite components should be fully identified before a repair is performed.

Where can the aircraft technician find the data of ply orientation, core ribbon direction etc.?

- (a) Structural repair manual.

- (b) Aircraft maintenance manual.
- (c) Parts catalogue inventory.

If choice a is selected set score to 1.

96. After paint removal, additional damage assessment is performed, because the hidden damage now becomes more apparent.

What must be done?

- (a) Internal damage is allowed but limited to 20 percent.

- (b) All damaged material must be removed and repaired in accordance with SRM.

- (c) A tap test has to be performed.

If choice b is selected set score to 1.

97. The first step of a composite structure repair is to....

- (a) remove paint and/or outer coatings.

- (b) remove the damaged surface.
- (c) find the depth of repair need, this should be done with a tap-test.

If choice a is selected set score to 1.

98. What is the course of wood shrinkage?

- (a) Atmospheric pressure.

- (b) Moisture.

- (c) Temperature changes.

If choice b is selected set score to 1.

99. The most common form of modified wood found in aircraft construction is....

- o (a) oak wood
- o (b) ply oak
- • (c) plywood

If choice c is selected set score to 1.

100. Two general groups of adhesives are used in wooden aircraft structures....

- o (a) casein and GFRP.
- • (b) casein and synthetic resins.
- o (c) casein and teflon.

If choice b is selected set score to 1.

101. When repairing or refinishing control surfaces....

- o (a) do not add additional weight fwd of the hinge line.
- • (b) do not add additional weight aft of the hinge line.
- o (c) always add additional weight aft of the hinge line.

If choice b is selected set score to 1.

102. The most satisfactory method of making an end joint between two solid wood members is the....

- • (a) scarf joint.
- o (b) spar replacement.
- o (c) spar splice.

If choice a is selected set score to 1.

103. What are the objectives of seasoning wood?

- o (a) Prevent mould.
- • (b) To increase workability.

- (c) Wood to colour.

If choice b is selected set score to 1.

104. To make a satisfactory bonded joint you must....

- (a) freshly cut quality wood just before bonding the surfaces, these surfaces must be porous surfaces for adhesive to attach.

- (b) spread the adhesive in a thin, even layer on both surface to be joined.

- (c) wet the wood of the surfaces to prior to applying the adhesive.

If choice b is selected set score to 1.

105. All wood and plywood used in the repair of aircraft structures should be of....

- (a) no restriction on types of wood use other than weight.
- (b) water proof.

- (c) aircraft quality.

If choice c is selected set score to 1.

106. What is a property of hard wood?

- (a) High density and the wood is coarser.
- (b) Low density and wood fibres are thin-walled.

- (c) High density and wood fibres are thick.

If choice c is selected set score to 1.

107. The grain orientation has....

- (a) no effect on shrinkage of the wood.

- (b) a large effect on shrinking of the wood.

- (c) a small effect on shrinkage of the wood.

If choice b is selected set score to 1.

108. What is the true tensile strength of wood?

- (a) Should always be used at a high % moisture.

- o (b) One takes always wood from the core of the tree.

- • (c) The less moisture, the higher the strength of the wood.

If choice c is selected set score to 1.

109. Whenever possible, a wooden aircraft should be kept in a....

- • (a) dry, well-ventilated hangar.

- o (b) temperature controlled hangar only.
- o (c) wet, well-ventilated hangar.

If choice a is selected set score to 1.

110. The finish coat on wood structure (usually a varnish) is the last line of defence to prevent....

- o (a) cracks.
- o (b) termites.

- • (c) water entry into wood.

If choice c is selected set score to 1.

111. Testing a wood glue connection, when is the glue connection acceptable?

- o (a) The line connection is not thinner during the test.
- o (b) The connection allows with a certain force, slowly release.

- • (c) The wood fibres will break and not the glue line.

If choice c is selected set score to 1.

112. Coatings other than dope....

- o (a) increase fabric tension after aging.
- o (b) increase fabric slack after aging.

- • (c) do not increase fabric tension after aging.

If choice c is selected set score to 1.

113. Polyester fabric deteriorates by exposure to....

- o (a) carbon dioxide (CO_2).

- (b) ultraviolet light.

o (c) ozone (O_3).

If choice b is selected set score to 1.

114. What is an important factor when considering aircraft fabric?

o (a) Coating types.

- (b) Tear resistance.

o (c) Durability.

If choice b is selected set score to 1.

115. Are there specifications for measuring excess fabric tension?

o (a) Muellens method.

- (b) There are no methods available.

o (c) Crabtree stretcher.

If choice b is selected set score to 1.

116. Inspection access is provided adjacent to every control bell cranks, drag-wire junction, cable guide, pulley, wing fitting. These access are referred to as....

o (a) fabric windows.

- (b) inspection rings.

o (c) metal stress plates.

If choice b is selected set score to 1.

117. When checking fabric covering you have to.....

o (a) check if the drain holes are still large enough.
o (b) check if the cloth is not too taut (strained).

- (c) check the entire fabric covering. It should be uniformly taut with no loose or wrinkled areas.

If choice c is selected set score to 1.

118. What kind of fabric are mostly used on fabric covered airplanes these days?

- (a) Polyester and glass filament

o (b) Polyester and cotton.
o (c) Glass filament and linen

If choice a is selected set score to 1.

119. Repair of tears and access openings are accomplished....

o (a) with a required high temperature heat gun and special heat tape.
o (b) cannot be repaired.

- (c) a curved needle.

If choice c is selected set score to 1.

120. Openings that cannot be repaired by closing with stitches may be repaired....

o (a) with a wooden insert.
o (b) by replacement of the complete skin fabric surface.

- (c) with a new fabric section.

If choice c is selected set score to 1.

121. Openings that can't be repaired by stitching can be repaired by....

o (a) replacing the entire cloth covering with a stronger one.

- (b) sewing in a new fabric section.

o (c) gluing on a new fabric section.

If choice b is selected set score to 1.

122. If the fabric is good and the dope is cracked, ...

o (a) the entire cloth covering has to be replaced anyway.
o (b) the damaged layer has to be cut out.

- (c) it may be treated with rejuvenator.

If choice c is selected set score to 1.

123. All the materials used for repairing cloth coverings.....

- o (a) may also be of a different quality.
- o (b) have to be stronger than the original materials.
- • (c) must be of a quality at least equal to the original materials.

If choice c is selected set score to 1.

124. The term oxidation is used to describe the direct combination of metal with....

- • (a) oxygen.
- o (b) chemical agents.
- o (c) water vapour.

If choice a is selected set score to 1.

125. Reactions between metals and their environments, can occur in two, often simultaneous ways.

What ways can occur?

- o (a) Electrochemical and galvanic
- • (b) Chemical and electrochemical.
- o (c) Chemical and oxidational.

If choice b is selected set score to 1.

126. The effect on a corrosion by increasing the temperature usually results in....

- o (a) a decrease in the rate of oxidation of a metal.
- o (b) a stabilization of oxidation of a metal.
- • (c) an increase in the rate of oxidation of a metal.

If choice c is selected set score to 1.

127. Pure water has....

- o (a) the same conductivity as salt water.
- • (b) a lower conductivity than salt water.
- o (c) a higher conductivity than salt water.

If choice b is selected set score to 1.

128. Microbiological rate of growth is related to....

- o (a) humidity.
- o (b) ambient air.
- • (c) temperature and humidity.

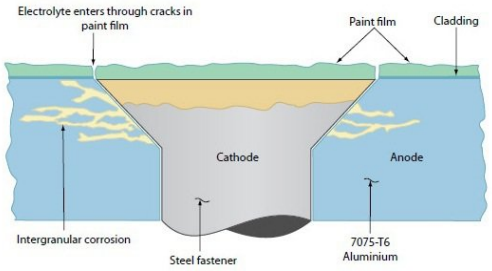
If choice c is selected set score to 1.

129. Stress corrosion cracking is a process caused by....

- o (a) a corrosive environment.
- • (b) the combined action of a sustained tensile stress and a corrosive environment.
- o (c) high applied service loads.

If choice b is selected set score to 1.

130. Intergranular corrosion is also known as....



- o (a) fretting corrosion.
- • (b) inter-crystalline corrosion.
- o (c) exfoliation corrosion.

If choice b is selected set score to 1.

131. Surface corrosion....

- • (a) is a general roughening or pitting of the metal surface.
- o (b) is the result of rubbing movement between two heavy loaded surfaces.
- o (c) is a form of intergranular corrosion in which the attack occurs in layers parallel to the surface.

If choice a is selected set score to 1.

132. Filiform corrosion occurs....

- o (a) between two dissimilar metals in contact with each other.
- o (b) after direct chemical or electrochemical attack.
- • (c) beneath thin, protective coating, on aluminium and steel alloys.

If choice c is selected set score to 1.

133. A wet maritime environment....

- • (a) decreases the effect on aircraft corrosion.
- o (b) has no effect on aircraft corrosion.
- o (c) increases the effect on aircraft corrosion.

If choice a is selected set score to 1.

134. High environmental temperatures will....

- • (a) decrease the rate of corrosion.
- o (b) have no influence on the rate of corrosion.
- o (c) increase the rate of corrosion.

If choice a is selected set score to 1.

135. Corrosive agents include....

- o (a) nitrogen.
- o (b) snow and ice.
- • (c) spilled battery acids.

If choice c is selected set score to 1.

136. Red rust is the corrosion form found on....

- • (a) iron and steel.
- o (b) magnesium alloys.
- o (c) aluminium alloys.

If choice a is selected set score to 1.

137. Magnesium corrosion products....

- (a) are white and voluminous.

o (b) have a blue-green appearance.
o (c) are red.

If choice a is selected set score to 1.

138. Titanium alloys can suffer stress corrosion above:

o (a) 500 ^{o}C.

- (b) 300 ^{o}C.

o (c) 100 ^{o}C.

If choice b is selected set score to 1.

139. What is the name of the corrosion that progresses from the metal surface and penetrates quite deeply into the structure and results in a serious mechanical weakening?

o (a) Dissimilar metals corrosion.
o (b) Exfoliation corrosion.

- (c) Inter-crystalline corrosion.

If choice c is selected set score to 1.

140. How do we call the kind of corrosion between two different metals in contact with each other and where moisture is present?

o (a) Inter-granular corrosion.
o (b) Exfoliation corrosion.

- (c) Dissimilar metal corrosion.

If choice c is selected set score to 1.

141. What corrosion is the result of rubbing movement between two heavily loaded surfaces?

- (a) Fretting corrosion.

o (b) Inter-granular corrosion.

- (c) Dissimilar metal corrosion.

If choice a is selected set score to 1.

142. What type of corrosion develops if a steel bolt is in contact with an aluminium alloy?

- (a) Exfoliation corrosion.
- (b) Fretting corrosion.

- (c) Galvanic corrosion.

If choice c is selected set score to 1.

143. What is a characteristic of intergranular corrosion?

- (a) It stays on the surface and does not penetrate into the material.
- (b) The layers of corrosion are parallel to the surface.

- (c) It is not visible by the naked eye.

If choice c is selected set score to 1.

144. This types of corrosion can occur where steel bolts and nuts are in contact with aluminium alloys such as aircraft wheels.

What is the name of this corrosion type?

- (a) Surface corrosion.
- (b) Inter-granular corrosion.

- (c) Dissimilar corrosion.

If choice c is selected set score to 1.

145. What is the most common cause of corrosion?

- (a) Climatic, environment conditions under which the aircraft is operated.

- (b) Splitting of end grain between metal layers.
- (c) Inner layers of metal bonded layer being of different strength.

If choice a is selected set score to 1.

146. What type of corrosion is shown in the picture around the bolt?

o (a) Fretting corrosion.
o (b) Pitting corrosion.

• (c) Dissimilar metals corrosion.

If choice c is selected set score to 1.

147. What is extremely corrosion-resistant?

o (a) Mercury.
o (b) Aluminium.

• (c) Titanium.

If choice c is selected set score to 1.

148. Which answer will affect the rate at which corrosion will occur the most?

o (a) High altitude and cold.

• (b) Moisture loaded atmosphere.

o (c) Dry, high temperature environment.

If choice b is selected set score to 1.

149. Factors affecting corrosion, the worst conditions would exist in a....

- (a) hot and wet environment.

o (b) quick changes in temperature and dry environment.
o (c) dry and cool environment.

If choice a is selected set score to 1.

150. Corrosion agents, that may adhere to metal surfaces and consequently result in corrosion are....

o (a) moist air in a dry climate.
o (b) dry air.

- (c) soil and atmospheric dust.

If choice c is selected set score to 1.

151. The most common corrosion on steel is recognisable by....

o (a) corrosion products are white and voluminous.
o (b) general etching of the surface and a black deposit.

- (c) red rust of iron.

If choice c is selected set score to 1.

152. What is the best corrosion protection for aircraft structures?

o (a) Alloys used in hardening process.

- (b) Good protective coating.

o (c) Cleaning on daily bases.

If choice b is selected set score to 1.

153. What material is highly corrosion-resistant but should be insulated from other metals?

- (a) Titanium.

o (b) Iron.
o (c) Copper.

If choice a is selected set score to 1.

154. What areas of an aircraft are most troubled by corrosion?

- o (a) Area directly forward of the nose wheel well.
- • (b) Exhaust trail areas.
- o (c) Upper wing surface.

If choice b is selected set score to 1.

155. Cadmium and zinc are used as.....

- • (a) coatings.
- o (b) exhaust pipes.
- o (c) construction materials in aircraft.

If choice a is selected set score to 1.

156. On which property(s) do you recognize magnesium corrosion products?

- o (a) The colour is stained grey.
- • (b) The colour is white and it is voluminous.
- o (c) The colour is stained red.

If choice b is selected set score to 1.

157. What is the most common and easily recognisable form of iron corrosion?

- • (a) Red rust.
- o (b) Grey rust.
- o (c) Rust due to hammer strikes.

If choice a is selected set score to 1.

158. The grip of a fastener is the....

- o (a) nominal length.
- • (b) untreated portion.
- o (c) treated portion.

If choice b is selected set score to 1.

159. Which of the answers is an example of a temporary joint?

- o (a) Solder joint.
- o (b) Adhesive joint.
- • (c) Quick-release fastener.

If choice c is selected set score to 1.

160. American national fine is abbreviated as....

- o (a) USNF
- o (b) UNF
- • (c) ANF

If choice c is selected set score to 1.

161. Typically a bolt or screw will use a....

- o (a) square thread.
- o (b) Buttress thread.
- • (c) V shaped thread.

If choice c is selected set score to 1.

162. For gauging external threads a 'go' gauge will be used to check the....

- • (a) maximum diameter of the thread.
- o (b) maximum minor diameter of the thread.
- o (c) minimum diameter of the thread.

If choice a is selected set score to 1.

163. Calliper gauges can be used for checking....

- o (a) left hand threads.
- o (b) right hand threads.
- • (c) left and right hand threads.

If choice c is selected set score to 1.

164. When truncated threads are to be checked....

- o (a) 'go' major gap gauges should be used to control the major diameter.
- o (b) 'not go' major gap gauges should be used to control the major diameter.
- • (c) 'go' and 'not go' major gap gauges should be used to control the major diameter.

If choice c is selected set score to 1.

165. An acorn nut is....

- o (a) a lock nut
- • (b) a nut that has a domed top so that it prevents contact with the external thread.
- o (c) a torque prevailing nut of all metal construction

If choice b is selected set score to 1.

166. The left hand thread of a bolt means a....

- o (a) bolt that can be screwed by rotating clockwise.
- o (b) thread that which is formed in holes, such as in nuts.
- • (c) bolt that can be screwed on rotating counter clockwise.

If choice c is selected set score to 1.

167. A standard hexagonal nut with a plastic insert is....

- o (a) a term used to describe a lock nut which has a prevailing torque.
- o (b) a fastener snap nut.
- • (c) a nyloc nut.

If choice c is selected set score to 1.

168. The nominal diameter of a thread is the....

- • (a) diameter equal to the external diameter of the threads.
- o (b) minor diameter.
- o (c) diameter equal to the internal diameter of the threads.

If choice a is selected set score to 1.

169. What is the pitch of a thread?

- o (a) The distance between the outer diameter and the core diameter.
- • (b) The distance between the two tops of the thread.
- o (c) The number of grooves per inch.

If choice b is selected set score to 1.

170. What is the thread angle of the British standard Whitworth thread?

- o (a) 50^{o}
- o (b) 60^{o}
- • (c) 55^{o}

If choice c is selected set score to 1.

171. AN bolts have the following head styles....

- o (a) hook and plane.
- • (b) hexagon head, clevis and eyebolt.

- (c) trapezium and triangle.

If choice b is selected set score to 1.

172. Aircraft bolts may be made of....

- (a) corrosion resistant steel.
- (b) HTS corrosion resistant steel or aluminium alloy.
- (c) aluminium.

If choice b is selected set score to 1.

173. DD in an identification means....

- (a) double drilled.
- (b) diameter.
- (c) aluminium alloy.

If choice c is selected set score to 1.

174. How do you recognize an aluminium AN-bolt?

- (a) A triangle on its head.
- (b) Two stripes on its head.
- (c) A cross on its head.

If choice b is selected set score to 1.

175. Where is an eyebolt designed for?

- (a) It can be fastened with a torque wrench.
- (b) It is strong in shear strength.
- (c) It is an attachment for cable shackles or turn buckles.

If choice c is selected set score to 1.

176. What is the unit for the diameter of a metric bolt?

- (a) lb/inch

- (b) mm

o (c) inch

If choice b is selected set score to 1.

177. Why is the AN-number for bolts used?

To give the type and....

o (a) length of the bolt.
o (b) thread of the bolt.

- (c) diameter of the bolt.

If choice c is selected set score to 1.

178. An aerotight stiffnut has....

- (a) vertical slots

o (b) no slots
o (c) horizontal slots

If choice a is selected set score to 1.

179. Tinnerman nuts should only be used for....

o (a) structural applications.

- (b) non-structural applications.

o (c) flight controls.

If choice b is selected set score to 1.

180. A fillister head screw has....

o (a) no lock wire drill holes.
o (b) self-locking slots.

- (c) wire lock drill holes.

If choice c is selected set score to 1.

181. Studs are threated....

- (a) at both ends

o (b) in the middle section
o (c) at one end

If choice a is selected set score to 1.

182. What is the difference between the "metal-end" and the "nut-end" of a stepped stud?

o (a) Self-locking thread at one side and smaller one at the other side.

- (b) Different thread sizes

o (c) Different thread sizes, both self-locking

If choice b is selected set score to 1.

183. A stud may be fitted with a....

- (a) stud box.

o (b) drill box.
o (c) torque box.

If choice a is selected set score to 1.

184. Self-tapping screws have....

o (a) a blunt pointed thread

- (b) a sharp pointed thread

o (c) no threads

If choice b is selected set score to 1.

185. Clevis pins are made of....

o (a) copper alloy.
o (b) aluminium alloy.

- (c) cadmium-plated steel.

If choice c is selected set score to 1.

186. Taper pins are made of....

- o (a) cadmium-plated steel.
- • (b) high-tensile steel.
- o (c) aluminium alloy.

If choice b is selected set score to 1.

187. Shake proof washers....

- o (a) can be re-used
- • (b) should be used only ones.
- o (c) can be re-used if they have retained their spring tension.

If choice b is selected set score to 1.

188. Which figure shows a palnut?

- o (a) 
- • (b) 

o (c) 

If choice b is selected set score to 1.

189. Cotter pin legs can be spread in....

o (a) three methods
o (b) one method

• (c) two methods

If choice c is selected set score to 1.

190. The angle of approach of lock-wire should....

o (a) be less than 45 degrees

• (b) not be less than 45 degrees

o (c) be less than 35 degrees

If choice b is selected set score to 1.

191. Dzus fastener are locked or unlocked by a....

o (a) half turn of the stud.

• (b) quarter turn of the stud

o (c) full turn of the stud.

If choice b is selected set score to 1.

192. Circlips and locking rings are manufactured from....

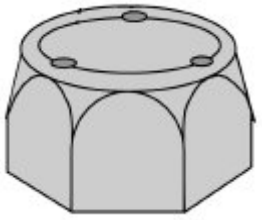
o (a) silver steel

• (b) spring sheet metal

o (c) soft metal

If choice b is selected set score to 1.

193. Peening is sometimes applied to nuts and bolts (see figure below). Why is this?

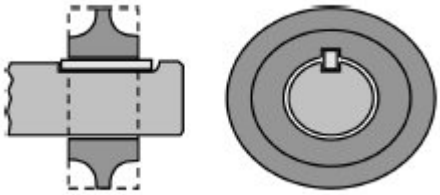


- (a) To prevent the nut from loosening itself.

o (b) To mark where the nut should be.
o (c) To indicate which number the nut has.

If choice a is selected set score to 1.

194. What is shown in next figure?



o (a) Gib head key

- (b) Feather key

o (c) Woodruff key

If choice b is selected set score to 1.

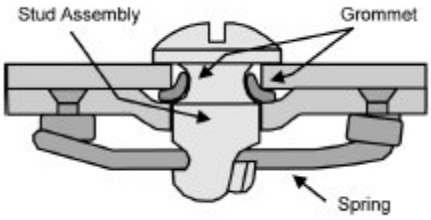
195. Quick-release pins are used in assemblies where it is necessary to....

- (a) rapidly remove or reposition components.

o (b) make a wire connection with a component.
o (c) secure the airplane.

If choice a is selected set score to 1.

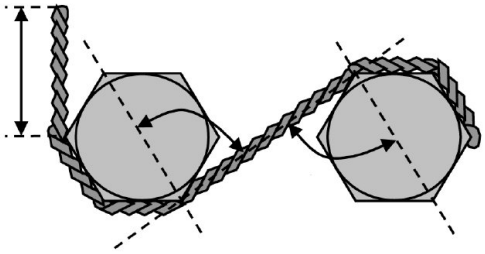
196. The quick-release fastener shown below is....



- o (a) an oddie fastener.
- • (b) a dzus fastener.
- o (c) a camloc fastener

If choice b is selected set score to 1.

197. The wire locking below is....



- o (a) correct.
- • (b) faulty.
- o (c) could be improved.

If choice b is selected set score to 1.

198. Fine copper wire is used for.....

- o (a) wire locking on the outside of the aircraft.
- • (b) holding some switches and levers in a "set" position.
- o (c) wire locking hot engine parts.

If choice b is selected set score to 1.

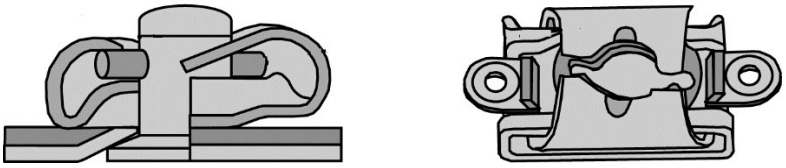
199. Sometimes a plain facing washer is installed between the component and the spring washer. Why is this done?

- (a) To prevent damage to the surface finish when the spring washer is compressed.

o (b) To make it possible to tighten the nut more than normal.
o (c) Because the thread length is too long.

If choice a is selected set score to 1.

200. The quick release fastener shown in the figure is a....

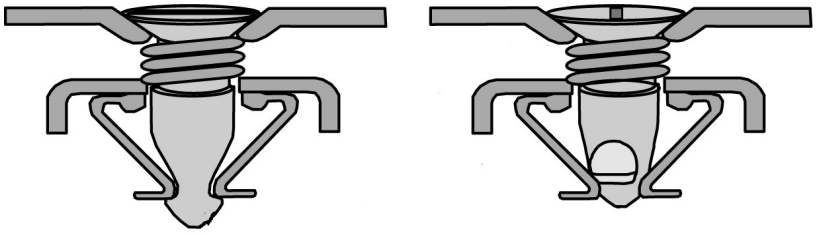


o (a) dzus fastener.
o (b) camloc fastener.

- (c) airloc fastener.

If choice c is selected set score to 1.

201. The quick release fastener shown in the figure is....



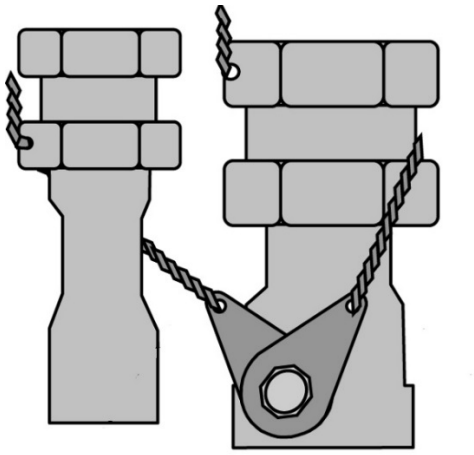
o (a) a dzus fastener.
o (b) a camloc fastener.

- (c) an oddie fastener.

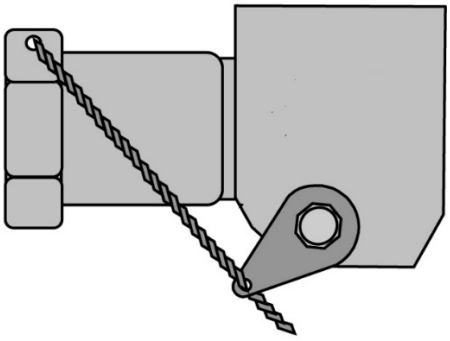
If choice c is selected set score to 1.

202. Which locking method is correct?

o (a) Both are correct.



- (b)



o (c)

If choice b is selected set score to 1.

203. Countersunk rivets are....

o (a) mushroom headed.

- (b) flush headed.

o (c) round headed.

If choice b is selected set score to 1.

204. Blind rivets are usually installed....

o (a) with a reaction block.

- (b) when access is restricted.

o (c) with a bucking bar.

If choice b is selected set score to 1.

205. Solid Rivets are installed....

- (a) when access is not restricted.

o (b) without a reaction block.
o (c) without a bucking bar.

If choice a is selected set score to 1.

206. Material used for the majority of solid aircraft rivets is....

o (a) stainless steel.
o (b) copper alloy.

- (c) aluminium alloy.

If choice c is selected set score to 1.

207. The 5056 (B) rivet is used for riveting....

- (a) magnesium alloy structures.

o (b) nickel steel alloy structures.
o (c) steel structures.

If choice a is selected set score to 1.

208. AD rivets are....

o (a) heat-treated during installation.

- (b) heat-treated during manufacturing.

o (c) not heat-treated during manufacturing.

If choice b is selected set score to 1.

209. The cherry max locking collar is visible...

o (a) before the rivet has been formed.
o (b) before and after the rivet has been formed.

- (c) only after the rivet has been formed.

If choice c is selected set score to 1.

210. The grip range indicates the....

- o (a) depth of the hole.
- • (b) grip for that hole.
- o (c) drill used for that hole.

If choice b is selected set score to 1.

211. Huck rivets are....

- o (a) solid fasteners.
- • (b) blind fasteners.
- o (c) break head rivets.

If choice b is selected set score to 1.

212. Corrosion Resistant Steel (F) rivets are used for riveting CRS components in....

- o (a) aluminium double plates areas.
- o (b) plated steel plates in non-corrosion resistant areas.
- • (c) areas such as firewalls and exhausts.

If choice c is selected set score to 1.

213. Monel (M) rivets are used for riveting....

- o (a) magnesium alloy.
- o (b) only copper.
- • (c) nickel-steel alloys.

If choice c is selected set score to 1.

214. Softening of rivets is done...

- • (a) just prior to driving them.
- o (b) directly after installation.
- o (c) $2^1/_2$ hours before using them.

If choice a is selected set score to 1.

215. Age-hardening of rivets will continue at a rapid rate as soon as the rivets are removed from....

- o (a) cold, salt free water.
- o (b) the oven.
- • (c) the refrigerator.

If choice c is selected set score to 1.

216. If it is not convenient to form the rivets, the age-hardening process can be slowed down by storing them at temperatures below....

- o (a) - 40 ^{o}C.
- • (b) 0 ^{o}C.
- o (c) 10 ^{o}C.

If choice b is selected set score to 1.

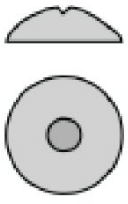
217. A rivet is flat topped and bevelled towards the shank so that it can be installed into a countersunk or dimpled hole and so be flush with the materials surface.

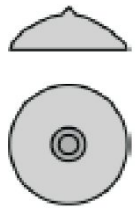
What type of rivet is this?

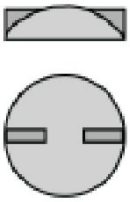
- • (a) Countersunk head.
- o (b) Brazier head.
- o (c) Universal head.

If choice a is selected set score to 1.

218. Which figure shows an AD nail?

- • (a) 

o (b) 

o (c) 

If choice a is selected set score to 1.

219. What is the most used angle of a countersunk rivet?

o (a) 78°

• (b) 100°

o (c) 120°

If choice b is selected set score to 1.

220. The identification of solid rivets covers a multitude of marks and letters.

What do they indicate?

• (a) The material and heat treatment that the rivet has gone through.

o (b) Heat treatment and the processing time of the rivet.
o (c) Material and processing method of the rivet.

If choice a is selected set score to 1.

221. In what kind of power it is best to use a rivet?

o (a) Pressure forces.

• (b) Shear forces.

o (c) Tension forces.

If choice b is selected set score to 1.

222. Most common pipes / lines / tubes on commercial aircrafts are?

- (a) Aluminium-alloy and corrosion-resistant steel lines.

o (b) Copper Pipes
o (c) Steel pipes

If choice a is selected set score to 1.

223. Rigid tube size is determined by its....

o (a) inside diameter only.
o (b) length and inside diameter.

- (c) outside diameter, length and wall thickness.

If choice c is selected set score to 1.

224. Fluid lines are recognizable by....

o (a) symbols.

- (b) coloured labels, symbols and letters.

o (c) colours.

If choice b is selected set score to 1.

225. Fuel lines colour code identification is....

o (a) green.

- (b) red.

o (c) yellow.

If choice b is selected set score to 1.

226. Oxygen lines colour code identification is....

o (a) red.

- (b) green.

o (c) white.

If choice b is selected set score to 1.

227. Low pressure hoses are used in....

- o (a) flexible pipes.
- • (b) vacuum systems.
- o (c) hydraulic systems.

If choice b is selected set score to 1.

228. Replacement fluid lines must be of the same....

- o (a) material as the original line.
- o (b) size as the original line.
- • (c) size and material as the original line.

If choice c is selected set score to 1.

229. Of what material are most modern flexible hoses made?

- o (a) Teflon and brass.
- o (b) Elastomers and aluminium.
- • (c) Teflon and elastomers.

If choice c is selected set score to 1.

230. Where are low pressure hoses used for?

- • (a) Vacuum systems.
- o (b) Brake systems.
- o (c) Oil pump systems.

If choice a is selected set score to 1.

231. What type of fitting is used?

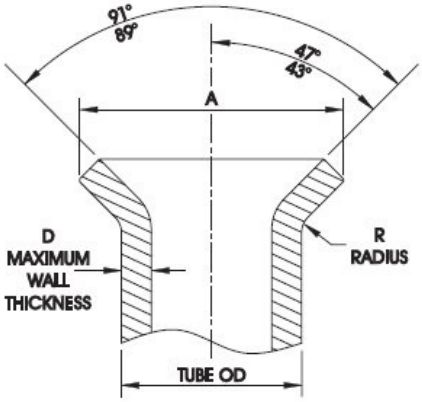
o (a) AS

• (b) Swaged fitting

o (c) Flared fitting

If choice b is selected set score to 1.

232. This tube has been....



o (a) prepared to install quick release couplings.
o (b) swaged.

• (c) flared.

If choice c is selected set score to 1.

233. What kind of coupling is indicated?

- (a) Quick release couplings.

o (b) Swaged fittings.
o (c) Universal fittings.

If choice a is selected set score to 1.

234. Flared tube fittings are identified by....

o (a) MS numbers

- (b) AN or MS numbers

o (c) AN numbers

If choice b is selected set score to 1.

235. Universal fittings are also called....

o (a) Saxo
o (b) Trumpet

- (c) Banjo

If choice c is selected set score to 1.

236. A hydraulic aluminium fitting is coloured?

- (a) Blue

o (b) Black
o (c) Grey

If choice a is selected set score to 1.

237. Quick release couplings of hydraulic lines have....

- (a) sealant / poppet valves to prevent loss of fluid.

o (b) no poppet valves.
o (c) no sealant valves.

If choice a is selected set score to 1.

238. Flexible hose swaged fittings....

o (a) can be re-used.

- (b) cannot be re-used.

o (c) have a quick release poppet.

If choice b is selected set score to 1.

239. What is a feature of an AN-fitting?

- (a) A shoulder between the end of the thread and the flare cone.

o (b) A thread along its entire length.
o (c) One half with a left-hand thread and the other half with a right-hand thread.

If choice a is selected set score to 1.

240. Where are flared-tube fittings made of?

o (a) A magnesium alloy.

- (b) An aluminium alloy.

o (c) An iron alloy.

If choice b is selected set score to 1.

241. Why do we use a quick-release coupling in an aircraft oil or fuel system?

o (a) To prevent the loss of fluid when the coupling is misconnected.

- (b) Both answers are correct.

o (c) To protect the fluid from contamination.

If choice b is selected set score to 1.

242. Where are flared-tube fittings made of?

- (a) A steel or copper based alloy.

o (b) A magnesium alloy.
o (c) An iron alloy.

If choice a is selected set score to 1.

243. What type of springs are indicated in the figure?

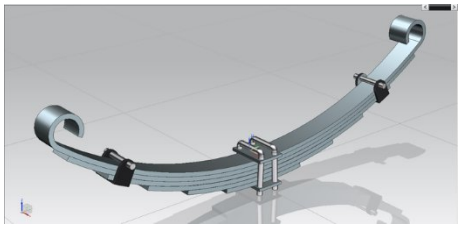
o (a) Leaf spring

- (b) Tension spring

o (c) Compression spring

If choice b is selected set score to 1.

244. What type of spring is indicated in the figure?



- (a) Leaf spring

o (b) Compression spring
o (c) Tension spring

If choice a is selected set score to 1.

245. What type of spring is indicated in the figure?

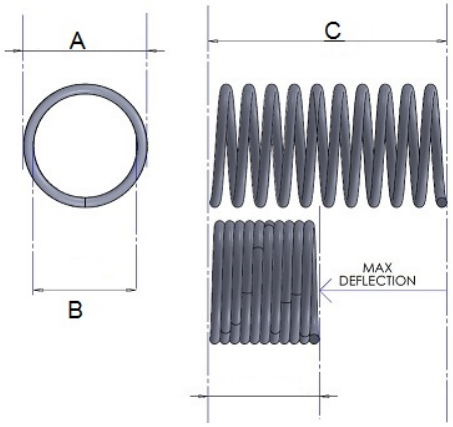
o (a) Leaf spring

• (b) Compression spring

o (c) Tension spring

If choice b is selected set score to 1.

246. What terminology is used for dimension indicated with "C"?

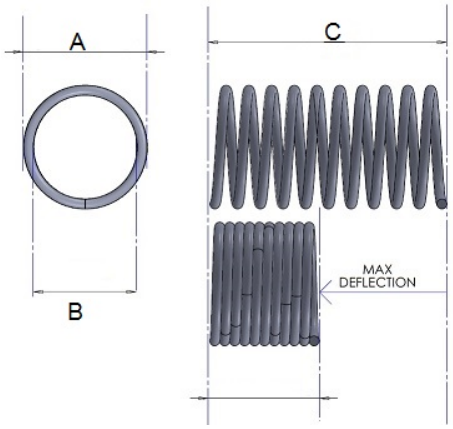


• (a) Free length

o (b) Pitch
o (c) Spring Constant

If choice a is selected set score to 1.

247. What terminology is used for dimension indicated with "B"?



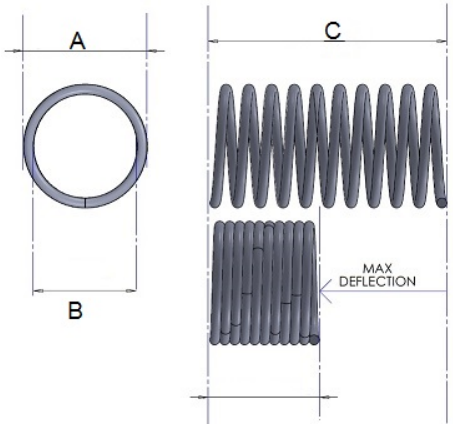
o (a) Mean coil diameter

• (b) Inside coil diameter

o (c) Wire diameter

If choice b is selected set score to 1.

248. What terminology is used for the dimension indicated with "A"?



o (a) Wire diameter.

• (b) Outside coil diameter.

o (c) Mean coil diameter.

If choice b is selected set score to 1.

249. The length of the spring <u>without any load applied</u> is referred as....

o (a) pitch.

- (b) free length.

o (c) coil distance.

If choice b is selected set score to 1.

250. How do you call the distance between two spring coils without any load applied?

- (a) Pitch.

o (b) Wire diameter.
o (c) Tip Thickness.

If choice a is selected set score to 1.

251. What is the Leaf or Carriage spring?

- (a)

o (b)

o (c)

If choice a is selected set score to 1.

252. Static load springs are made of several materials. Which of the next materials are used for static load springs?

- (a) Carbon steel and alloy steel

o (b) Titanium alloys and plastics.
o (c) Nimonic alloys and bronze.

If choice a is selected set score to 1.

253. How is the wire of a tension spring wounded?

o (a) Open wounded.

- (b) Close wounded.

o (c) Torsion wounded.

If choice b is selected set score to 1.

254. What does "free length" mean when talking about a spring?

This is the....

- (a) length of the spring without any load applied.

o (b) flattened distance at the end of the spring.
o (c) distance between the open-wounds.

If choice a is selected set score to 1.

255. What kind of spring is used to "down-lock" a landing gear?

o (a) A close torsion spring.

- (b) A close-wound tension spring.

o (c) A Helical compression spring.

If choice b is selected set score to 1.

256. What book do we have to follow if working with bearings?

o (a) IPC

- (b) AMM

o (c) SRM

If choice b is selected set score to 1.

257. The most important factor affecting the ability of a bearing to carry an axial load is its....

- (a) angle of contact.

o (b) outer race load.
o (c) axis of rotation.

If choice a is selected set score to 1.

258. Ball bearings and tapered roller bearings accept....

- (a) radical and axial loads.

o (b) radical loads.
o (c) axial loads.

If choice a is selected set score to 1.

259. Ball bearings are usually used for....

- (a) light to moderate loads.

o (b) heavy loads.
o (c) very heavy loads.

If choice a is selected set score to 1.

260. What is the main function of thrust bearings?

They are used by....

o (a) heavy axial loads at high speeds.
o (b) low axial loads at high speeds.

- (c) heavy axial loads at low speeds.

If choice c is selected set score to 1.

261. Angular contact bearings are suitable for....

- (a) radial and axial loads in one direction.

o (b) radial and axial loads in several directions.
o (c) radial and axial loads in two directions.

If choice a is selected set score to 1.

262. Cylindrical rollers can carry....

o (a) greater axial loads than ball bearings.

• (b) greater radial loads than ball bearings.

o (c) smaller radial loads than ball bearings.

If choice b is selected set score to 1.

263. Low friction bearings, ball or roller, which generate low internal heat are ideal for....

o (a) low axial loads.
o (b) low rotation speeds.

• (c) high rotation speeds.

If choice c is selected set score to 1.

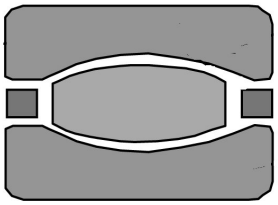
264. Most other bearings on an aircraft that do not have a cage are intended for....

o (a) angular contact bearings.
o (b) axial load bearings.

• (c) slow rotation conditions.

If choice c is selected set score to 1.

265. Why are spherical roller bearings used?



To give self-aligning properties and to withstand....

o (a) high radial loads.

• (b) high radial and axial loads.

o (c) high axial loads.

If choice b is selected set score to 1.

266. What bearing shape employ ball bearings?

- (a) Balls, sometimes caged, which rotate in grooved tracks.

o (b) Tapered or spherical rollers.
o (c) The bearings use cylindrical rollers.

If choice a is selected set score to 1.

267. Roller bearings are....

- (a) cylindrical, tapered or spherical rollers running in suitably shaped tracks.

o (b) allow only one direction but they are similar to balls of steel.
o (c) balls, sometimes caged, which rotate in grooved tracks.

If choice a is selected set score to 1.

268. Which bearing are better able to cope with heavier loads?

o (a) Large ball.

- (b) Roller.

o (c) Ball.

If choice b is selected set score to 1.

269. Which of the following factors must be taken in consideration in the selection of the correct type of bearing for any particular part of a transmission system?

o (a) Altitude of operation.

- (b) Bearing life.

o (c) Oxygen level.

If choice b is selected set score to 1.

270. Which is a property of a bearing with a sealing ring?

- (a) It does not need to be lubricated.

- o (b) It has to be lubricated after several hours of use.
- o (c) It can be used in hot environments.

If choice a is selected set score to 1.

271. How can a needle roller bearing be loaded?

- o (a) Axially and radially.
- • (b) Radially.
- o (c) Axially.

If choice b is selected set score to 1.

272. What is the most important factor in determining the size and type of a bearing?

- o (a) Design of the construction.
- o (b) Lubrication interval.
- • (c) Load magnitude.

If choice c is selected set score to 1.

273. Which bearing is used in axial load only against the taper?

- o (a) Ball bearing
- o (b) Spherical bearing
- • (c) Roller bearing

If choice c is selected set score to 1.

274. Which type of bearing is used to handle axial loads?

- o (a) Plain.
- o (b) Needle.
- • (c) Roller or ball.

If choice c is selected set score to 1.

275. What type of bearings are used on shafts where stringent demands are made on accuracy, for example high-speed shafts?

- o (a) Cone bearing.

- o (b) Roller.

- • (c) Precision.

If choice c is selected set score to 1.

276. When comparing a roller bearing to a plain (slide) bearing, the roller bearing ....

- • (a) has lower friction when starting.

- o (b) has more cooling problems.
- o (c) is heavier.

If choice a is selected set score to 1.

277. What is the main function of thrust bearings?

They are used...

- • (a) by heavy axial loads at low speed.

- o (b) by axial and radial loads.
- o (c) by radial loads at high speed.

If choice a is selected set score to 1.

278. What kind of bearings are used a lot in gas turbine engines?

- • (a) Roller and ball bearings.

- o (b) Needle bearings.
- o (c) Only tapered roller bearings.

If choice a is selected set score to 1.

279. Which bearings are ideal for high rotational speeds?

- o (a) Bearings which do not have a cage to support the rollers
- o (b) Plain bearings

- • (c) Ball and Roller bearings

If choice c is selected set score to 1.

280. Flat belts and pulleys....

- (a) use only friction to transmit power.

o (b) are more expensive than cable transmissions.
o (c) are not prone to slippage.

If choice a is selected set score to 1.

281. What is required for a positive drive between two pulleys?

o (a) A flat belt.
o (b) A V belt

- (c) A toothed belt.

If choice c is selected set score to 1.

282. Helical gears....

- (a) produce an axial load.

o (b) have a small contact area.
o (c) can make a 90^{o} angle.

If choice a is selected set score to 1.

283. When do we have to replace a chain?

- (a) If the chain is 2% or more longer.

o (b) After a number of operating hours.
o (c) If the chain starts to chatter.

If choice a is selected set score to 1.

284. A principle function of gears is to change....

- (a) speed and/or direction of rotation.

o (b) direction of rotation.
o (c) speed of rotation.

If choice a is selected set score to 1.

285. An input gear has 25 teeth and the output gear 75.

The output ratio is....

- o (a) 1 : 5
- o (b) 3 : 1
- • (c) 1 : 3

If choice c is selected set score to 1.

286. If the input gear has 50 teeth and the output gear has 25 teeth, then the output speed will be in the ratio of....

- • (a) 2 : 1
- o (b) 25 : 50
- o (c) 1 : 2

If choice a is selected set score to 1.

287. What kind of load does a helical gear produce on the bearing?

- o (a) Radial load.
- • (b) Axial load.
- o (c) Torsion load.

If choice b is selected set score to 1.

288. What do we need to change the direction of a chain assembly in two planes?

- o (a) A spline drive.
- o (b) A pulley.
- • (c) A special "bi-planar block".

If choice c is selected set score to 1.

289. What is meant with the Gear ratio of a gear-train?

- o (a) The rotational speed between gears.
- • (b) The ratio between the number of teeth of the input gear to that of the output gear.
- o (c) The rotary motion of an input shaft6 to an output shaft.

If choice b is selected set score to 1.

290. Gears are named according to their....

- (a) angle of intersection of the axis and the shape of their teeth.

o (b) purpose; example drive gear.
o (c) size and shape of their driving source.

If choice a is selected set score to 1.

291. Which gear teeth profiles are most common used in gear design?

o (a) Worm-hypoid.
o (b) Bevel and spiral.

- (c) Involute and conformal.

If choice c is selected set score to 1.

292. These gears (Spur - Helical - Worm - Hypoid - Bevel) are named according to their....

o (a) size and item to be driven.
o (b) tooth space and addendum circle.

- (c) angle of intersection.

If choice c is selected set score to 1.

293. Give the name of the gear-train shown in the picture.

o (a) Bevel drive train sequence.

- (b) Bevel epicyclical gear .

o (c) Worm epicyclical gear.

If choice b is selected set score to 1.

294. What is the most important distinction between ordinary and epicyclical trains?

- o (a) Direction of rotation.
- o (b) Speed of rotation.
- • (c) At least one of the axis moves relative to the frame.

If choice c is selected set score to 1.

295. What is a principle function of gears?

- o (a) Change the direction of shaft output.
- o (b) Change the speed of rotation only.
- • (c) Change the speed of rotation and/or their direction.

If choice c is selected set score to 1.

296. What is the direction of rotation if there is one idler gear between two gears?

- o (a) Counter clockwise.
- o (b) Clockwise.
- • (c) The same.

If choice c is selected set score to 1.

297. Give the equation to calculate the velocity ratio of a gear train.

- o (a) $N_1 \times Z_1 = N_2/Z_2$
- o (b) $N_1/N_2 = T_1/T_2$
- • (c) $N_1 \times T_1 = N_2 \times T_2$

If choice c is selected set score to 1.

298. When is a worm gear used?

- o (a) When the axels run parallel to each other.
- • (b) When a high reduction in speed is used.
- o (c) In places with a lot of space.

If choice b is selected set score to 1.

299. Which controls are used to operate with chain and sprockets?

- (a) Aileron trim

o (b) Flap screw drives
o (c) Main Landing Gear extension

If choice a is selected set score to 1.

300. How is it possible to prevent the incorrect assembly of chain end fittings?

o (a) The sequence of assembly prevent improper assembly.
o (b) Chains are fitted with special links to prevent the cross connection of the chain.

- (c) Chains are fitted with special end fittings to prevent the cross connection of the chain.

If choice c is selected set score to 1.

301. Which are the most used flexible cables in aircraft?

- (a) 7x7 and 7x19

o (b) 1x19 and 7x19
o (c) 1x7 and 1x19

If choice a is selected set score to 1.

302. Aircraft cables are classified by either....

- (a) minimum breaking load or nominal diameter.

o (b) nominal breaking load or maximum diameter.
o (c) maximum breaking load or nominal diameter.

If choice a is selected set score to 1.

303. A cable designated as: 7x19 consist of....

- (a) 7 strands containing 19 wires

o (b) 7 strands 19 inch long
o (c) 7 Wires each containing 19 strands

If choice a is selected set score to 1.

304. The most used flexible control cables in aircrafts are:

- o (a) 3 x 3 and 4 x 7
- • (b) 7 x 7 and 7 x 19
- o (c) 9 x 9 and 7 x 19

If choice b is selected set score to 1.

305. Cable tension can be adjusted with....

- o (a) fairleads
- • (b) turnbuckles
- o (c) pulleys

If choice b is selected set score to 1.

306. Most common turnbuckles are....

- • (a) barrel type and tension rod type.
- o (b) fairleads and pulley type.
- o (c) barrel type and bucket type.

If choice a is selected set score to 1.

307. As an aircraft climbs to ambient temperature of -56 ^{o}C...

- o (a) there is no influence on cable tension.
- o (b) the cable tension will tend to increase.
- • (c) the cable tension will tend to decrease.

If choice c is selected set score to 1.

308. Fairleads allow....

- • (a) cable to pass through bulkheads without chafing.
- o (b) cable tension to be controlled.
- o (c) cable to change direction.

If choice a is selected set score to 1.

309. Aircraft pulleys are usually made from impregnated fibres with....

- o (a) a sealed guard fitted in the centre.
- o (b) a fairlead fitted in the centre.
- • (c) a sealed bearing fitted in the centre.

If choice c is selected set score to 1.

310. Why do we use a pulley instead of a fair lead?

- • (a) Less friction.
- o (b) Easy construction.
- o (c) Better bending possibilities.

If choice a is selected set score to 1.

311. The two most common types of flexible control cables systems are....

- o (a) guard cable and teleflex control systems.
- • (b) bowden cable and teleflex control systems.
- o (c) fairlead cable and teleflex control systems.

If choice b is selected set score to 1.

312. A teleflex flexible transmitting cable operates inside....

- • (a) a rigid or flexible metal conduit.
- o (b) a flexible metal conduit.
- o (c) a rigid metal conduit.

If choice a is selected set score to 1.

313. Teleflex control boxes are used to change the....

- o (a) direction of motion.
- o (b) type of motion.
- • (c) direction or the type of motion.

If choice c is selected set score to 1.

314. The construction of a control cable is determined by....

- o (a) size of the cable and materials used in each wire.
- • (b) the number of wires in each strand.
- o (c) the number and thickness of wires in each strand only.

If choice b is selected set score to 1.

315. The construction of the control cable is determined by....

- • (a) the number of strands it contains, and the number of wires in each strand.
- o (b) only the length of the cable.
- o (c) the number of strands it contains and the number of fittings attached to each strand.

If choice a is selected set score to 1.

316. Whilst control cables were previously, 'spliced' or 'whipped' to form end-fittings, the majority of modern cables have a....

- o (a) looped terminal
- • (b) swaged splice end-fitting
- o (c) adjustable nut fitting

If choice b is selected set score to 1.

317. While control cables were previously 'spliced' or 'whipped' to form end-fittings, the majority of modern cables have a....

- • (a) 'swaged splice' end-fitting
- o (b) Nicopress (brand name) fitting
- o (c) turn-buckles only

If choice a is selected set score to 1.

318. What is usually fitted to both ends of a cable control system and can be adjusted?

- o (a) Flared end fittings.
- o (b) Woven splices.

- (c) Control stops.

If choice c is selected set score to 1.

319. Some large aircraft incorporate tension regulators in the control cable systems to maintain....

- o (a) tension to control surface to prevent vibration.
- (b) a given cable tension automatically.
- o (c) increases structural strength of the aircraft.

If choice b is selected set score to 1.

320. The Teleflex control system is a....

- (a) Bowden cable that functions in both push and pull without the need of two cables.
- o (b) Goodrich cable that functions in both push and pull without the need of two cables.
- o (c) Bowden cable that functions in pull function only.

If choice a is selected set score to 1.

321. Control cables that run for long distances inside an aircraft, will need to change direction to allow for complicated structure. The usual method used to change direction are better known as?

- o (a) Frames
- o (b) Guides
- (c) Pulleys

If choice c is selected set score to 1.

322. The cables of a flight control must be supported to reduce the possibility of fouling, vibration and fluctuations.

They are supported by....

- o (a) frame supports.
- o (b) swages.
- (c) cable fairleads.

If choice c is selected set score to 1.

323. The control system is similar as a Bowden cable that functions in both push and pull without the need of two cables. This control system is known as....

- o (a) Steel push / pull rod
- o (b) Push Cable

- • (c) Teleflex

If choice c is selected set score to 1.

324. The Bowden system of control consists of....

- o (a) stainless steel cable used direct spans and with only push function ability.

- • (b) a stainless steel wire, housed in a flexible sleeve or conduit.

- o (c) non-flex cable system.

If choice b is selected set score to 1.

325. We have a flexible conduit consists of close coiled wire, covered with cotton braiding and a waterproof coating.

What type of cable is this?

- o (a) This could be both cable, Teleflex and Bowden.
- o (b) Teleflex cable.

- • (c) Bowden cable.

If choice c is selected set score to 1.

326. Wires used in aircraft use stranded conductors for....

- • (a) flexibility.

- o (b) better insulation.
- o (c) weight saving.

If choice a is selected set score to 1.

327. AWG is....

- • (a) a standardized wire gauge system.

- o (b) an aluminium wire gauge.
- o (c) allowable wire voltage drop.

If choice a is selected set score to 1.

328. The larger the AWG number or wire gauge the....

- (a) smaller the physical size of the wire.

o (b) smaller the resistance of the wire.
o (c) greater the physical size of the wire.

If choice a is selected set score to 1.

329. Aluminium may not be used as....

o (a) airframe wire.
o (b) airframe or engine wire.

- (c) engine wire.

If choice c is selected set score to 1.

330. A coax cable consist of....

o (a) several insulated centre conductors with a metallic braided outer conductor shield.

- (b) a single insulated centre conductor with a metallic braided outer conductor shield.

o (c) a single insulated centre conductor with a non-flammable braided outer conductor shield.

If choice b is selected set score to 1.

331. In a coax cable the 'return' wire is....

o (a) the 'go' wire.
o (b) the dielectric.

- (c) a form of tube completely surrounding the 'go' wire and dielectric.

If choice c is selected set score to 1.

332. Coax cables are used....

o (a) to avoid voltage drop.

- (b) to avoid interferences.

o (c) to increase voltage.

If choice b is selected set score to 1.

333. High tension cables are used to....

- (a) avoid radio interference.

o (b) avoid sparks.
o (c) increase sparks.

If choice a is selected set score to 1.

334. High tension cables are used to carry high....

o (a) voltage to antenna's.
o (b) voltage to generators.

- (c) ignition voltage to spark plugs.

If choice c is selected set score to 1.

335. The high tension lead of a spark plug is....

o (a) used for radiating jumping sparks into space.

- (b) enclosed in a metal braid.

o (c) enclosed only in an insulating dielectric.

If choice b is selected set score to 1.

336. Prior to crimping the cable should....

- (a) be stripped.

o (b) not be stripped.
o (c) be heated.

If choice a is selected set score to 1.

337. During crimping the....

- (a) barrel is designed to fit closely around the conductor cable.

o (b) tongue is designed to fit closely around the conductor cable.
o (c) barrel is designed to fit closely around the tongue.

If choice a is selected set score to 1.

338. Why is sometimes after shrinking an extra seal applied?

- o (a) Extra strength.
- o (b) A big space padding.
- • (c) To minimalize oxidation.

If choice c is selected set score to 1.

339. The insulator of a rear release connector is made of....

- • (a) hard material.
- o (b) soft or hard material.
- o (c) soft material.

If choice a is selected set score to 1.

340. In the part number connector identification (for example: MS24266R22B55) the 'R' stands for....

- • (a) aluminium, non-conductive.
- o (b) release.
- o (c) relocation.

If choice a is selected set score to 1.

341. The BIN code is the....

- o (a) Basic Insert Number
- • (b) Basic Identification Number
- o (c) Binary Identification Number

If choice b is selected set score to 1.

342. Explain the identification of the connector part number: MS24266 R 22 B 55p.

- o (a) Titanium connector with 22 connector pins and a bayonet coupling type.
- o (b) Stainless steel connector, shell size 22 and threated coupling type.
- • (c) Aluminium connector, shell size and bayonet coupling type.

If choice c is selected set score to 1.

343. Explain the identification of the connector part number: MS24266 E 22 T 55p.

- o (a) Aluminium connector, shell size and bayonet coupling type.
- • (b) Stainless steel connector, shell size 22 and threated coupling type.
- o (c) Titanium connector with 22 connector pins and a bayonet coupling type.

If choice b is selected set score to 1.

344. Explain the identification of the connector part number: MS24266 G 22 T 55p.

- o (a) Titanium conductive connector with 22 connector pins and a bayonet coupling type.
- • (b) Aluminium conductive connector, shell size and threated coupling type.
- o (c) Stainless steel non-conductive connector, shell size 22 and threated coupling type.

If choice b is selected set score to 1.

345. A single solid rod or filament of dawn metal enclosed in a suitable insulating material and outer protective covering.

This best describes....

- • (a) a wire.
- o (b) conduit.
- o (c) a cable.

If choice a is selected set score to 1.

346. A conductor composed of a group of single solid wires stranded together to provide greater flexibility and enclosed by insulating material and outer protective covering.

This best describes....

- (a) an electrical cable.

o (b) a coaxial cable.
o (c) an electrical wire.

If choice a is selected set score to 1.

347. Which metal is used for conductors?

- (a) Nickel plated copper.

o (b) Copper plated silver.
o (c) Aluminium plated copper.

If choice a is selected set score to 1.

348. Which is the "go" wire in a coaxial cable?

o (a) The inner insulator.

- (b) The centre conductor

o (c) The outer insulator jacket.

If choice b is selected set score to 1.

349. Why do electrical wires contain stranded conductors?

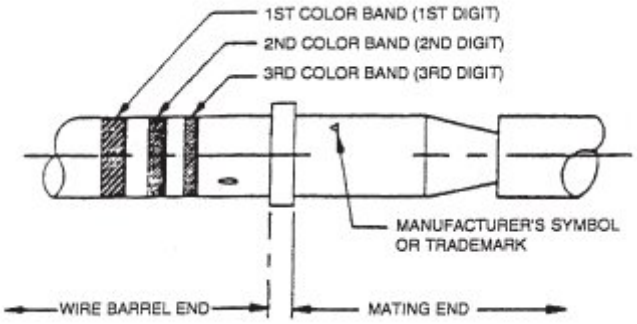
For reason of....

- (a) flexibility.

o (b) less voltage drop.
o (c) conductivity.

If choice a is selected set score to 1.

350. Which colour code is depicted in the figure?



- o (a) BSW colour code.
- o (b) AWG colour code.

- • (c) BIN colour code

If choice c is selected set score to 1.

351. Shielded ignition cables are used in aircraft installations where the electromagnetic radiation from the high-voltage spark plug leads could cause radio interference. The best type of cable to be installed in this situation is?

- o (a) Coaxial cable

- • (b) High tension cable

- o (c) Solid wire

If choice b is selected set score to 1.

352. What type of conductor cable is "a single insulated conductor with a metallic braided outer conductor shield"?

- o (a) Low tension lead.
- o (b) High tension lead.

- • (c) Coaxial.

If choice c is selected set score to 1.

353. What type of conductor cable is "a single insulated conductor with a metallic braided outer conductor shield"?

- (a) Coaxial cable.

o (b) High tension type of cable.
o (c) Insulated wire.

If choice a is selected set score to 1.

354. What is the most common electrical connection of wiring in aircraft?

o (a) Soldered connections.

- (b) Crimped connections.

o (c) Swaged connections.

If choice b is selected set score to 1.

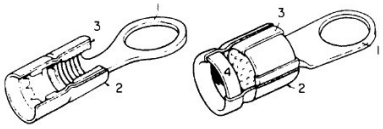
355. How are electrical crimp terminations identified?

- (a) Many of which are colour coded.

o (b) Data tag describes the correct installation platform.
o (c) Numbered only sequence.

If choice a is selected set score to 1.

356. What are two principal components of a typical crimp termination?



o (a) Shell and plug.

- (b) Crimping barrel and tongue.

o (c) Socket and shell.

If choice b is selected set score to 1.

357. The precise form of the crimp is determined by factors as the....

- (a) size and construction of the conductor.

o (b) weight and construction of the conductor.
o (c) type of wire and construction of the conductor.

If choice a is selected set score to 1.

358. The precise form of the crimp is determined by....

o (a) only the size of the conductor.

- (b) factors as the size and construction of the conductor, the materials, and the dimensions of the termination.

o (c) the materials used.

If choice b is selected set score to 1.

359. What is the purpose of the barrel in crimped terminals?

The barrel is designed to....

o (a) support the cable conductor do to vibration effect.

- (b) fit closely around the cable conductor so that after pressure has been applied a large number of points of contact are made.

o (c) contain the wire bundle.

If choice b is selected set score to 1.

360. What is an advantage of a crimped terminal?

o (a) Connections are stronger, actually as strong as the conductor itself.

- (b) Both answers are correct.

o (c) Fabrication is faster and easier and uniform operation is secured.

If choice b is selected set score to 1.

361. How can you detect the difference between front or rear release connectors?

- (a) Insulator of a front release is made of soft material.

o (b) Insulator of a front release is made of hard material.
o (c) Insulator of a rear release is made of soft material.

If choice a is selected set score to 1.

362. There are thousands of types and variations of connectors however normal connectors have....

o (a) receptable which are split into two sections.

• (b) two mating halves.

o (c) only plugs which are split into two sections.

If choice b is selected set score to 1.

363. Why is aluminium wire used as an electrical conductor?

• (a) Important weight advantage of this metal over copper.

o (b) The best possible conductor.
o (c) To avoid dissimilar metal corrosion.

If choice a is selected set score to 1.

364. Explain the identification of the connector part number: MS24266 R 22 B 55p.

• (a) Aluminium connector, shell size and bayonet coupling type.

o (b) Stainless steel connector, shell size 22 and threated coupling type.
o (c) Titanium connector with 22 connector pins and a bayonet coupling type.

If choice a is selected set score to 1.

365. Explain the identification of the connector part number: MS24266 E 22 T 55p.

• (a) Stainless steel connector, shell size 22 and threated coupling type.

o (b) Titanium connector with 22 connector pins and a bayonet coupling type.
o (c) Aluminium connector, shell size and bayonet coupling type.

If choice a is selected set score to 1.

366. Explain the identification of the connector part number: MS24266 G 22 T 55p.

• (a) Aluminium conductive connector, shell size and threated coupling type.

- (b) Titanium conductive connector with 22 connector pins and a bayonet coupling type.
- (c) Stainless steel non-conductive connector, shell size 22 and threated coupling type.

If choice a is selected set score to 1.

If assessment score is 0% to 100% Feedback