

04. Containers made of high silicon cast iron (14% Si) are not suitable for the storage of

- (A) Acetic acid
- (B) Benzoic & boric acids
- (C) Phosphoric acid (95%) & sulphuric acid (95%)
- (D) Hydrochloric acid (concentrated)

Answer: Option D

05. Cast iron is

- (A) Used for making shock resisting parts
- (B) Manufactured in cupola and is brittle
- (C) Having compressive strength more than its tensile strength
- (D) All (A), (B) & (C)

Answer: Option D

06. Alinco, which is a aluminium-cobalt-nickel steel, is used for making

- (A) Surgical instruments
- (B) Powerful magnets
- (C) Chemical equipments
- (D) Boiler tubes

Answer: Option B

07. Maximum carbon content in cast iron is _____ percent.

- (A) 3.8
- (B) 5.2
- (C) 4.8
- (D) 4.3

Answer: Option D

08. Which of the following comprises of hydrocarbons?

- (A) Mica flakes
- (B) Glass
- (C) Rubber
- (D) None of these

Answer: Option C

09. Sulphuric acid is mixed with ground phosphate rock (to produce phosphoric acid) in a steel digester lined with

- (A) Acidic refractory
- (B) Rubber
- (C) Carbate
- (D) Lead or acid-proof bricks

Answer: Option D

10. The softest material just next to talc in the Moh's scale is

- (A) Quartz
- (B) Gypsum
- (C) Feldspar
- (D) Fluorite

Answer: Option B

11. _____ iron is produced, when molten pig iron is allowed to cool gradually.

- (A) White cast
- (B) Grey cast
- (C) Wrought
- (D) None of these

Answer: Option B

12. 'Age hardening' of duralumin is due to

- (A) Copper
- (B) Magnesium
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

13. Reduction in the grain size reduces the _____ of the material.

- (A) Fatigue resistance
 - (B) Tensile strength
 - (C) Creep resistance
 - (D) All (A), (B) & (C)
- Answer: Option C

14. Pick out the wrong statement.

- (A) The toughness of a material decreases, when it is heated
- (B) Crane hooks are normally made of wrought iron
- (C) Cold working of a metal decreases its fatigue strength
- (D) The temperature at which new grains are formed in a metal is known as the recrystallisation temperature

Answer: Option C

15. Ferric stainless steels compared to austenitic stainless steels

- (A) Have lower corrosion resistance
- (B) Are harder to fabricate
- (C) Are less ductile and hence less suitable for cold pressing
- (D) All (A), (B) and (C)

Answer: Option D

16. In cold working of metal as compared to its hot working

- (A) Cracks and blow holes are eliminated
- (B) Ductility and impact strength improves
- (C) Appreciable strain hardening is produced
- (D) Yield stress, hardness and fatigue strength is not at all affected

Answer: Option C

17. Which one occupies the lowermost position in the electromotive series of metals?

- (A) Aluminium
- (B) Noble metals (Ag, Pt, Au)
- (C) Zinc
- (D) Alkali metals (K, Na, Li)

Answer: Option B

18. 'Semi steel' is

- (A) Produced by adding 10-20% steel to the cupola charge
- (B) Stronger than cast iron
- (C) Both (A) and (B)
- (D) Neither (A) nor (B)

Answer: Option C

19. Spark plugs are made of

- (A) High alumina ceramic
- (B) Metallic carbides
- (C) Corundum
- (D) Carborundum

Answer: Option A

20. How many molecules per unit cell are there in a face centred cubic lattice?

- (A) 2
- (B) 4
- (C) 6
- (D) 8

Answer: Option B

21. The crystal structure of most of the common metals is

- (A) Orthorhombic
- (B) Cubic
- (C) Hexagonal
- (D) None of these

Answer: Option B

22. Non-ferrous metals and hard steels do not exhibit a definite yield point, when pulled in the testing machine and hence for these cases, a better measure of their elastic properties is defined by the _____ stress.

- (A) Ultimate
 - (B) Yield point
 - (C) Proof
 - (D) None of these
- Answer: Option C

23. Lead pipe is

- (A) Especially resistant to solutions containing H_2SO_4
 - (B) Usually joined by burning (e.g. by melting to adjacent pieces with a torch)
 - (C) Having very low elastic limit resulting in permanent deformation from either mechanical or thermal strain
 - (D) All (A), (B) and (C)
- Answer: Option D

24. _____ is a donor impurity for semi-conductors.

- (A) Boron
 - (B) Antimony
 - (C) Gallium
 - (D) None of these
- Answer: Option B

25. Pick out the wrong statement.

- (A) Pure rubber is as useless as pure gold as a material of construction
 - (B) Thermal conductivity of aluminium is higher than that of copper; hence it is increasingly used for utensil making
 - (C) Copper has poor weldability
 - (D) Reinforced plastics are made from both thermoplastic as well as thermosetting plastics
- Answer: Option B

26. Caustic soda is transported in _____ lined containers.

- (A) Glass
 - (B) Nickel
 - (C) Neoprene
 - (D) Either (B) or (C)
- Answer: Option D

27. Cast iron is having very high

- (A) Proximity between its elastic limit and ultimate breaking strength
 - (B) Ductility
 - (C) Tensile strength
 - (D) All (A), (B) and (C)
- Answer: Option A

28. When iron is rusted, it is

- (A) Converted to a fine powder
 - (B) Reduced
 - (C) Oxidised
 - (D) None of these
- Answer: Option C

29. Failure of a material is termed as fatigue failure, if it fails below the yield point. The resistance to fatigue failure of a material is measured by the

- (A) Ultimate tensile strength (U.T.S.)
 - (B) Endurance limit
 - (C) Elastic limit
 - (D) None of these
- Answer: Option B

30. High speed steel tools retain their hardness upto a temperature of _____ °C.

- (A) 500
- (B) 750
- (C) 900

(D) 1100
Answer: Option C

31. Karbate is

- (A) A mixture of iron dust and saw dust
 - (B) Carbon impregnated with resin (usually Bakelite)
 - (C) An acid resistant material
 - (D) Both (B) and (C)
- Answer: Option D

32. Post weld heat treatment is done by

- (A) Normalising
 - (B) Stress relieving
 - (C) Tempering
 - (D) Solution annealing
- Answer: Option B

33. Pick out the wrong statement.

- (A) Wrought iron contains about 0.02% carbon
 - (B) Wrought iron cannot be easily forged and welded
 - (C) The chilled cast iron does not contain graphite
 - (D) Spheroidal grey cast iron contains graphite flakes
- Answer: Option B

34. Rotary kilns in cement industry are lined with _____ bricks.

- (A) Fireclay
 - (B) Silica
 - (C) Lead
 - (D) High alumina & high magnesia
- Answer: Option D

35. Maximum consumption of lead is in the manufacture of

- (A) Storage batteries
 - (B) Solder alloys
 - (C) Electric cable sheathing
 - (D) Lead lined vessels
- Answer: Option A

36. Wrought iron is having very high

- (A) Hardness
 - (B) Strength
 - (C) Corrosion resistance
 - (D) Susceptibility to changes in its properties by heat treatment
- Answer: Option C

37. Maximum permissible sulphur content in steel is _____ percent.

- (A) 0.015
 - (B) 0.055
 - (C) 0.505
 - (D) 0.805
- Answer: Option B

38. A hardness depth of about 3 mm can be achieved by induction hardness in _____ seconds.

- (A) 5
 - (B) 100
 - (C) 250
 - (D) 500
- Answer: Option A

39. Mild steel is a/an _____ steel.

- (A) Low carbon
- (B) Medium carbon
- (C) High carbon
- (D) High alloy

Answer: Option A

40. Presence of cobalt in steel improves its

- (A) Cutting ability
- (B) Corrosion resistance
- (C) Tensile strength
- (D) None of these

Answer: Option A

41. Carbon is present in steel wholly in the

- (A) Combined form
- (B) Free state as graphite
- (C) Both (A) and (B)
- (D) Neither (A) nor (B)

Answer: Option A

42. Bush bearings are made of

- (A) Mild steel
- (B) Phosphorous bronze
- (C) White metal alloys
- (D) None of these

Answer: Option B

43. Lead lined equipments & vessels are suitable for handling

- (A) Hydrochloric acid (10%)
- (B) Nitric acid
- (C) Sulphuric acid upto 60°C
- (D) All (A), (B) and (C)

Answer: Option C

44. How many atoms are there per unit cell in a body centred cubic lattice system?

- (A) 6
- (B) 5
- (C) 3
- (D) 2

Answer: Option D

45. Evaporator used for concentrating tomato juice is made of

- (A) Nickel
- (B) Brass
- (C) Stainless steel-glass lined
- (D) Cast iron-rubber lined

Answer: Option C

46. Pick out the correct statement.

- (A) Stainless steel is nothing but chromium coated steel
- (B) Hardening of a soft metal can be done by alloying it with another metal or non-metal
- (C) Plastic deformation of a material is its temporary distortion under the action of applied stress
- (D) Rusting of iron is not electrochemical in nature

Answer: Option B

47. Condenser tubes are not made of

- (A) Cartridge brass
- (B) Muntz brass
- (C) Wood metal
- (D) Aluminium brass alloy

Answer: Option C

48. Nickel base alloys with _____ are known as monel metal.

- (A) Zinc
- (B) Tin
- (C) Copper
- (D) Molybdenum

Answer: Option C

49. Ball bearings are normally made of _____ steel.

- (A) High speed
- (B) High carbon
- (C) Chrome
- (D) Silicon

Answer: Option C

50. Glass is corroded by

- (A) Fluorine (dry or wet)
- (B) Sulphuric acid
- (C) Phosphoric acid
- (D) None of these

Answer: Option A

51. Most of the common metals have _____ crystal structure.

- (A) Cubic
- (B) Hexagonal
- (C) Orthorhombic
- (D) None of these

Answer: Option A

52. Tin base and lead base alloys are used for bearing materials. Tin compared to lead has lower

- (A) Price
- (B) Corrosion resistance
- (C) Thermal conductivity
- (D) Abundant availability

Answer: Option D

53. Hastelloy C is a good material of construction in chemical process industry, since it is

- (A) Highly corrosion resistant and is readily fabricated
- (B) Relatively inexpensive although it can be fabricated with some difficulty
- (C) Corrosion resistant to most alkalis, particularly because of its copper content
- (D) Light and resists attack by acids

Answer: Option D

54. Nickel as a material of construction

- (A) Is used as an alloying element for both ferrous & non-ferrous alloys
- (B) Is paramagnetic below 415°C (its Curie temperature)
- (C) Diamagnetic
- (D) Has a body centred cubic (bcc) crystal lattice structure

Answer: Option A

55. Bell metal is an alloy of

- (A) Copper & zinc
- (B) Copper & tin
- (C) Copper & nickel
- (D) Zinc & tin

Answer: Option B

56. Lead pipes are not safe for carrying drinking water, because water, containing dissolved oxygen attacks lead thereby forming poisonous $\text{Pb}(\text{OH})_2$. Lead pipes are readily corroded by

- (A) Dilute HCl
- (B) Acetic acid
- (C) Concentrated H_2SO_4
- (D) None of these

Answer: Option B

57. The specific gravity of coal depends mainly on its _____ content.

- (A) Carbon
- (B) Volatile matter
- (C) Ash
- (D) Moisture

Answer: Option C

58. Which of the following material of construction may be recommended by a chemical engineer for handling a gaseous chlorine (dry or wet) stream in a fluid flow system?

- (A) High silicon iron, silicon rubber, Kel-F and Teflon
- (B) Mild steel and stainless steel
- (C) Cast iron, tin and aluminium
- (D) Copper, nickel and Monel

Answer: Option A

59. Bog iron used for the adsorption of H₂S from coke oven gas is

- (A) An intimate mixture of saw dust and iron dust (i.e. moist ferric hydroxide)
- (B) Iron impregnated with resin (usually Bakelite)
- (C) Carbon free iron
- (D) None of these

Answer: Option A

60. Beehive coke ovens are made of _____ bricks.

- (A) Silica
- (B) Fireclay
- (C) Silicon carbide
- (D) Corundum

Answer: Option A

61. To improve the machinability of steel by its softening, it is subjected to

- (A) Cold working
- (B) Annealing
- (C) Shot blasting
- (D) Heating

Answer: Option B

62. _____ of a material results, when its strength is increased & ductility is decreased by heating at a relatively lower temperature after cold working.

- (A) Solid solution hardening
- (B) Screw dislocation
- (C) Strain ageing
- (D) Twinning

Answer: Option C

63. Which of the following has the least value of ultimate tensile strength (UTS)?

- (A) Medium carbon steel
- (B) High carbon steel
- (C) Cast iron
- (D) Wrought iron

Answer: Option C

64. Presence of nitrogen in steel

- (A) Makes it brittle
- (B) Increases its strength
- (C) Increases its hardness
- (D) Is desirable

Answer: Option A

65. With increase in the carbon percentage in the steel, its

- (A) Hardness increases
- (B) Ductility reduces
- (C) Tensile strength increases
- (D) All (A), (B) and (C)

Answer: Option D

66. Among the tin containing alloys, _____ consumes the maximum amount of tin.

- (A) Solder
- (B) White metal
- (C) Pewter metal
- (D) Bronzes

Answer: Option A

67. Bearings subjected to light load are made of

- (A) White metal
- (B) Phosphorous bronze
- (C) Monel
- (D) Silicon bronze

Answer: Option B

68. Pick out the wrong statement

- (A) Hardening makes the steel more brittle
- (B) High alloy steels contain more than 50% alloying element
- (C) 18/8 stainless steel is a magnetic steel
- (D) Both (B) and (C)

Answer: Option D

69. Addition of lead, sulphur and phosphorus to low carbon steel helps in improving its

- (A) Corrosion resistance
- (B) Tensile strength
- (C) Machinability
- (D) Compressive strength

Answer: Option C

70. Polymerisation reactor used in the production of styrene butadiene rubber (SBR) is made of

- (A) Stainless steel or glass lined steel
- (B) Nickel clad steel
- (C) High silicon cast iron
- (D) Aluminium

Answer: Option A

71. In SO₃ absorber (Contact Process), packing material used is of

- (A) Cast iron
- (B) Chemical stoneware
- (C) Carbate
- (D) Mild steel

Answer: Option B

72. Which of the following finds the least commercial use?

- (A) Pure iron
- (B) High silicon iron
- (C) Low carbon steel
- (D) High carbon steel

Answer: Option A

73. _____ does not contain copper as an alloying element,

- (A) Nichrome
- (B) Manganin
- (C) Perminvar
- (D) Monel metal

Answer: Option A

74. German silver is an alloy of copper, nickel and

- (A) Zinc
- (B) Silver
- (C) Tin
- (D) Lead

Answer: Option A

75. The chlorinator used in the manufacture of DDT is made of

- (A) Glass
- (B) Glass lined steel
- (C) Teflon
- (D) Bakelite

Answer: Option B

76. Nitriding of steel is a process for

- (A) Case hardening

- (B) Spheroidising
 - (C) Normalising
 - (D) Annealing
- Answer: Option A

77. Hydrochloric acid is stored in a _____ vessel.

- (A) Lead lined steel
- (B) Rubber lined steel
- (C) Stainless steel
- (D) Cast iron

Answer: Option B

78. As the impurities are oxidised, the melting point of iron

- (A) Decreases
- (B) Remains unchanged
- (C) Increases
- (D) May increase or decrease; unpredictable

Answer: Option C

79. High speed cutting tool steels contain about _____ percent of tungsten.

- (A) 6-8
- (B) 18-20
- (C) 30-35
- (D) 50-55

Answer: Option B

80. Biological shield in a nuclear power reactor is made of

- (A) Concrete
- (B) Steel
- (C) Cadmium
- (D) Zircaloy

Answer: Option A

81. The high expansion metal normally used in the bimetallic thermometer is _____ temperature measurement.

- (A) Brass for low
- (B) Nickel alloys for high
- (C) Both 'a' & 'b'
- (D) Aluminium for all

Answer: Option C

82. Combination of metals and ceramics are called

- (A) Metalloy
- (B) Cermets
- (C) Pellets
- (D) Non-crystalline ceramics

Answer: Option B

83. Mixing vessel used for the chlorination of methane to produce methyl chloride is made of

- (A) Copper
- (B) Cast iron
- (C) Aluminium
- (D) High carbon steel

Answer: Option B

84. Dry chlorine can be handled in a vessel made of

- (A) Iron or steel
- (B) PVC
- (C) Nickel
- (D) Brass

Answer: Option A

85. Inconel is an alloy of

- (A) Tin, zinc and nickel
- (B) Iron, nickel and chromium

- (C) Copper and nickel
 - (D) Copper and tin
- Answer: Option B

86. Vycor, a widely used material for making 'thermal wells' in temperature measurement, is a

- (A) Cermet
- (B) Glass
- (C) Thermosetting plastic
- (D) Metallic alloy

Answer: Option B

87. Wrought iron is a suitable material of construction for handling _____ solutions.

- (A) Dilute acidic
- (B) Concentrated acidic
- (C) Alkalis & alkaline
- (D) None of these

Answer: Option C

88. Galvanising is generally done on

- (A) Non-ferrous metals
- (B) Low carbon steel
- (C) Stainless steel
- (D) Cast iron

Answer: Option B

89. Which one has the maximum tensile strength out of the following?

- (A) Nodular cast iron
- (B) Pig iron
- (C) White cast iron
- (D) Grey cast iron

Answer: Option A

90. Wrought iron is a suitable material of construction for handling _____ solutions.

- (A) Dilute acidic
- (B) Concentrated acidic
- (C) Alkalis & alkaline
- (D) None of these

Answer: Option C

91. The increase in hardness of metal due to its cold working is termed as the _____ hardening.

- (A) Work
- (B) Age
- (C) Induction
- (D) Flame

Answer: Option A

92. Anodic material used for the cathodic protection of underground buried steel pipeline is

- (A) Nickel or copper
- (B) Zinc or magnesium
- (C) Bronze
- (D) Brass

Answer: Option B

93. Mild steel storage vessels are suitable for the storage of

- (A) Anhydrous ammonia
- (B) Fatty acids
- (C) Hydrochloric acid (95%)
- (D) Sulphuric acid (25%)

Answer: Option A

94. High speed steel should have high

- (A) Toughness
- (B) Wear resistance
- (C) Hardenability

(D) Both (B) & (C)
Answer: Option D

95. Which of the following has no effect on the carbide forming tendency in steels?

- (A) Molybdenum
- (B) Phosphorus
- (C) Chromium
- (D) Vanadium

Answer: Option B

96. Aqueous nitric acid is stored in _____ vessel.

- (A) Plain carbon steel
- (B) Stainless steel
- (C) Cast iron
- (D) Thermosetting plastic material

Answer: Option C

97. High carbon steel contains more than _____ percent carbon.

- (A) 0.5
- (B) 2.2
- (C) 2.5
- (D) 2.8

Answer: Option A

98. 18/8 stainless steel means, that it contains

- (A) 18% chromium and 8% nickel
- (B) 18% chromium and 8% molybdenum
- (C) 18% nickel and 8% chromium
- (D) 18% molybdenum and 8% chromium

Answer: Option A

99. Manganese in steel affects its

- (A) Ductility
- (B) Tensile strength
- (C) Hardness
- (D) None of these

Answer: Option B

100. Sulphuric acid is mixed with ground phosphate rock (to produce phosphoric acid) in a steel digester lined with

- (A) Acidic refractory
- (B) Rubber
- (C) Carbate
- (D) Lead or acid proof bricks

Answer: Option A

101. The electrical conductivity of a _____ decreases with rise in temperature.

- (A) Metal/alloy
- (B) Semi-conductor
- (C) Dielectric
- (D) None of these

Answer: Option A

102. Silicon percentage in iron castings to have maximum hardness should be about

- (A) 0.3
- (B) 0.5
- (C) 0.8
- (D) 2.5

Answer: Option C

103. Tin in its pure form is used for making

- (A) Cans for food packing
- (B) Collapsible tubes for toilet preparations
- (C) Foil for wrapping cheese
- (D) All (A), (B) and (C)

Answer: Option D

104. Which of the following alloy steels has the energy saving properties making it suitable for use in electrical machines?

- (A) Silicon steel
- (B) Chromium steel
- (C) Molybdenum steel
- (D) None of these

Answer: Option A

105. Which of the following is produced by condensation polymerisation?

- (A) Bakelite
- (B) Polythene
- (C) Poly vinyl chloride
- (D) Polystyrene

Answer: Option A

106. Which of the following has a very high carbide forming tendency in steels?

- (A) Silicon
- (B) Chromium
- (C) Nickel
- (D) Vanadium

Answer: Option D

107. Neutraliser tank used for reacting nitric acid with ammonia for the production of ammonium nitrate is made of

- (A) Aluminium
- (B) Stainless steel
- (C) High silicon (14%) iron
- (D) Copper

Answer: Option B

108. Compressive strength of wood is usually more along the grains. The tensile strength of wood as compared to that of steel is about

- (A) Half
- (B) One third
- (C) One fifth
- (D) One twelfth

Answer: Option C

109. The loss of strength in compression which occurs, when there is a gain of strength in tension due to over loading is called

- (A) Bauschinger effect
- (B) Hooke's effect
- (C) Hysteresis
- (D) Relaxation

Answer: Option A

110. Brine solution is stored/treated in _____ lined vessels/pipes.

- (A) Rubber
- (B) Lead
- (C) Glass
- (D) Nickel

Answer: Option D

111. A measure of toughness of a material is its

- (A) Percentage elongation
- (B) Yield strength
- (C) Ultimate strength
- (D) Area under stress-strain diagram

Answer: Option B

112. White cast iron as compared to grey cast iron is

- (A) More durable
- (B) Very brittle

- (C) Very hard
 - (D) All (A), (B) & (C)
- Answer: Option D

113. Steel rods are used in reinforced concrete to increase its _____ strength.

- (A) Shear
 - (B) Tensile
 - (C) Compressive
 - (D) None of these
- Answer: Option B

114. Very high sulphur in pig iron makes

- (A) Its casting unsound
 - (B) Its hard and machinable
 - (C) Its brittle and malleable
 - (D) All (A), (B) & (C)
- Answer: Option A

115. Material of construction of pipe generally used for conveying water in India is

- (A) Stainless steel
 - (B) Cast iron
 - (C) Wrought iron
 - (D) Lead lined steel
- Answer: Option B

116. The material of construction of bearings is

- (A) Cast iron
 - (B) Babbitt metal
 - (C) Pig iron
 - (D) Steel
- Answer: Option B

117. Ceramic materials fabrication cannot be done by

- (A) Welding
 - (B) Slip casting
 - (C) Extrusion
 - (D) Plastic pressing
- Answer: Option A

118. Duriron is

- (A) Acid resistant, brittle and very hard
 - (B) High silicon iron
 - (C) Prone to breakage due to thermal expansion because of its very high co-efficient of thermal expansion
 - (D) All (A), (B) and (C)
- Answer: Option D

119. Which of the following is not shipped in mild steel containers?

- (A) Acetone
 - (B) Ammonia
 - (C) Ethyl alcohol
 - (D) Formic acid
- Answer: Option D

120. Steel pipes are normally manufactured by _____ process.

- (A) Extrusion
 - (B) Cold working
 - (C) Forging
 - (D) Electroforming
- Answer: Option A

121. Presence of manganese in alloy steel improves its

- (A) Corrosion resistance
- (B) Cutting ability
- (C) Abrasion resistance & toughness

(D) Elasticity & creep resistance

Answer: Option C

122. Which of the following is the most widely used insulating material for steam carrying pipelines?

- (A) Ceramic fibre blanket
- (B) Glass wool and 85% magnesia
- (C) Vermiculite
- (D) Slag wool

Answer: Option B

123. Reactor used in the production of polyvinyl chloride (PVC) is made of

- (A) Nickel or glass lined steel
- (B) Aluminium
- (C) Tantalum
- (D) Lead

Answer: Option A

124. A metallic alloy in which one of the constituent metal is _____, is called an amalgam.

- (A) Zinc
- (B) Mercury
- (C) Lead
- (D) Tin

Answer: Option B

125. Which of the following undergoes granular fracture?

- (A) Wrought iron
- (B) Steel
- (C) Cast iron
- (D) None of these

Answer: Option B

126. The most distinguished property of malleable cast iron is its high

- (A) Ductility
- (B) Hardness
- (C) Malleability
- (D) None of these

Answer: Option A

127. Liners of a ball mill are never made of

- (A) Lead
- (B) Alloy steel
- (C) Rubber or ceramic material
- (D) Cast iron

Answer: Option A

128. The damage/deterioration of metals by the _____ action of fluids is called 'erosion'.

- (A) Abrasive
- (B) Corrosive
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option A

129. Teflon (PTFE) is corroded by

- (A) Hydrochloric acid (10%)
- (B) Hydrochloric acid (95%)
- (C) Sulphuric acid
- (D) None of these

Answer: Option D

130. Steel balls for ball bearings are generally made of _____ steel.

- (A) Cast
- (B) Stainless
- (C) Free carbon
- (D) Carbon chrome

Answer: Option D

131. Mercury is transported in metal containers made of

- (A) Aluminium
- (B) Iron
- (C) Lead
- (D) Nickel

Answer: Option B

132. Visco-elastic behaviour of materials which is time dependent is common in

- (A) Plastics
- (B) Crystalline solid
- (C) Non-crystalline solids
- (D) Non-crystalline organic polymer

Answer: Option D

133. Straight silicon steel (containing Si from 0.5 to 5%) because of their low hysteresis loss and high magnetic permeability are used for electrical appliances. Which of the following electrical appliances made of silicon steel contains maximum percentage of silicon (about 4%)?

- (A) Armature of small motors/generators
- (B) Generators and small motors
- (C) Induction motors
- (D) High frequency transformers

Answer: Option D

134. Amount of energy that a material can absorb before its fracture is a measure of its

- (A) Toughness
- (B) Resilience
- (C) Malleability
- (D) Ductility

Answer: Option A

135. Which of the following is the softest material?

- (A) Quartz
- (B) Calcite
- (C) Corundum
- (D) Fluorite

Answer: Option B

136. Mild steel is a/an _____ steel.

- (A) Low carbon
- (B) Medium carbon
- (C) High carbon
- (D) High alloy

Answer: Option A

137. Approximate value of the modulus of elasticity for steel is about _____ $\times 10^6$ kg/cm².

- (A) 0.5
- (B) 2
- (C) 40
- (D) 75

Answer: Option B

138. Iron alloyed with carbon upto 2% is called

- (A) Pig iron
- (B) Wrought iron
- (C) High carbon steel
- (D) None of these

Answer: Option D

139. Carbon tetrachloride can be stored in a storage vessel made of

- (A) High silicon iron (14% Si)
- (B) Tin
- (C) Stainless steel
- (D) All (A), (B) and (C)

Answer: Option D

140. Which of the following is the most suitable material of construction for evaporator & its tubes for concentrating NaOH solution to 70%?

- (A) Cast iron
- (B) Steel
- (C) Nickel
- (D) Karbate

Answer: Option C

141. The main constituent of carborundum is _____ carbide.

- (A) Calcium
- (B) Silicon
- (C) Boron
- (D) Aluminium

Answer: Option B

142. Carbon content in steel is _____ percent.

- (A) 0.1-2
- (B) 4-6
- (C) 2-4
- (D) 0.001-0.01

Answer: Option A

143. Brass tubes are used in the manufacture of tubes of evaporators used in sugar and salt industries, mainly because of its

- (A) High co-efficient of thermal expansion
- (B) Low thermal conductivity
- (C) High corrosion resistance
- (D) All (A), (B) and (C)

Answer: Option C

144. Hastelloy comprises of

- (A) Copper and tin
- (B) Copper and nickel
- (C) Molybdenum and nickel
- (D) Lead and tin

Answer: Option C

145. Corrosion involves exchange of electrons in _____ corrosion.

- (A) Chemical
- (B) Electrochemical
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

146. Muntz metal is a/an alloys of

- (A) Magnesium & tin
- (B) Ferrous material
- (C) Lead & tin
- (D) Copper & zinc

Answer: Option D

147. A material capable of undergoing large permanent deformation, when subjected to tension is termed as

- (A) Friable
- (B) Ductile
- (C) Brittle
- (D) None of these

Answer: Option B

148. Presence of even very minute amount (say 0.1%) of _____ in copper, reduces its electrical conductivity very seriously.

- (A) Bismuth
- (B) Arsenic

- (C) Antimony
 - (D) Both (B) and (C)
- Answer: Option D

149. A material is called 'ductile', if it can be

- (A) Drawn into wires
- (B) Hammered to a thin sheet
- (C) Fractured without deformation
- (D) Made lustrous by heating it

Answer: Option A

150. Cast iron detachable joint is used in _____ pipes.

- (A) Steel
- (B) Cast iron
- (C) Asbestos cement
- (D) Reinforced cement concrete

Answer: Option A

151. Thermosetting polymers are

- (A) Injection moulded
- (B) Cast molded
- (C) Extruded
- (D) None of these

Answer: Option B

152. Which of the following metals is not used for coating of the base metal to guard it against corrosion?

- (A) Lead
- (B) Cadmium
- (C) Magnesium
- (D) Aluminium

Answer: Option C

153. Age hardening is concerned with

- (A) Copper
- (B) Brass
- (C) Duralumin
- (D) Silver

Answer: Option C

154. _____ moulding process cannot be used for thermoplastic plastics.

- (A) Compression
- (B) Extrusion
- (C) Injection
- (D) None of these

Answer: Option C

155. _____ is added in low carbon steel to raise its yield point.

- (A) Sulphur
- (B) Phosphorous
- (C) Silicon
- (D) Manganese

Answer: Option D

156. Cast iron compared to steel is better in

- (A) Ductility
- (B) Fluidity & castability
- (C) Strength
- (D) Malleability

Answer: Option B

157. Presence of even 0.005% of _____ in copper makes it highly brittle, rendering it useless for wire-drawing.

- (A) Oxygen
- (B) Arsenic

- (C) Antimony
 - (D) Bismuth
- Answer: Option D

158. Which of the following is the hardest material?

- (A) Topaz
- (B) Quartz
- (C) Corundum
- (D) Fluorite

Answer: Option C

159. Cast iron is a _____ material.

- (A) Brittle
- (B) Ductile
- (C) Tough
- (D) Malleable

Answer: Option A

160. Which of the following is the most prone to atmospheric corrosion?

- (A) Silver
- (B) Iron
- (C) Tin
- (D) Copper

Answer: Option B

161. _____ does not contain tin as an alloying material.

- (A) Brass
- (B) Pewter
- (C) Solder
- (D) Babbitt metal

Answer: Option A

162. Steel will respond to hardening by heat treatment processes, only when the minimum carbon content in it is _____ percent.

- (A) 0.02
- (B) 0.2
- (C) 0.35
- (D) 0.5

Answer: Option B

163. Polymerisation reactor used for the production of styrene butadiene rubber (SBR) is made of

- (A) Cast iron
- (B) Stainless steel or glass lined vessel
- (C) Carbide
- (D) Wrought iron

Answer: Option B

164. _____ iron is produced, when molten pig iron is chilled suddenly.

- (A) White cast
- (B) Grey cast
- (C) Wrought
- (D) None of these

Answer: Option A

165. A chemical change takes place when iron

- (A) Rusts
- (B) Melts
- (C) Is heated
- (D) None of these

Answer: Option A

166. Tin coating on metals is not done by

- (A) Spraying
- (B) Powder metallurgy

- (C) Hot dipping
 - (D) Electro-deposition
- Answer: Option B

167. Clock pendulums are usually made of _____ steel.

- (A) High speed
 - (B) Stainless
 - (C) Heat resisting
 - (D) None of these
- Answer: Option D

168. Metalloid is

- (A) An element, which exhibits the properties of both metal & non metal
 - (B) Highly electronegative in nature
 - (C) An alloy
 - (D) All (A), (B) & (C)
- Answer: Option A

169. Addition of nickel to copper improves its

- (A) Machinability
 - (B) Ductility
 - (C) Strength
 - (D) Hardness
- Answer: Option D

170. Gun metal is an alloy of

- (A) Nickel, tin and copper
 - (B) Copper, tin and zinc
 - (C) Copper, phosphorus and nickel
 - (D) Manganese, phosphorus and nickel
- Answer: Option B

171. Addition of _____ in steel is helpful in increasing the depth of hardness.

- (A) Chromium
 - (B) Sulphur
 - (C) Vanadium
 - (D) Tungsten
- Answer: Option A

172. Polymorphism is not exhibited by

- (A) Carbon
 - (B) Iron
 - (C) Phosphorous
 - (D) None of these
- Answer: Option D

173. Copper is dissolved from its ore by H_2SO_4 in a percolation tank made of

- (A) Wood
 - (B) Stainless steel
 - (C) Reinforced concrete lined with lead
 - (D) High silicon iron (14% Si)
- Answer: Option C

174. Carbon is present in the combined form (carbide) in case of

- (A) Pig iron
 - (B) Steel
 - (C) Ferroalloys
 - (D) All (A), (B) & (C)
- Answer: Option D

175. Gas holder of a gobar (cow-dung) gas plant is made of

- (A) Molybdenum stainless steel
- (B) Tin
- (C) Mild steel
- (D) Aluminium

Answer: Option C

176. The hardest material just prior to diamond in Mohs scale is

- (A) Topaz
- (B) Carborundum
- (C) Corundum
- (D) Calcite

Answer: Option C

177. For storing water and acid free benzol, use a _____ vessel.

- (A) Steel
- (B) Karbate
- (C) Stainless steel
- (D) None of these

Answer: Option A

178. Corrosion resisting properties of cast iron are significantly improved by the addition of 12 - 15% of

- (A) Tungsten
- (B) Vanadium
- (C) Silicon
- (D) All (A), (B) & (C)

Answer: Option C

179. _____ is used for determining the tensile strength of steels.

- (A) Hydraulic press
- (B) Universal testing machine
- (C) Mechanical press
- (D) None of these

Answer: Option B

180. Which of the following is not an alloy of copper?

- (A) Muntz metal
- (B) Admiralty gun metal
- (C) German silver
- (D) Pewter metal

Answer: Option D

181. Softening of hardened steel is done by its

- (A) Normalising
- (B) Tempering
- (C) Annealing
- (D) Carburising

Answer: Option B

182. Which of the following crystal structures characterises the ferritic stainless steel?

- (A) Face centred cubic
- (B) Body centred cubic
- (C) Simple hexagonal
- (D) None of these

Answer: Option B

183. Pick out the wrong statement.

- (A) Alloys are harder than their component elements
- (B) Presence of silicon in steel decreases its electrical resistance
- (C) Karbate is an acid resistant material of construction
- (D) Nichrome, a steel alloyed with 10% Ni and 20% Cr can be used upto a temperature of 1100°C

Answer: Option B

184. Which is the purest form of iron?

- (A) Wrought iron
- (B) Pig iron
- (C) Bessemer iron
- (D) Grey iron

Answer: Option A

185. The 'bomb' in the bomb calorimeter is made of

- (A) Molybdenum stainless steel
- (B) Mild steel
- (C) High silicon iron (14% Si)
- (D) Copper

Answer: Option A

186. Slow plastic deformation of metals under a constant stress is termed as _____ failure.

- (A) Fatigue
- (B) Endurance
- (C) Creep
- (D) None of these

Answer: Option C

187. Hardened steel is softened by

- (A) Normalising
- (B) Tempering
- (C) Annealing
- (D) Carburising

Answer: Option B

188. Stainless steel contains

- (A) Chromium and nickel
- (B) Copper
- (C) Aluminium
- (D) Vanadium

Answer: Option A

189. Which has the maximum melting point out of the following?

- (A) Steel
- (B) Cast iron
- (C) Stainless steel
- (D) Wrought iron

Answer: Option D

190. Chilled iron castings are

- (A) Easily machinable
- (B) Soft on surface
- (C) Highly wear resistant
- (D) None of these

Answer: Option C

191. Cast iron vessels are not suitable for the storage of

- (A) Freon
- (B) H_2SO_4 (95%) at room temperature
- (C) H_2SO_4 (fuming)
- (D) Wet SO_2

Answer: Option D

192. Brass container is suitable for storing

- (A) Aqueous ammonia
- (B) Beer
- (C) H_2SO_4 (95%)
- (D) Phosphoric acid (95%)

Answer: Option B

193. Carbon supply in pack carburising process is in the form of

- (A) Charcoal
- (B) Calcium carbide
- (C) Hydrocarbon oil
- (D) Graphite

Answer: Option A

194. Which of the following is a low melting point metal?

- (A) Stainless steel
 - (B) Wrought iron
 - (C) Tin
 - (D) Copper
- Answer: Option C

195. Maximum consumption of copper is in

- (A) Utensil manufacture
 - (B) Electrical industry
 - (C) Industrial equipment manufacture
 - (D) Small scale industries
- Answer: Option B

196. Monel metal is an alloy of

- (A) Molybdenum and nickel
 - (B) Nickel and copper
 - (C) Molybdenum and aluminium
 - (D) Molybdenum and zinc
- Answer: Option B

197. Trough of an apron conveyor is made of

- (A) Lead lined concrete vessel
 - (B) Wood
 - (C) Metal
 - (D) Either (B) or (C)
- Answer: Option D

198. Centrifugal pump made of pyrex or glass can't be used to pump

- (A) Milk and fruit juices
 - (B) Alkaline solutions
 - (C) Dilute H_2SO_4 at room temperature
 - (D) Brine
- Answer: Option B

199. The process of coating steel sheets by zinc to improve its corrosion resistance is called

- (A) Calorising
 - (B) Galvanising
 - (C) Zincification
 - (D) Tempering
- Answer: Option B

200. Maximum carbon content in any variety of steel can be upto 1.3%. Steel containing 0.4% Carbon is not used for making

- (A) Nuts
 - (B) Bolts
 - (C) Chisels
 - (D) Studs
- Answer: Option C

201. Polythene (low or high density) containers are not corroded by

- (A) Sulphuric acid (10%) at room temperature
 - (B) Nitric acid (95%) at room temperature
 - (C) Sulphur trioxide at 60°C
 - (D) Any of these
- Answer: Option A

202. Thermoplastic resins are those polymers, which

- (A) Has decreased plasticity at increasing temperature
 - (B) Cannot be moulded
 - (C) Easily deform under pressure at high temperature
 - (D) None of these
- Answer: Option C

203. Hydrocyanic acid is not shipped in

- (A) Cast iron vessels

- (B) Steel cylinders
 - (C) Aluminium containers
 - (D) Monel drums
- Answer: Option A

204. Metal at the top of the electromotive series is

- (A) Least active
 - (B) Most stable
 - (C) Most active
 - (D) Most noble
- Answer: Option C

205. Constantan used in thermocouples is an alloy of

- (A) Iron & copper
 - (B) Copper & aluminium
 - (C) Lead & tin
 - (D) None of these
- Answer: Option D

206. Pick out the wrong statement.

- (A) Metal/alloys having hexagonal crystal lattice structure are less malleable than those having cubic crystal lattice structure
 - (B) Metal/alloys having body centred cubic (bcc) crystal lattice structure is stronger & less ductile than those having face centred cubic (fcc) crystal lattice structure
 - (C) Tungsten has a body centred cubic (bcc) crystal lattice structure
 - (D) Both ferritic & austenitic stainless steel has a face centred cubic (fcc) crystal structure
- Answer: Option C

207. Nickel and molybdenum are the basic constituents of

- (A) Hastelloy
 - (B) German silver
 - (C) Inconel
 - (D) Solder
- Answer: Option A

208. Carbon is present in the uncombined (graphitic) form in case of

- (A) Cast iron
 - (B) Steel
 - (C) Ferroalloy
 - (D) None of these
- Answer: Option A

209. Coke oven walls are lined with _____ bricks.

- (A) Silica
 - (B) Tar-dolomite
 - (C) Low thermal conductivity
 - (D) Fire clay
- Answer: Option A

210. Molybdenum steels containing 0.15 to 0.40% molybdenum

- (A) Are prone to temper brittleness
 - (B) Are used for automobile parts like gears, axle, shaft, bearings etc.
 - (C) Have very poor fatigue resistance
 - (D) Do not contain nickel or chromium or both
- Answer: Option B

211. For handling sulphuric acid of 95% strength, the suitable material of construction for pipes is

- (A) Stainless steel
 - (B) Cast iron
 - (C) Aluminium
 - (D) Nickel
- Answer: Option B

212. The presence of impurities in iron

- (A) Increases its melting point
- (B) Does not affect its melting point
- (C) Decreases its melting point
- (D) Makes it malleable

Answer: Option C

213. Carbon content in plain carbon steel is _____ percent.

- (A) 0.1 to 0.15
- (B) 0.35 to 0.45
- (C) 0.65 to 0.80
- (D) 0.85 to 1.2

Answer: Option B

214. Hardest materials so far found is

- (A) Diamond
- (B) Graphite
- (C) Carborundum
- (D) Pumice stone

Answer: Option A

215. Common house hold glass (i.e., soda-lime glass) is a/an _____ material.

- (A) Fully crystalline
- (B) Partly crystalline
- (C) Amorphous
- (D) None of these

Answer: Option B

216. Ball bearings are generally made of

- (A) Plain carbon steel
- (B) Chrome carbon steel
- (C) Stainless steel
- (D) Malleable cast iron

Answer: Option B

217. A magnetic material becomes _____ above the Curie temperature.

- (A) Ferromagnetic
- (B) Diamagnetic
- (C) Paramagnetic
- (D) None of these

Answer: Option C

218. Which of the following constituents of cast iron is mainly responsible for imparting it an anti-corrosive property?

- (A) Silicon
- (B) Phosphorus
- (C) Sulphur
- (D) None of these

Answer: Option A

219. In the Kraft process of sulphate paper pulp manufacture, the black liquor and the white liquor storage tank is made of

- (A) Concrete
- (B) Wood
- (C) Steel
- (D) Porcelain

Answer: Option C

220. Fatigue failure of a material may occur, when it is subjected to _____ stress.

- (A) Fluctuating
- (B) Tensile
- (C) Compressive
- (D) Torsion

Answer: Option A

221. The ability of a material to offer resistance to scratching or indentation is a measure of its

- (A) Brittleness
 - (B) Toughness
 - (C) Hardness
 - (D) Resilience
- Answer: Option C

222. Rotary driers are generally made of

- (A) Cast iron
 - (B) Mild steel
 - (C) High silicon iron (14% Si)
 - (D) Tin lined with refractory bricks
- Answer: Option B

223. Metalloid is

- (A) Highly electronegative in nature
 - (B) An element which exhibits the properties of both metal & non-metal
 - (C) An alloy
 - (D) All (A), (B) and (C)
- Answer: Option B

224. Acetaldehyde is shipped in _____ drums.

- (A) Cast iron
 - (B) Steel
 - (C) Aluminium
 - (D) Either (B) & (C)
- Answer: Option D

225. Most suitable material for high pressure vessel operating at 500 atm. and 500° C is

- (A) Molybdenum stainless steel
 - (B) 18/8 stainless steel
 - (C) Mild steel
 - (D) High silicon iron (14% Si)
- Answer: Option A

226. _____ is used for examining the macro-structure of a material.

- (A) Metallurgical microscope
 - (B) Optical microscope
 - (C) X-rays
 - (D) Visual inspection by naked eye
- Answer: Option D

227. Hydrochloric acid absorber is made of

- (A) Cast iron
 - (B) Mild steel
 - (C) Carbate
 - (D) Stainless steel
- Answer: Option C

228. An alloy of iron containing 4% carbon is called

- (A) High carbon steel
 - (B) Wrought iron
 - (C) Mild steel
 - (D) None of these
- Answer: Option D

229. Tempering of steel is done to make it

- (A) Brittle
 - (B) Hard
 - (C) Rollable
 - (D) Soft
- Answer: Option D

230. Zircaloy used as a fuel cladding material in a nuclear reactor (thermal) is an alloy of zirconium

- (A) Tin, nickel, iron and chromium

- (B) And graphite
 - (C) And copper
 - (D) None of these
- Answer: Option A

231. Cold work tool steel should have

- (A) High toughness
 - (B) Poor hardenability
 - (C) High wear resistance
 - (D) All (A), (B) & (C)
- Answer: Option C

232. The softest material in Mho's scale (for measuring hardness) is

- (A) Talc
 - (B) Gypsum
 - (C) Rubber
 - (D) None of these
- Answer: Option A

233. Alpha iron is stable _____ °C.

- (A) Above 1403
 - (B) Upto 910
 - (C) Above 1800
 - (D) Between 910 & 1403
- Answer: Option B

234. Wrought iron is

- (A) High carbon iron
 - (B) Highly resistance to acid corrosion
 - (C) Malleable & ductile; and hence is used for chain links, hooks & couplings
 - (D) An alloy of iron, chromium & carbon
- Answer: Option C

235. Light weight metallic alloy used in aircraft industry is

- (A) Aluminium
 - (B) High silicon (14%) iron
 - (C) Duralumin
 - (D) Phosphor bronze
- Answer: Option C

236. Rubber lined vessels are corroded by the action of

- (A) Aqua regia
 - (B) Chloroform
 - (C) Sulphuric acid (95%)
 - (D) All (A), (B) and (C)
- Answer: Option D

237. Acid proof stoneware

- (A) Has very low strength
 - (B) Cannot be heated
 - (C) Is broken by small temperature changes
 - (D) All (A), (B) and (C)
- Answer: Option D

238. Spray dryer for evaporating milk to produce milk powder is made of

- (A) Lead lined steel
 - (B) Stainless steel
 - (C) Aluminium
 - (D) Cast iron
- Answer: Option B

239. Babbitt metal (used for making bearings) comprises of

- (A) Mainly tin (85%) and lead
- (B) Saw dust and iron dust mixture
- (C) Zinc and aluminium

(D) Copper and aluminium

Answer: Option A

240. In a plate type heat exchanger, heat transfer plates are never made of

(A) Stainless steel

(B) Cast iron

(C) Titanium

(D) Hastelloy C

Answer: Option B

241. Which of the following exercises most powerful influence on the mechanical properties of steel?

(A) Manganese

(B) Carbon

(C) Phosphorous

(D) Silicon

Answer: Option B

242. Fatigue failure of a material results from _____ stress.

(A) Tensile

(B) Compressive

(C) Fluctuating

(D) None of these

Answer: Option C

243. Creep is not exhibited at low temperature by

(A) Rubber

(B) Acrylics

(C) Lead

(D) Plastics

Answer: Option C

244. Graphite is corroded by

(A) Sulphuric acid (10%)

(B) Sea water

(C) Hydrochloric acid

(D) None of these

Answer: Option D

245. A material is able to retain the deformation permanently by virtue of its

(A) Elasticity

(B) Plasticity

(C) Ductility

(D) Malleability

Answer: Option B

246. Titanium metal

(A) Exists in three allotropic forms

(B) Cannot be welded

(C) Is used in oceanographic and space exploration applications

(D) None of these

Answer: Option C

247. Glass lined vessels are not used for handling/storing

(A) Dilute H_2SO_4

(B) Dilute HNO_3

(C) Dilute HCl

(D) Hydrofluoric acid

Answer: Option D

248. Plasticisers are added to polymers to improve their

(A) Tensile strength

(B) Softness & flexibility

(C) Acid resistance

(D) Alkali resistance

Answer: Option B

249. Iron rust is

- (A) Ferrous oxide
- (B) Hydrated ferric oxide
- (C) Powdered iron
- (D) Ferric sulphide

Answer: Option B

250. Out of the following, copper vessels are the most suitable for the storage of

- (A) Bromine
- (B) Dry chlorine & dry fluorine
- (C) Nitric acid (95% and fuming)
- (D) Phosphoric acid (95%) & sulphuric acid (95% and fuming)

Answer: Option B

251. Graphite is a good

- (A) Thermal & electrical insulator
- (B) Conductor of heat
- (C) Conductor of electricity
- (D) Both (B) & (C)

Answer: Option D

252. Shock resisting steels should possess high

- (A) Hardness
- (B) Toughness
- (C) Tensile strength
- (D) Wear resistance

Answer: Option B

253. _____ alloys have the highest specific strength of all the structural materials out of the following.

- (A) Magnetic steel
- (B) Titanium
- (C) Chromium
- (D) Magnesium

Answer: Option B

254. Sherardizing process is used for

- (A) Surface coating
- (B) Heat treatment of high speed steel
- (C) Cold working on metals
- (D) None of these

Answer: Option A

255. Materials having _____ lattice structure are usually most ductile.

- (A) FCC
- (B) BCC
- (C) HCP
- (D) Cubic

Answer: Option A

256. The malleability of a material is the property by virtue of which it can be rolled or hammered into thin sheets. Which of the following materials has the maximum malleability?

- (A) Lead
- (B) Copper
- (C) Aluminium
- (D) Wrought iron

Answer: Option A

257. Which of the following is the most elastic material?

- (A) Plastic
- (B) Glass
- (C) Steel
- (D) Rubber

Answer: Option C

258. The phenomenon in which slow extension of material takes place with the time at constant load is called

- (A) Plasticity
- (B) Creep
- (C) Elasticity
- (D) Ductility

Answer: Option B

259. Glass lined vessels are not used for handling

- (A) Dilute H_2SO_4
- (B) Dilute HNO_3
- (C) Dilute HCl
- (D) Hydrofluoric acid

Answer: Option D

260. Constituents of stellite are

- (A) Zinc, copper and nickel
- (B) Cobalt, chromium and tungsten
- (C) Zinc, aluminium and nickel
- (D) Nickel, cobalt and vanadium

Answer: Option B

261. A material no longer behaves elastically beyond

- (A) Plastic limit
- (B) Limiting load
- (C) Elastic limit
- (D) Breaking load

Answer: Option C

262. The material used in the filament of electric bulbs is

- (A) Nichrome
- (B) Tungsten
- (C) Constantan
- (D) German silver

Answer: Option B

263. Pick the odd man out of the following.

- (A) Calorising
- (B) Pack carburising
- (C) Nitriding
- (D) Cyaniding

Answer: Option A

264. Chlorination of benzene is done to produce benzene hexachloride (a pesticide) in a photochemical reactor lined with

- (A) Carbate
- (B) Lead or glass
- (C) Fireclay bricks
- (D) PVC

Answer: Option B

265. Dies for wire drawing are generally made of

- (A) Mild steel
- (B) Stainless steel
- (C) Carbides
- (D) High carbon steel

Answer: Option C

266. Ability of a material to _____ is indicated by its damping capacity.

- (A) Withstand compression
- (B) Absorb vibration
- (C) Absorb shock
- (D) None of these

Answer: Option B

267. Thermosetting resins are those polymers, which

- (A) Do not increase in plasticity with rise in temperature
- (B) Allow slip to occur between molecules
- (C) Do not take on a permanent set
- (D) None of these

Answer: Option A

268. Babbitt metal used for bearings is a _____ base alloy.

- (A) Tin
- (B) Lead
- (C) Aluminium
- (D) Copper

Answer: Option A

269. Babbitt metal used for making bearings should have

- (A) High co-efficient of friction between journal and bearing
- (B) Ability to retain lubricant on its surface
- (C) Low co-efficient of friction between journal and bearing
- (D) Both (B) & (C)

Answer: Option A

270. Chromel (Nichrome) is an alloy of

- (A) Chromium and molybdenum
- (B) Nickel and chromium
- (C) Molybdenum and nickel
- (D) Chromium and aluminium

Answer: Option B

271. Atmospheric corrosion of metals result from their

- (A) Slow oxidation
- (B) Fast oxidation
- (C) Fast hydration
- (D) Slow dehydration

Answer: Option A

272. Austenitic manganese steel used for making jaws of crushing machines contains about _____ percent manganese.

- (A) 1.5-2
- (B) 3.5-4.5
- (C) 7-9
- (D) 12-14

Answer: Option D

273. For spinning viscose rayon, the extrusion spinnerettes are made of

- (A) Platinum or gold alloys
- (B) High carbon steel
- (C) Aluminium
- (D) Nickel

Answer: Option A

274. Ability of a material to absorb energy in deformation in the plastic range is characterised as its

- (A) Ductility
- (B) Toughness
- (C) Creep
- (D) Resilience

Answer: Option B

275. Hydrochloric acid is stored in a _____ steel vessel.

- (A) Lead lined
- (B) Rubber lined
- (C) Glass lined
- (D) Stainless

Answer: Option B

276. The metals occurring at the lower most position in the electromotive series

- (A) Do not resist corrosion
- (B) Resist corrosion very strongly
- (C) Are very brittle
- (D) Are heat insulators

Answer: Option B

277. Diamagnetic materials are magnetised

- (A) Strongly
- (B) Only slightly
- (C) With eddy currents only
- (D) In a direction opposite to that of the applied field

Answer: Option D

278. Purity of electrical grade aluminium should be \geq _____ percent.

- (A) 95
- (B) 99.5
- (C) 85
- (D) 90

Answer: Option B

279. Spark plugs, ignition tubes and electrodes are made of nickel _____ alloys.

- (A) Beryllium
- (B) Manganese
- (C) Copper
- (D) Iron

Answer: Option B

280. Which of the following has the highest compressive strength?

- (A) Wrought iron
- (B) Cast iron
- (C) Mild steel
- (D) High carbon steel

Answer: Option D

281. Balls in a ball mill are usually made of

- (A) Steel
- (B) Cast iron
- (C) Stainless steel
- (D) Bronze

Answer: Option A

282. Tempering of steel is done to make it

- (A) Brittle
- (B) Hard
- (C) Rollable
- (D) Soft

Answer: Option D

283. In the Kraft (sulphate) process for the paper manufacture, the digester is made of

- (A) Cast iron
- (B) Stainless steel
- (C) Karbate carbon
- (D) Wrought iron

Answer: Option B

284. Constantan is an alloy of

- (A) Cu (55%) & Sn (45%)
- (B) Cu (55%) & Ni (45%)
- (C) Pt (95%) & Rh (10%)
- (D) Fe (80%) & Ni (20%)

Answer: Option B

- 285. Galvanising (i.e., zinc coating) of steel sheets is done to**
(A) Prevent its rusting by contact with corrosive atmosphere
(B) Protect the base metal by cathodic protection
(C) Both (A) & (B)
(D) Neither (A) nor (B)
Answer: Option C

- 286. An alloy used as thermocouple material comprises of 40% nickel and 60% copper. It is called**
(A) Constantan
(B) Kanthal
(C) Chromel
(D) German silver
Answer: Option A

- 287. A bearing metal should not have**
(A) Enough plasticity
(B) Low thermal conductivity
(C) Low co-efficient of friction
(D) High toughness
Answer: Option B

- 288. The behaviour of visco-elastic material is time dependent. This behaviour is common in _____ materials.**
(A) Non-crystalline solid
(B) Crystalline
(C) Rubbery
(D) Non-crystalline organic polymeric
Answer: Option D

- 289. 100% H₂SO₄ at 30°C can't be stored in a vessel made/lined with**
(A) Cast iron and high silicon iron
(B) Mild steel and stainless steel
(C) Aluminium, tin and rubber
(D) Teflon, glass and porcelain
Answer: Option C

- 290. A material capable of undergoing large permanent deformation, when subjected to compression is termed as**
(A) Malleable
(B) Ductile
(C) Brittle
(D) None of these
Answer: Option A

- 291. Thermometer bulb & capillary in case of mercury filled pressure spring expansion thermometer is normally made of _____ as mercury does not amalgamate with it.**
(A) Copper
(B) Copper alloys
(C) Stainless steel
(D) Monel
Answer: Option C

- 292. Softness of silver can be converted into hardness by alloying it with small quantity of**
(A) Copper & nickel
(B) Zinc
(C) Aluminium
(D) Tin
Answer: Option A

- 293. Which of the following is not a non-ferrous alloy?**
(A) Meehanite
(B) Magnalium
(C) Gun metal
(D) Muntz metal

Answer: Option A

294. Dead mild steel, which contains 0.10 to 0.15 percent carbon is used for making

- (A) Shafts
- (B) Flanges
- (C) Gears
- (D) Shear blades

Answer: Option B

295. Which of the following is a light alloy?

- (A) Monel metal
- (B) Dow metal
- (C) German silver
- (D) Babbitt metal

Answer: Option B

296. Invar used in thermocouples is an alloy of nickel and

- (A) Iron
- (B) Copper
- (C) Chromium
- (D) Lead

Answer: Option A

297. Generally _____ are subjected to galvanising (i.e., zinc coating).

- (A) Non-ferrous metals
- (B) Non-metals
- (C) Low carbon steels
- (D) Stainless steel

Answer: Option C

298. Hydrochloric acid is _____ corrosive to common metals.

- (A) Least
- (B) Not
- (C) Mildly
- (D) Highly

Answer: Option D

299. Gunmetal and bronze are not corroded by the action of

- (A) Wet chlorine
- (B) Synthetic detergent solution
- (C) Hydrochloric acid (10%)
- (D) Nitric acid (< 25%)

Answer: Option B

300. 18-4-1 high speed steel contains 18%, 4% and 1% respectively of

- (A) Tungsten, vanadium and chromium
- (B) Tungsten, chromium and vanadium
- (C) Vanadium, chromium and tungsten
- (D) Chromium, tungsten and vanadium

Answer: Option B

301. Dip stick used for measuring the level of petro fuels (e.g. petrol, diesel, fuel oil etc.) in the storage tank is usually made of

- (A) Brass
- (B) Copper
- (C) High carbon steel
- (D) Aluminium

Answer: Option A

302. Molten phthalic anhydride is stored in a/an _____ vessel.

- (A) Aluminium
- (B) Nickel clad steel
- (C) Lead lined steel
- (D) Glass lined steel

Answer: Option A

303. Electronic structure of a material is generally studied by

- (A) Metallurgical microscope
- (B) Electron diffraction
- (C) Spectroscopic techniques
- (D) X-ray

Answer: Option C

304. Cermets are _____ materials.

- (A) Refractory
- (B) Reinforced
- (C) Abrasive
- (D) Fully metallic

Answer: Option A

305. Vessels made of _____ can be used to store dry chlorine.

- (A) Thermoplastic materials
- (B) Nickel
- (C) Steel or iron
- (D) None of these

Answer: Option C

306. Galvanising is not a zinc diffusion process. A zinc diffusion process is termed as

- (A) Sherardizing
- (B) Parkerising
- (C) Anodising
- (D) None of these

Answer: Option A

307. Which of the following is the easiest to bend?

- (A) Steel
- (B) Stainless steel
- (C) Cast iron
- (D) Wrought iron

Answer: Option D

308. Galvanised iron is

- (A) Harder
- (B) Protected from rusting
- (C) Alumina coated iron
- (D) None of these

Answer: Option B

309. High degree of toughness is a must for

- (A) High speed steel
- (B) Shock resisting steel
- (C) Cold work tool steel
- (D) None of these

Answer: Option B

310. Most common stainless steel type 316, which is highly resistant to corrosion contains

- (A) 16-13% Cr 10-14% Ni and 2-3% Mo
- (B) 20-22% Cr, and 8-10% Ni
- (C) 2-4% Cr, 22% NI and 2-4% Mo
- (D) None of these

Answer: Option A

311. _____ is not a case hardening process.

- (A) Carburising
- (B) Nitriding
- (C) Cyaniding
- (D) Annealing

Answer: Option D

312. Caustic soda is produced in a mercury cell having anode and cathode made respectively of moving mercury and

- (A) Moving mercury and graphite
- (B) Graphite and moving mercury
- (C) Moving mercury and carbon
- (D) Moving mercury and crimped steel wire

Answer: Option B

313. DDT is shipped in

- (A) Stainless steel containers
- (B) Paper bags
- (C) Fibre drums
- (D) Either (B) or (C)

Answer: Option D

314. The material of construction of pressure mills used for squeezing out the juice from sugar cane is

- (A) Stainless steel
- (B) Cast iron
- (C) Mild steel
- (D) Monel

Answer: Option B

315. Hardening of steel is not possible unless it is heated _____ critical point.

- (A) Above the highest
- (B) Above the lowest
- (C) Between the first & second
- (D) Between the second & third

Answer: Option B

316. Addition of _____ to the steel helps in increasing the residual magnetism in steel used for making magnets.

- (A) Chromium
- (B) Nickel
- (C) Tungsten
- (D) Cobalt

Answer: Option D

317. Duralumin is an alloy of

- (A) Aluminium, copper and manganese
- (B) Aluminium, nickel and silicon
- (C) Aluminium and nickel
- (D) None of these

Answer: Option A

318. Caustic soda can be stored in _____ drums.

- (A) Steel
- (B) Cast iron
- (C) Brass
- (D) Gun metal

Answer: Option A

319. Ceramic materials

- (A) Are exemplified by clay and mica
- (B) Are poor electrical conductors due to lack of free electrons
- (C) Never exhibit polymorphism
- (D) All (A), (B) and (C)

Answer: Option D

320. Which of the following is universally employed as the low expansion metal in the bimetallic thermometer, which is an iron-nickel alloy containing 36% nickel and has very low co-efficient of expansion (1/20th of ordinary metals) ?

- (A) Invar
- (B) Constantan
- (C) Chromel

(D) Alumel
Answer: Option A

321. Which of the following stainless steels is non-magnetic?

- (A) Ferritic
 - (B) Martenistic
 - (C) Austenitic
 - (D) None of these
- Answer: Option C

322. The temperature at which new grains are formed in the metal is called the _____ temperature.

- (A) Eutectic
 - (B) Recrystallisation
 - (C) Upper critical
 - (D) Lower critical
- Answer: Option B

323. Chrome vanadium steels usually contain 0.8 to 1.1% Cr, 0.25 to 0.35% C and < 0.25% V. It is

- (A) Used for making axle & shafts of aeroplanes, automobiles and locomotives
 - (B) Having poor fatigue resistance
 - (C) Having poor toughness
 - (D) Not helpful in producing cleaner steel due to oxidising action of vanadium
- Answer: Option A

324. The main purpose of galvanising iron sheets is to

- (A) Harden the surface
 - (B) Increase its glossiness and lustre
 - (C) Prevent the action of water
 - (D) Prevent the action of oxygen
- Answer: Option C

325. The most commonly used resin for making reinforced plastic is

- (A) Unsaturated polyester
 - (B) Polypropylene
 - (C) Polyurethane
 - (D) Nylon-6
- Answer: Option A

326. Presence of high amount of silicon in cast iron

- (A) Suppresses the decomposition of Fe_3C
 - (B) Increases the formation of graphite
 - (C) Increases the contraction of the metal
 - (D) Reduces its fluidity
- Answer: Option B

327. Cast iron has

- (A) High ductility
 - (B) High malleability
 - (C) Very high tensile strength
 - (D) Its elastic limit very close to ultimate breaking strength
- Answer: Option D

328. Lead pipes are not safe for carrying drinking water because water containing dissolved oxygen attacks lead thereby forming poisonous $Pb(OH)_2$. Lead pipes are readily corroded by

- (A) Dilute HCl
 - (B) Acetic acid
 - (C) Concentrated H_2SO_4
 - (D) None of these
- Answer: Option B

329. Aluminium alloy is one of the most suitable materials of construction for aircrafts mainly due to its

- (A) High strength to weight ratio

- (B) Low temperature strength properties
 - (C) Its ability to be cast, rolled, forged & stamped
 - (D) High strength and corrosion & oxidation-resistance at elevated temperature
- Answer: Option A

330. Tin vessels are corroded by

- (A) Anhydrous ammonia
- (B) Aromatic solvents
- (C) Synthetic detergent solution
- (D) None of these

Answer: Option D

331. H₂SO₄ (< 50% concentration) is corrosive to

- (A) Aluminium, mild steel, stainless steel, concrete & tin
- (B) Copper, cast iron & high silicon iron (14% Si)
- (C) Rubber (butyl and hard), silicone rubber & Teflon
- (D) Glass, graphite, porcelain & stoneware

Answer: Option A

332. Percentage elongation of a material is a measure of its

- (A) Ductility
- (B) Brittleness
- (C) Toughness
- (D) Malleability

Answer: Option A

333. 'Hypersil' is a _____ steel.

- (A) High speed
- (B) Silicon
- (C) Molybdenum
- (D) Tungsten

Answer: Option B

334. Which of the following is a non-magnetic material?

- (A) Cobalt
- (B) Zinc
- (C) Nickel
- (D) None of these

Answer: Option B

335. Presence of silicon in steel

- (A) Is in the form of free Si
- (B) Indicates that steel is not deoxidised properly
- (C) Decreases the blow holes formation tendency in castings
- (D) None of these

Answer: Option C

336. 18/8 steel is a/an _____ stainless steel.

- (A) Austenitic
- (B) Ferritic
- (C) Martensitic
- (D) None of these

Answer: Option A

337. Which of the following is not a nickel based alloy?

- (A) Inconel
- (B) Hastelloys
- (C) Nimonics
- (D) Babbitt metal

Answer: Option D

338. Work hardening of a material

- (A) Decreases its tensile strength
- (B) Decreases its ductility
- (C) Increases its ductility

(D) Does not affect its ductility

Answer: Option B

339. Which of the following is an alloy of nickel and copper?

(A) Hastelloy

(B) Duriron

(C) Monel

(D) Inconel

Answer: Option C

340. German silver is an alloy of

(A) Copper, nickel and zinc

(B) Copper, aluminium and silver

(C) Silver, zinc and aluminium

(D) Silver, nickel and zinc

Answer: Option A

341. Concentrated HCl at 30°C can be stored in a vessel made of

(A) PTFE and porcelain

(B) Cast iron and aluminium

(C) Stainless steel and high silicon cast iron

(D) None of these

Answer: Option A

342. Fermenter used in the production of penicillin by deep fermentation process is a _____ lined steel vessel

(A) Rubber

(B) Monel

(C) Glass

(D) Nickel

Answer: Option C

343. Which of the following alloying elements is present in maximum percentage in high speed steel?

(A) Molybdenum

(B) Chromium

(C) Tungsten

(D) Vanadium

Answer: Option C

344. Addition of _____ in steel can help in increasing the depth of hardness.

(A) Nickel

(B) Chromium

(C) Vanadium

(D) Tungsten

Answer: Option D

345. When the steel is subjected to normalising, its _____ decreases.

(A) Yield point

(B) Ductility

(C) Ultimate tensile strength (UTS)

(D) None of these

Answer: Option B

346. Which of the following commercial metals is most abundantly found in India?

(A) Copper

(B) Aluminium

(C) Nickel

(D) Zinc

Answer: Option B

347. Which of the following is not an alloy of tin?

(A) White-bearing metal

(B) Pewter type metal

(C) Soft solder

(D) German silver
Answer: Option D

348. Coke oven regenerators are made of _____ bricks.

- (A) Fire clay
 - (B) Silica
 - (C) Low thermal conductivity
 - (D) High electrical conductivity
- Answer: Option A

349. _____ can replace tungsten in high speed steel,

- (A) Chromium
 - (B) Vanadium
 - (C) Cobalt
 - (D) Molybdenum
- Answer: Option D

350. Presence of high phosphorous in cast iron increases its

- (A) Fluidity
 - (B) Melting point
 - (C) Shrinkage
 - (D) Tensile strength
- Answer: Option A

351. The ability of a material to absorb energy in the elastic range is a measure of its

- (A) Toughness
 - (B) Resilience
 - (C) Malleability
 - (D) Brittleness
- Answer: Option B

352. The impure iron (pig iron) that is tapped out from blast furnace contains about _____ percent carbon.

- (A) 0.2
 - (B) 2
 - (C) 4
 - (D) 8
- Answer: Option C

353. Mild steel is

- (A) A low carbon steel (0.05 to 0.3% carbon)
 - (B) Highly resistant to corrosion (as much as stainless steel)
 - (C) A high carbon steel (0.5 to 1.5% carbon)
 - (D) Very poor in strength & ductility
- Answer: Option A

354. Perspex is nothing but

- (A) Acrylic sheet
 - (B) An elastomer
 - (C) An alloy of lead and tin
 - (D) Aluminium foil clad with Bakelite
- Answer: Option A

355. Pick out the wrong statement.

- (A) Tin can be readily and very easily drawn into very fine wire
 - (B) Tin can be severely cold worked without the necessity of annealing due to its low recrystallisation temperature
 - (C) Tin exists in two allotropic forms
 - (D) The predominant use of tin is in the form of coating for steel & copper alloys
- Answer: Option A

356. Cementite is

- (A) Fe_3C chemically
- (B) A compound of carbon and iron
- (C) Characterised by an orthorhombic crystal structure

(D) All (A), (B) and (C)

Answer: Option D

357. The digester of a Gobar gas plant is a

- (A) Mild steel drum
- (B) Stainless steel vessel
- (C) Masonry well
- (D) Cast iron vessel

Answer: Option C

358. Monel alloy is

- (A) The costliest of all the alloys of nickel
- (B) Not suitable for making kitchen utensils
- (C) Used for making steam valves and turbine blades as it resists steam attack at high temperature
- (D) Not used in cast and wrought forms

Answer: Option C

359. Hot working of lead is carried out at

- (A) 75° C
- (B) 373° K
- (C) 150° C
- (D) Room temperature

Answer: Option D

360. Dielectric strength of a material is

- (A) Its energy storage capacity
- (B) A magnetic property
- (C) Its capacity to resist the flow of current
- (D) Its capacity to withstand high voltage

Answer: Option D

361. Which of the following contains maximum percentage of carbon?

- (A) Boiler plate steel
- (B) Rail steel
- (C) Saws for cutting steel
- (D) Railway spring steel

Answer: Option C

362. Zinc is highly _____ at room temperature.

- (A) Ductile
- (B) Resistant to atmospheric corrosion
- (C) Malleable
- (D) Brittle

Answer: Option B

363. Which of the following has the poorest weldability?

- (A) Low carbon steel
- (B) Mild steel
- (C) Wrought iron
- (D) High-carbon steel

Answer: Option D

364. Liquid ammonia is shipped in _____ containers.

- (A) Steel
- (B) Aluminium
- (C) Glass
- (D) Lead lined

Answer: Option C

365. Bronze is an alloy of copper and

- (A) Lead
- (B) Tin
- (C) Nickel
- (D) Zinc

Answer: Option B

366. Corrosion resistance of steel is increased by the addition of

- (A) Phosphorous and tungsten
- (B) Nickel and chromium
- (C) Lead and vanadium
- (D) Molybdenum and tungsten

Answer: Option B

367. A steel alloy containing 36% nickel is called _____, which has a zero co-efficient of expansion.

- (A) Austenitic stainless steel
- (B) Heat resisting steel
- (C) Invar
- (D) High speed steel

Answer: Option C

368. Which of the following crystal structures characterises the austenitic stainless steel?

- (A) Simple hexagonal
- (B) Body centred cubic
- (C) Face centred cubic
- (D) None of these

Answer: Option C

369. Silicon percentage in acid resistant cast iron is about

- (A) 4
- (B) 8
- (C) 14
- (D) 20

Answer: Option C

370. Maximum consumption of zinc is in

- (A) Alloying
- (B) Galvanising
- (C) Utensil manufacture
- (D) Electrical industry

Answer: Option B

371. Phenol is not shipped in

- (A) Nickel lined steel tank cars
- (B) Galvanised or tin lined drums
- (C) Boxed glass carboys
- (D) Cast iron containers

Answer: Option D

372. The purpose of nitriding the steel is to

- (A) Harden its surface
- (B) Soften its surface
- (C) Improve its reliability
- (D) None of these

Answer: Option A

373. _____ steel is widely used for the manufacture of motor car crankshafts.

- (A) Silicon
- (B) Nickel
- (C) Chrome
- (D) High speed

Answer: Option C

374. Tank furnace used for melting of glass is made of

- (A) Mild steel
- (B) Cast iron
- (C) Refractory blocks
- (D) Stainless steel

Answer: Option C

375. Addition of tungsten to steel imparts

- (A) Magnetic properties
- (B) Cutting hardness
- (C) Corrosion resistance
- (D) Ductility

Answer: Option B

376. Residual magnetism in steel for magnets is increased by the addition of

- (A) Nickel
- (B) Cobalt
- (C) Tungsten
- (D) Chromium

Answer: Option B

377. Brine (15% concentration) can be stored in a vessel made of

- (A) Monel
- (B) Karbate
- (C) Cast iron
- (D) None of these

Answer: Option A

378. The maximum percentage of chromium that can be added to steel is about

- (A) 12
- (B) 18
- (C) 24
- (D) 30

Answer: Option B

379. Which of the following is not used as the ceramic material in 'cermets'?

- (A) Silicides
- (B) Oxides
- (C) Carbides
- (D) Nitrides

Answer: Option D

380. The hardest material just prior to diamond in Mho's scale is

- (A) Topaz
- (B) Carborundum
- (C) Corundum
- (D) Calcite

Answer: Option C

381. Percentage of silver in German silver is

- (A) 5
- (B) 10
- (C) 20
- (D) 0

Answer: Option D

382. Which of the following is not an alloy of nickel and chromium?

- (A) Inconel
- (B) Hastelloy
- (C) Nimonic alloys
- (D) Duralumin

Answer: Option D

383. Invar contains the highest percentage of

- (A) Vanadium
- (B) Iron
- (C) Tungsten
- (D) Cobalt

Answer: Option B

384. Cast iron has very high

- (A) Compressive strength

- (B) Ductility
 - (C) Shock resistance
 - (D) Resistance to brittleness
- Answer: Option A

385. Brinell Hardness Number (BHN) for talc is approximately in the range of

- (A) 1-5
- (B) 20-30
- (C) 100 -150
- (D) 200 - 250

Answer: Option B

386. Concrete tank can be used to store

- (A) Alum
- (B) Ferrous sulphate
- (C) Sulphuric acid
- (D) Saturated brine

Answer: Option D

387. Aqueous nitric acid is stored in

- (A) Steel drum
- (B) Stainless steel vessel
- (C) Cast iron vessel lined with acid-proof masonry brick
- (D) Cast iron vessel

Answer: Option B

388. Zinc is not used

- (A) For producing zinc base die casting alloys
- (B) In its oxide form as pigments
- (C) As anode for corrosion prevention in boiler
- (D) As an alloying element in various bronzes

Answer: Option D

389. Urea autoclave is made of

- (A) Cast iron
- (B) Refractory blocks
- (C) Stainless steel
- (D) Lead lined steel

Answer: Option C

390. Kel-F is a material, which is

- (A) Chemically known as Polychlorotrifluoroethylene (PTFE)
- (B) Having excellent chemical & high temperature resistance (upto 200°C)
- (C) Having elastomeric properties
- (D) All (A), (B) and (C)

Answer: Option D

391. Cast iron and steel pipes are produced by _____ casting.

- (A) Die
- (B) Investment
- (C) Slush
- (D) True centrifugal

Answer: Option D

392. Ceramic recuperators are generally made of

- (A) Silicon carbide
- (B) Calcium carbide
- (C) Fireclay bricks
- (D) High alumina bricks

Answer: Option A

393. Dilute sulphuric acid is transported in _____ pipes.

- (A) Mild steel
- (B) Lead
- (C) Copper

(D) Special alloys
Answer: Option B

394. Rubber lined pumps can be used to pump

- (A) Caustic soda
 - (B) Chlorinated brine
 - (C) Hypochlorous acid
 - (D) All (A), (B) and (C)
- Answer: Option D

395. To improve the machinability of steel, it is generally subjected to

- (A) Spheroidising
 - (B) Tempering
 - (C) Normalising
 - (D) Annealing
- Answer: Option A

396. Presence of nickel in steel improves its

- (A) Corrosion resistance
 - (B) Cutting ability
 - (C) Wear resistance
 - (D) All (A), (B) and (C)
- Answer: Option A

397. Water gas generator is made of

- (A) Carbon steel-brick lined
 - (B) Stainless steel-lead lined
 - (C) Cast iron
 - (D) High carbon steel-porcelain lined
- Answer: Option A

398. Soap kettle used in the production of laundry soap is made of

- (A) Steel with top section nickel clad or stainless steel
 - (B) Cast iron
 - (C) Nickel
 - (D) Concrete
- Answer: Option A

399. Cold worked steel parts are normally subjected to

- (A) Normalising
 - (B) Hardening
 - (C) Annealing
 - (D) Shot peening
- Answer: Option C

400. Cast irons are generally specified by their

- (A) Carbon content
 - (B) Tensile strength
 - (C) Hardness
 - (D) Manufacturing process
- Answer: Option B

401. Acetaldehyde is produced by hydration of acetylene in a sulphuric acid solution of mercuric sulphate. Hydration tower is made of

- (A) Rubber lined mild steel
 - (B) Lead lined mild steel
 - (C) Aluminium
 - (D) Cast iron
- Answer: Option A

402. Mild steel is used for making

- (A) Fish plates
- (B) Die block
- (C) Channels
- (D) Drop forging

Answer: Option C

403. Lead alone is not used in storing equipment, because it

- (A) Is very costly
- (B) Corrodes easily
- (C) Is having low creep strength
- (D) None of these

Answer: Option C

404. Refined acetic acid storage vessel are made of

- (A) Copper
- (B) Aluminium
- (C) High carbon steel
- (D) Nickel

Answer: Option B

405. Slow and progressive deformation of a material with time under constant stress is called

- (A) Creep
- (B) Erosion
- (C) Resilience
- (D) None of these

Answer: Option A

406. Copper has very low

- (A) Malleability
- (B) Ductility
- (C) Tensile strength
- (D) Thermal & electrical conductivity

Answer: Option C

407. Hammers and railway rails are normally made of

- (A) Mild steel
- (B) Dead mild steel
- (C) Medium carbon steel
- (D) High carbon steel

Answer: Option D

408. Which of the following pairs of elements may form an alloy?

- (A) Iron & carbon
- (B) Iron & mercury
- (C) Platinum & mercury
- (D) None of these

Answer: Option A

409. _____ is added in stainless steel to prevent inter crystal corrosion.

- (A) Vanadium
- (B) Niobium
- (C) Chromium
- (D) Nickel

Answer: Option B

410. Sulphur melting pit in the sulphuric acid plant is made of

- (A) Lead lined stainless steel
- (B) Cast iron
- (C) Steel or cement-brick lined
- (D) Hard wood

Answer: Option C

411. Cermets are used for making

- (A) Cutting tools
- (B) Abrasives
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

412. Evaporators used in caustic soda recovery and production plant are made of

- (A) Monel metal
- (B) Gun metal
- (C) Wood metal
- (D) Babbitt metal

Answer: Option A

413. German silver used for decorative purposes contains maximum percentage of

- (A) Silver
- (B) Copper
- (C) Zinc
- (D) Nickel

Answer: Option B

414. All materials obey Hooke's law within elastic limit. When elastic limit is reached, the tensile strain

- (A) Increases very quickly
- (B) Decreases very quickly
- (C) Increases in proportion to stress
- (D) Decreases in proportion to stress

Answer: Option A

415. White metal is an alloy of

- (A) Lead, tin and cadmium
- (B) Copper, tin and zinc
- (C) Copper and lead
- (D) None of these

Answer: Option D

416. The addition of antimony in tin-based alloys improves its

- (A) Rupture strength and hot hardness
- (B) Impact strength and bonding strength
- (C) Deformation resistance
- (D) Wear resistance

Answer: Option C

417. Pure nickel is

- (A) Ferromagnetic above its curie point (i.e., 415°C)
- (B) Having h.c.p. crystal lattice
- (C) Ferromagnetic at room temperature
- (D) Not resistant to oxidation at high temperature

Answer: Option C

418. Which one is remelted and poured into moulds to get cast iron?

- (A) Wrought iron
- (B) Pig iron
- (C) Low carbon steel
- (D) Mild steel

Answer: Option B

419. Heavy duty bearings are usually made of

- (A) White metal
- (B) Phosphorous bronze
- (C) Monel
- (D) Zinc

Answer: Option A

420. Lead is

- (A) Not resistant to corrosion
- (B) Used as a cathodic material
- (C) Not used as pigment (in its compound forms) for paints
- (D) Used as a shock absorber (in mattress form) between the foundation and steel framework of skyscraper buildings

Answer: Option D

421. Which of the following alloy steels is the most suitable for making gun barrels and projectiles?

- (A) Tungsten steel
- (B) Molybdenum steel
- (C) Nickel-chrome steel
- (D) Cobalt steel

Answer: Option C

422. White cast iron is not

- (A) Malleable
- (B) Whitish in color
- (C) Brittle
- (D) Strong and hard

Answer: Option A

423. Specify the material of construction suitable for handling concentrated HNO₃ at 100°C.

- (A) High silicon iron, Kel-F and Teflon
- (B) Tin and wood
- (C) Silicone rubber
- (D) Stainless steel

Answer: Option A

424. In the Contact process of sulphuric acid manufacture, 98% acid cooler is made of

- (A) Stainless steel
- (B) Cast iron
- (C) Lead lined steel
- (D) Rubber lined steel

Answer: Option B

425. Nickel (56%) and molybdenum (17%) alloys are called

- (A) Monel
- (B) Hastelloy C
- (C) Inconel
- (D) Bronzes

Answer: Option B

426. Which metal is protected by the layer of its own oxide?

- (A) Iron
- (B) Silver
- (C) Calcium
- (D) Aluminium

Answer: Option D

427. Carbon percentage is the same in cast iron and

- (A) Wrought iron
- (B) Pig iron
- (C) Mild steel
- (D) High silicon (14%) iron

Answer: Option B

428. Aluminium as a material of construction suffers from the disadvantage of

- (A) Very high cost
- (B) Rather low tensile strength
- (C) Very low strength to weight ratio
- (D) Scarce availability

Answer: Option B

429. Babbitt metals used for making bearings are

- (A) Tin or lead based alloys
- (B) Short of antifrictional properties
- (C) Having homogenous microstructure
- (D) Yellow metals

Answer: Option A

430. Nickel made/clad equipments are suitable for handling

- (A) Ammonia (both aqueous & anhydrous)
 - (B) Fruit juices, milk & its products and caustic soda solution
 - (C) Nitric acid & hydrochloric acid (concentrated)
 - (D) Sulphuric acid (concentrated)
- Answer: Option B

431. Acetylene gas holder is made of

- (A) Copper
 - (B) Cast iron
 - (C) Steel
 - (D) Monel metal
- Answer: Option C

432. Steel tower used for the storage of oleum

- (A) Is lined with lead
 - (B) Need not be lined
 - (C) Is lined with rubber
 - (D) Is lined with acid-proof bricks
- Answer: Option B

433. Presence of 0.3 to 0.5% arsenic in copper increases its

- (A) Ductility
 - (B) Malleability
 - (C) Tenacity & hardness
 - (D) Electrical conductivity
- Answer: Option C

434. A suitable material of construction to use with fuming sulphuric acid is

- (A) Carbon steel
 - (B) Stainless steel type 304
 - (C) Nickel
 - (D) Monel
- Answer: Option D

435. Photographic plates are coated with

- (A) Silver nitrate
 - (B) Silver halide
 - (C) Calcium silicate
 - (D) Metallic silver
- Answer: Option B

436. Most suitable material of construction for the storage of concentrated nitric acid is

- (A) Cast iron
 - (B) Monel
 - (C) Carbide
 - (D) Aluminium or chromium alloys (Cr > 18% for cold acid)
- Answer: Option D

437. Which of the following stainless steels is non-magnetic?

- (A) Ferritic
 - (B) Martenitic
 - (C) Austenitic
 - (D) None of these
- Answer: Option C

438. Which of the following would not be a suitable material of construction for handling aqueous hydrofluoric acid (HF) at 100°C?

- (A) Monel
 - (B) Stainless steel
 - (C) Graphite
 - (D) Kel-F and Teflon
- Answer: Option B

439. Babbitt metal is not a

- (A) Tin base alloy

- (B) White metal
 - (C) Lead base alloy
 - (D) Pure metal
- Answer: Option D

440. The formation of oxide film on a metal due to atmospheric exposure reduces its

- (A) Toughness
 - (B) Stiffness
 - (C) Creep limit
 - (D) All (A), (B) & (C)
- Answer: Option C

441. Nickel (76%) and chromium (15%) alloys are termed as

- (A) Inconel
 - (B) Monel
 - (C) Aluminium bronzes
 - (D) Brass
- Answer: Option A

442. An elastic behaviour of materials is expressed in terms of

- (A) Hysteresis loop area
 - (B) Stress-strain curve
 - (C) Relaxation time
 - (D) None of these
- Answer: Option C

443. Wood metal is not used for making

- (A) Soft solder
 - (B) Casting for dental work
 - (C) Storage tank for storing brine and caustic soda
 - (D) Fusible safety plug for pressure cooker
- Answer: Option C

444. Fatigue strength of a material increases by

- (A) Having notches in the specimen
 - (B) Rise in temperature
 - (C) Under stressing the specimen
 - (D) Having scratches on the surface
- Answer: Option C

445. Valves in pipe size of 2" and under are normally made of

- (A) Wrought iron
 - (B) Brass
 - (C) Bronze
 - (D) Monel
- Answer: Option B

446. Pipes for bi-cycle frames are made of _____ steel.

- (A) Hot rolled
 - (B) Chrome carbon
 - (C) Cold rolled
 - (D) Stainless
- Answer: Option C

447. Platinum and silver are corroded by

- (A) Caustic soda solution
 - (B) Phosphoric acid
 - (C) Sulphuric acid (10%)
 - (D) None of these
- Answer: Option D

448. Wood is corroded by

- (A) Hydrochloric acid
- (B) SO₂ (dry or wet)
- (C) Chlorine (dry or wet)

(D) All (A), (B) and (C)

Answer: Option D

449. Pick out the wrong statement.

(A) Bronze is an alloy of copper & tin

(B) Brass is an alloy of copper & zinc

(C) The alloy named 'German silver' does not contain any silver

(D) The ability of a material to fracture without appreciable deformation is called its ductility

Answer: Option D

450. Locomotive boiler tubes are made of _____ alloys.

(A) Arsenic copper

(B) Magnesium

(C) Aluminium

(D) Nickel

Answer: Option A

451. Nickel is a constituent of

(A) Bronze

(B) Solder

(C) Duralumin

(D) Monel metal

Answer: Option D

452. Which of the following has the least carbon percentage?

(A) Low carbon steel

(B) Mild steel

(C) Wrought iron

(D) White cast iron

Answer: Option C

453. Plate and frame filter press is usually made of

(A) Mild steel

(B) Cast iron

(C) Stainless steel

(D) Galvanised iron

Answer: Option B

454. The preferred material of construction for storage tanks for 98% sulphuric acid is

(A) Aluminium

(B) Lead

(C) Stainless steel 316

(D) Mild steel

Answer: Option B

455. The most resistant material to alkaline corrosion is

(A) Duriron

(B) Nickel

(C) Aluminium

(D) Carbide

Answer: Option B

456. Thermal shield used in high powered nuclear reactor to protect the walls of the reactor from radiation damage is made of

(A) Concrete

(B) Steel

(C) Zircaloy

(D) Graphite

Answer: Option B

457. Which of the following is the lightest of engineering metals?

(A) Magnesium

(B) Aluminium

(C) Titanium

(D) Tin

Answer: Option A

458. In drop forging process, the forging is done by dropping the _____ at high velocity.

- (A) Hammer
- (B) Workpiece
- (C) Die with hammer
- (D) Weight on hammer

Answer: Option C

459. For platinum thermocouples, lead wires are made of

- (A) Copper & copper-nickel alloys
- (B) Copper & iron
- (C) Iron & nickel
- (D) Tin & nickel

Answer: Option A

460. The softest material just next to talc in the Mohs scale is

- (A) Quartz
- (B) Gypsum
- (C) Feldspar
- (D) Fluorite

Answer: Option B

461. Which of the following is the hardest?

- (A) Cementite
- (B) Pearlite
- (C) Austenite
- (D) Ferrite

Answer: Option C

462. Which of the following materials may prove unsuitable for handling acetic acid (glacial & anhydrous) at 40°C?

- (A) Silicone rubber, teflon, porcelain and wood
- (B) Nickel, monel, stainless steel and graphite
- (C) Aluminium, copper, high silicon iron
- (D) Brass, cast iron, mild steel and tin

Answer: Option D

463. Which is an amorphous material?

- (A) Glass
- (B) Mica
- (C) Brass
- (D) Cast iron

Answer: Option A

464. Lead

- (A) Is the hardest metal in common use
- (B) Is the lightest metal in common use
- (C) Cannot be scratched by finger nails
- (D) Cannot be work hardened

Answer: Option D

465. Which of the following has the highest density and the lowest melting point?

- (A) Stainless steel
- (B) Titanium
- (C) Lead
- (D) Aluminium

Answer: Option C

466. Mercury is transported in metal containers made of

- (A) Aluminium
- (B) Iron
- (C) Lead
- (D) Nickel

Answer: Option B

467. The heat treatment process to which castings and the steel balls produced by cold heading are subjected is

- (A) Tempering
- (B) Normalising
- (C) Annealing
- (D) None of these

Answer: Option B

468. The fermenter used for the production of ethyl alcohol from molasses is made of

- (A) Wood
- (B) Concrete
- (C) Copper bearing steel
- (D) Porcelain

Answer: Option C

469. Hardest material so far found is

- (A) Diamond
- (B) Graphite
- (C) Carborundum
- (D) Pumice stone

Answer: Option A

470. Silico-manganese steels (containing 0.7% Mn, 0.5% C and 2% Si)

- (A) Do not require heat treatment for any of its applications
- (B) Are used for leaf and coiled springs
- (C) Do not have good resilience properties
- (D) Is tempered at 850°C

Answer: Option B

471. Which of the following alloys does not contain nickel?

- (A) Chloro, et-2 alloy
- (B) Monel
- (C) Inconel
- (D) Babbitt metal

Answer: Option D

472. _____ is never shipped in glass carboys.

- (A) Ammonia
- (B) Acetic acid
- (C) Phenol
- (D) Formaldehyde

Answer: Option A

473. The carbonating tower used in Solvay process of soda ash manufacture is made of

- (A) Cast iron
- (B) Stainless steel
- (C) Karbate
- (D) Lead lined steel

Answer: Option A

474. Interchain forces are the weakest in case of

- (A) Plastics
- (B) Fibres
- (C) Elastomers
- (D) Both rubber & elastomers

Answer: Option D

475. The process of heating the cold pressed metallic powder is called _____ in powder metallurgy.

- (A) Precipitation
- (B) Fusion
- (C) Sintering
- (D) Agglomeration

Answer: Option C

476. Which of the following heat treatment processes is used for softening the hardened material?

- (A) Normalising
- (B) Tempering
- (C) Annealing
- (D) None of these

Answer: Option B

477. In order to be called steel, an alloy should have iron percentage greater than

- (A) 80
- (B) 70
- (C) 90
- (D) 50

Answer: Option A

478. Carbon percentage in medium carbon steel is around

- (A) 0.1 to 0.35
- (B) 0.35 to 0.5
- (C) 0.8 to 1.4
- (D) 1 to 1.5

Answer: Option B

479. Ammonium chloride solution is stored/ treated in _____ vessels/pipes.

- (A) Plain carbon steel
- (B) Stainless steel
- (C) Rubber or durmet-20 lined
- (D) Lead

Answer: Option C

480. Which of the following alloys does not contain nickel?

- (A) Chlorinet - 2 alloy
- (B) Monel
- (C) Inconel
- (D) Babbitt metal

Answer: Option D

481. With increase in carbide/graphite ratio in cast iron, its

- (A) Hardness & brittleness increases
- (B) Ductility decreases
- (C) Both (A) and (B)
- (D) Neither (A) nor (B)

Answer: Option C

482. Aluminium storage vessel can be used to store

- (A) Aqua regia
- (B) Ferrous sulphate
- (C) Hydrochloric acid (10%)
- (D) None of these

Answer: Option D

483. Sulphuric acid pickling tanks are lined with

- (A) Nickel
- (B) Rubber
- (C) Aluminium
- (D) Glass

Answer: Option B

484. _____ possesses viscoelastic properties.

- (A) Cork
- (B) Glass
- (C) Graphite
- (D) Rubber

Answer: Option D

485. Tubes of multiple effect evaporator used for concentration of sugar cane juice are made of

- (A) Nickel
- (B) Copper
- (C) Stainless steel
- (D) Brass

Answer: Option B

486. The range of Mho's scale of hardness is from

- (A) 1 to 15
- (B) 1 to 8
- (C) 1 to 10
- (D) 0 to 10

Answer: Option C

487. Nickel and copper are the basic constituents of

- (A) Hastelloy
- (B) Monel metal
- (C) German silver
- (D) Inconel

Answer: Option B

488. Which one contains the least percentage of carbon?

- (A) Wrought iron
- (B) High speed steel
- (C) Cast iron
- (D) Pig iron

Answer: Option A

489. Low carbon steels are those in which carbon percentage is around

- (A) 0.1 to 0.35
- (B) 0.4 to 0.7
- (C) 0.8 to 1.5
- (D) 1.5 to 2

Answer: Option A

490. Addition of 2% nickel in steel makes it suitable for making

- (A) Electronic valves
- (B) Boiler plates, rivets etc.
- (C) Turbine blades
- (D) Connecting rod

Answer: Option B

491. Ceramic materials are

- (A) Organic in nature
- (B) Stronger in compression than in tension
- (C) Always amorphous in nature
- (D) Always bad heat conductors

Answer: Option B

492. Plastics are

- (A) Used in very high temperature applications
- (B) Non-biodegradable
- (C) Not suitable for drainage pipe manufacture
- (D) All (A), (B) & (C)

Answer: Option B

493. In hot wire anemometer used for gas flow measurement, the wire is normally made of

- (A) Copper
- (B) Platinum
- (C) Constantan
- (D) Chromium

Answer: Option B

494. SO₃ is absorbed using H₂SO₄ in a

- (A) Cast iron packed tower

- (B) Stainless steel plate tower
 - (C) Packed steel tower lined with acid proof bricks
 - (D) None of these
- Answer: Option C

495. Stainless steel is not corroded by

- (A) Hydrochloric acid (10%)
 - (B) Nitric acid (10%)
 - (C) Sulphuric acid (10%)
 - (D) Saturated brine
- Answer: Option B

496. Nitriding of steel is done (in electric furnace) at _____ °C.

- (A) 510
 - (B) 1720
 - (C) 2210
 - (D) 910
- Answer: Option A

497. An ideal material of construction for the storage of 50% caustic soda solution would be

- (A) Carbide
 - (B) High silicon cast iron
 - (C) Monel
 - (D) None of these
- Answer: Option C

498. Brass is an alloy of

- (A) Nickel and tin
 - (B) Copper and zinc
 - (C) Tin and lead
 - (D) Copper, nickel and zinc
- Answer: Option B

499. The heat treatment process applied to cold formed steel parts is

- (A) Normalising
 - (B) Tempering
 - (C) Artificial ageing
 - (D) Solution annealing
- Answer: Option D

500. A hardened steel essentially contains

- (A) Sorbite
 - (B) Troostite
 - (C) Martensite
 - (D) None of these
- Answer: Option C

501. The fermenter used in the production of penicillin (by deep fermentation process) is made of

- (A) Glass
 - (B) Glass lined steel
 - (C) High silicon cast iron
 - (D) Porcelain
- Answer: Option B

502. Silicone rubber is not resistant to the corrosive action of

- (A) Sulphuric acid (10%)
 - (B) Sulphuric acid (95%)
 - (C) Ether
 - (D) Both (B) and (C)
- Answer: Option D

503. The largest consumption of zinc for alloys is in the making of

- (A) Bearing metal
- (B) Brasses