

08. Economics of 'Solvay Process' depends upon the efficiency of

- (A) Carbonating tower
- (B) Ammonia recovery
- (C) Ammonia recovery and size of the plant
- (D) Ammoniation of salt solution

Answer: Option C

09. Shaving soaps are

- (A) Soft potassium soaps (potassium salt of fatty acid) with free Stearic acid to give lather a lasting property
- (B) Metallic soaps compounded with frothing agents
- (C) High free alkali soaps having excess of cane sugar and alcohol
- (D) None of these

Answer: Option A

10. At a given temperature, the equilibrium yield of SO_3 obtained from the oxidation of SO_2 is proportional to (where, P = pressure of the system).

- (A) P
- (B) \sqrt{P}
- (C) P^2
- (D) $1/P$

Answer: Option B

11. Baking soda is chemically represented by

- (A) Na_2CO_3
- (B) NaHCO_3
- (C) $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
- (D) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$

Answer: Option B

12. Direct conversion of chemical energy into electrical energy is done in a

- (A) Magnetohydrodynamic (MHD) generator
- (B) Fuel cell
- (C) Fast breeder reactor
- (D) None of these

Answer: Option B

13. Extraction of _____ employs an electrolytic process.

- (A) Aluminium
- (B) Silver
- (C) Copper
- (D) All (A), (B) and (C)

Answer: Option A

14. Inversion of sucrose produces

- (A) Fructose
- (B) Glucose
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option B

15. Phenolic antiseptics are added in the _____ soap.

- (A) Shaving
- (B) Medicated
- (C) Metallic
- (D) Transparent

Answer: Option B

16. Soap cannot be used with hard water, because

- (A) Hard water contains sulphate
- (B) They form insoluble calcium soaps which precipitate
- (C) They attract back the removed dirt
- (D) None of these

Answer: Option B

17. The compressive strength of cement should not be less than about 110Kg/cm² after three days & not less than 170Kg/cm² after seven days. The fineness of an ordinary cement as determined by turbidimetric method should be about _____ cm²/gm.

- (A) 800
- (B) 1600
- (C) 4000
- (D) 8500

Answer: Option B

18. Carborundum consists mainly of

- (A) Bauxite
- (B) Silicon carbide
- (C) Boron carbide
- (D) Calcium carbide

Answer: Option B

19. Pick out the wrong statement.

- (A) Wine, rum & Vodka are prepared by the formulation of fruit juice, sugar beet & rye respectively
- (B) Protein catalysts are called enzymes
- (C) The rate of chemical reaction is independent of the concentration of reactants at high concentration of enzymes
- (D) Total sugar content in molasses is about 10%

Answer: Option D

20. Yellow phosphorus is transported under

- (A) Air
- (B) Water
- (C) Nitrogen
- (D) Helium

Answer: Option B

21. Carboxymethyl cellulose (CMC) is added in detergents to

- (A) Prevent redeposition of soil on cleaned surface
- (B) Act as optical brightening agent
- (C) Inhibit corrosion in washing machines made of aluminium
- (D) None of these

Answer: Option A

22. Nitric acid is not used in the manufacture of

- (A) Detergents
- (B) Fertilisers
- (C) Aqua regia
- (D) Explosives

Answer: Option A

23. Styrene (a monomer for the production of polystyrene) is commercially produced by

- (A) Catalytic dehydrogenation of ethyl benzene
- (B) Dehydration of ethyl alcohol followed by hydrogenation
- (C) Reacting ethylene oxide with acetaldehyde
- (D) Fermentation of starch

Answer: Option A

24. Which of the following is an explosive?

- (A) Nitro-glycerine
- (B) Trinitrotoluene (TNT)
- (C) Cellulose nitrate
- (D) All (A), (B), and (C)

Answer: Option D

25. Reaction of calcium carbide with water produces a gas, which is used

- (A) As an illuminant
- (B) For metal cutting/welding
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

26. Low temperature carbonisation of coal takes place at _____ °C.

- (A) 300
- (B) 1100
- (C) 700
- (D) 900

Answer: Option C

27. In the manufacture of sulphuric acid from elemental sulphur, the following sequence of major operations is followed:

- (A) Furnace → converter → absorber
- (B) Furnace → evaporator → absorber
- (C) Furnace → converter → evaporator
- (D) Converter → furnace → absorber

Answer: Option A

28. Viscose rayon is

- (A) Cellulose nitrate
- (B) Regenerated cellulose nitrate
- (C) Regenerated cellulose acetate
- (D) None of these

Answer: Option D

29. Which of the following is not a product of coal tar distillation?

- (A) Anthracene
- (B) Creosote oil
- (C) Carboic oil
- (D) None of these

Answer: Option D

30. Acrylonitrile is mainly used in the _____ industry.

- (A) Polymer
- (B) Printing
- (C) Dyeing
- (D) Photographic

Answer: Option C

31. Which of the following is not present in bagasse fibre?

- (A) Cellulose
- (B) Lignin
- (C) Pentogens
- (D) None of these

Answer: Option D

32. SO₂ is bubbled through hot sugar cane juice to

- (A) Act as an acidifying agent
- (B) Increase its concentration
- (C) Increase the amount of molasses
- (D) Increase the crystal size

Answer: Option A

33. Nitrile rubber is produced by the polymerisation of

- (A) Acrylonitrile and butadiene
- (B) Acrylonitrile and styrene
- (C) Isobutylene and isoprene
- (D) None of these

Answer: Option A

34. Maleic anhydride is produced by catalytic oxidation of

- (A) Toluene
- (B) Ethyl alcohol
- (C) Naphthalene
- (D) Benzene

Answer: Option D

35. Production of one ton of cement requires about _____ tons of limestone.

- (A) 0.6
- (B) 1.2
- (C) 2.2
- (D) 3.8

Answer: Option B

36. Which one of the following is not an elastomer?

- (A) Polyisoprene
- (B) Neoprene
- (C) Nitrile-butadiene
- (D) None of these

Answer: Option D

37. Permanent hardness of water can be removed by

- (A) Boiling
- (B) Adding $\text{Ca}(\text{OH})_2$
- (C) Boiling it with Na_2CO_3
- (D) None of these

Answer: Option C

38. Blue colour is imparted to glass by the addition of

- (A) FeSO_4
- (B) PbO
- (C) CaO
- (D) NaOH

Answer: Option C

39. Naphthols are derivates of

- (A) Methyl amine
- (B) Naphthalene
- (C) Phenol
- (D) Xylene

Answer: Option B

40. Phenol formaldehyde

- (A) Employs addition polymerisation
- (B) Employs condensation polymerisation
- (C) Is a monomer
- (D) Is an abrasive material

Answer: Option B

41. In the Solvay process, the product from the calciner is

- (A) Light soda ash
- (B) Dense soda ash
- (C) Sodium bicarbonate
- (D) Dehydrated soda ash

Answer: Option A

42. Lithophane is

- (A) Explosive
- (B) White lead
- (C) Filter aid
- (D) ZnS (white pigment)

Answer: Option D

43. Fermentation is adversely affected by the

- (A) Presence of air
- (B) Absence of air
- (C) High concentration
- (D) Presence of ammonium salts

Answer: Option C

44. Presence of carbonaceous matter in the sewage

- (A) Causes reduction in its dissolved oxygen content thereby endangering the life of aquatic creatures
- (B) Reduces sulphate ions to sulphides causing obnoxious smell
- (C) Increases the quantity of chlorine used for its purification
- (D) All (A), (B) and (C)

Answer: Option D

45. Penicillin is made employing _____ fermentation process.

- (A) Continuous
- (B) Aerobic batch
- (C) Anaerobic batch
- (D) None of these

Answer: Option B

46. Nicotine is

- (A) A volatile alkaloid
- (B) Obtained by treating by-products of the tobacco processing industry
- (C) Both (A) and (B)
- (D) Neither (A) nor (B)

Answer: Option C

47. Dechlorination of treated water is necessary to

- (A) Remove residual turbidity
- (B) Reduce the bacterial load on filter
- (C) Control taste and odour
- (D) Remove chlorinous taste

Answer: Option D

48. 20% oleum means that in 100 kg oleum, there are 20 kg of

- (A) SO_3 and 80kg of H_2SO_4
- (B) H_2SO_4 and 80kg of SO_3
- (C) SO_3 for each 100 kg of H_2SO_4
- (D) None of these

Answer: Option A

49. _____ of quicklime produces slaked lime.

- (A) Hydration
- (B) Dehydration
- (C) Hydrogenation
- (D) None of these

Answer: Option A

50. CO & H₂ are the constituents of

- (A) Producer gas
- (B) Water gas
- (C) Coke oven gas
- (D) All (A), (B) and (C)

Answer: Option D

51. An oil is converted into fat by its

- (A) Hydrogenation
- (B) Hydrolysis
- (C) Hydrocracking
- (D) Hydration

Answer: Option A

52. Cellulose content of bamboo and ideal fibrous raw material for the manufacture of paper is _____ percent.

- (A) 10
- (B) 50
- (C) 80
- (D) 95

Answer: Option B

53. Chemical formula of BHC, which is an insecticide is

(A) $C_6H_6Cl_6$

(B) C_6Cl_6

(C) C_6H_5Cl

(D) $C_6H_4Cl_2$

Answer: Option B

54. Concentration of NaOH solution produced by diaphragm electrolytic cell is about _____ percent.

(A) 10

(B) 25

(C) 50

(D) 98

Answer: Option A

55. Nylon-6 as compared to Nylon-66 is having higher

(A) Hardness

(B) Abrasion/resistance

(C) Melting point

(D) None of these

Answer: Option D

56. In an integrated steel plant, NH_3 present in coke oven gas is normally recovered as

(A) $(NH_4)_2SO_4$

(B) NH_4Cl

(C) $(NH_4)_2NO_3$

(D) Liquid NH_3

Answer: Option A

57. Sucrose is a

(A) Monosaccharide

(B) Disaccharide

(C) Polysaccharide

(D) None of these

Answer: Option B

58. A mixture of chlorine & sodium bromide acts as a/an

(A) Insecticides

(B) Analgesic drug

(C) Fire retardant

(D) Hydrogenation catalyst

Answer: Option C

59. Plasticisers are added to synthetic plastics to

(A) Impart flexibility

(B) Improve workability during fabrication

(C) Develop new improved properties not present in the original resins

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

Answer: Option D

60. _____ is produced using Polycondensation reaction.

(A) Polythene

(B) Phenol formaldehyde

(C) Poly vinyl chloride

(D) None of these

Answer: Option B

61. One of the steps during refining of cane sugar consists of addition of hydrated lime to the sugar syrup followed by carbonation of the resulting solution. The purpose of this step is to

(A) Adjust the pH of the syrup

(B) Remove the coloring matter from the syrup

(C) Reduce the viscosity of the syrup

(D) Improve the rate of crystallisation of sugar

Answer: Option A

62. Penicillin, an antibiotic drug was discovered by

- (A) Alexander
 - (B) Flaming
 - (C) Doctor Zhivago
 - (D) None of these
- Answer: Option A

63. Celluloid is chemically

- (A) Cellulose acetate
 - (B) Regenerated cellulose
 - (C) Cellulose nitrate
 - (D) Cellulose acetate butyrate
- Answer: Option C

64. Which of the following impurities in feed water for high pressure boiler is the most detrimental?

- (A) Silica
 - (B) Dissolved oxygen
 - (C) Suspended salt
 - (D) Dissolved salt
- Answer: Option A

65. Sea water contains about _____ ppm of bromine.

- (A) 5
 - (B) 70
 - (C) 500
 - (D) 1700
- Answer: Option B

66. Favourable conditions for the liquefaction of gases in general are

- (A) High pressure & low temperature
 - (B) Low pressure & high temperature
 - (C) High pressure & high temperature
 - (D) Low pressure & low temperature
- Answer: Option A

67. Teflon is

- (A) Phenol formaldehyde
 - (B) An inorganic polymer
 - (C) Poly tetra-fluoro-ethylene (P.T.F.E.)
 - (D) A monomer
- Answer: Option C

68. Hydrocyanic acid (HCN) is used as an insecticide for

- (A) Controlling timber degradation by ants
 - (B) Controlling poultry lice
 - (C) Potato beetle
 - (D) Citrus fruits
- Answer: Option D

69. In contact process, SO₃ is absorbed in 97% H₂SO₄ and not in water, because

- (A) SO₃ gas is sparingly soluble in water
 - (B) Water forms an acid mist, which is difficult to absorb
 - (C) The purity of acid is affected
 - (D) Scale formation in the absorber is to be avoided
- Answer: Option B

70. Catalytic oxidation of toluene produces

- (A) Styrene
 - (B) Phenol
 - (C) Benzene
 - (D) Tri-nitro-toluene
- Answer: Option B

71. Carbon disulphide is mainly used in the production of

- (A) Viscose rayon

- (B) Corundum
 - (C) Plasticiser for unsaturated polyester
 - (D) Paints
- Answer: Option A

72. Contact process of sulphuric acid manufacture

- (A) Yields acid of higher concentration than chamber process
 - (B) Yields acids of lower concentration than chamber process
 - (C) Is obsolete
 - (D) Eliminates absorber
- Answer: Option A

73. Penicillin is separated from fermented broth by

- (A) Extraction with amyl or butyl acetate
 - (B) Ternary Azeotropic distillation
 - (C) Evaporator in calandria
 - (D) Extractive distillation
- Answer: Option A

74. Chemical formula of oleum is

- (A) H_2SO_3
 - (B) H_2SO_4
 - (C) $H_2S_2O_7$
 - (D) H_2SO_7
- Answer: Option C

75. Which of the following processes can remove both temporary as well as permanent hardness of water?

- (A) Filtration
 - (B) Boiling
 - (C) Distillation
 - (D) None of these
- Answer: Option C

76. Sizing material is incorporated in paper to

- (A) Impart resistance to penetration by liquids
 - (B) Increase its thickness
 - (C) Increase its flexibility & opacity
 - (D) Increase its brightness
- Answer: Option A

77. Widely used method for the conditioning of boiler feed water is the

- (A) Cold lime process
 - (B) Coagulation
 - (C) Hot-lime soda process
 - (D) Sequestration
- Answer: Option C

78. Phenol formaldehyde is produced by condensation polymerisation. It is also known as

- (A) Teflon
 - (B) Bakelite
 - (C) Polyester
 - (D) Nylon-66
- Answer: Option B

79. Shrinkage volume in cement setting does not depend upon the

- (A) Sand to cement ratio
 - (B) Water to cement ratio
 - (C) Ambient temperature fluctuation
 - (D) Drying period
- Answer: Option A

80. What products do we get on electrolysis of saturated brine using steel cathode and graphite anode in an electrolytic cell?

- (A) Cl_2 & Na

- (B) Cl_2 & H_2
 - (C) O_2 & H_2
 - (D) Cl_2 , H_2 & NaOH solution
- Answer: Option D

81. Hydrolysis of sugar is called

- (A) Hydration
 - (B) Inversion
 - (C) Esterification
 - (D) None of these
- Answer: Option B

82. Chloramines are used in water treatment for

- (A) Disinfection and control of taste & odour
 - (B) Corrosion control
 - (C) Removing turbidity
 - (D) Control of bacteria
- Answer: Option A

83. Commercially ethylene is produced from naphtha by

- (A) Catalytic cracking
 - (B) Catalytic dehydrogenation
 - (C) Pyrolysis
 - (D) Hydrocracking
- Answer: Option D

84. Ethanol amine is produced using ammonia and

- (A) Ethyl benzene
 - (B) Ethylene oxide
 - (C) Ethanol
 - (D) Ethane
- Answer: Option B

85. Coloured glass is obtained by mixing of colored salts. Addition of _____ oxide is done to impart greenish blue color to the glass.

- (A) Chromium
 - (B) Arsenic
 - (C) Copper
 - (D) Manganese
- Answer: Option C

86. Ore concentration by froth floatation utilises the _____ of ore particles.

- (A) Density difference
 - (B) Wetting characteristics
 - (C) Terminal velocities
 - (D) None of these
- Answer: Option B

87. Yellow glycerine is made into white, using

- (A) Activated carbon
 - (B) Diatomaceous earth
 - (C) Bauxite
 - (D) Bentonite
- Answer: Option A

88. Wet chlorine gas produced during electrolysis of brine is dehydrated by

- (A) Spraying 66°C H_2SO_4 counter current to the flow of the gas
 - (B) Passing it through a bed of diatomaceous earth
 - (C) Passing it through a bed of silica gel
 - (D) None of these
- Answer: Option A

89. Flux addition during smelting of ore is done to

- (A) Remove impurities/gangue
- (B) Enhance rate of reaction

- (C) Accelerate reduction of ore
 - (D) Separate slag from metal
- Answer: Option A

90. Commercial production of soda ash by Solvay process requires limestone, _____ as raw materials.

- (A) Coke and sand
 - (B) Brine and coal
 - (C) Coke and caustic soda
 - (D) None of these
- Answer: Option B

91. The manufacture of Kraft pulp is done by a/an _____ process.

- (A) Alkaline
 - (B) Acidic
 - (C) Neutral
 - (D) None of these
- Answer: Option A

92. P.T.F.E. (Poly tetra fluoro ethylene) is commercially known as

- (A) Bakelite
 - (B) Neoprene
 - (C) Teflon
 - (D) Nylon-66
- Answer: Option C

93. The most reactive allotropic form of phosphorus is _____ phosphorus.

- (A) Red
 - (B) Yellow
 - (C) Violet
 - (D) Black
- Answer: Option B

94. Nylon-6 is a

- (A) Polyamide
 - (B) Thermosetting resin
 - (C) Polyester
 - (D) None of these
- Answer: Option A

95. Industrial production of chloroform requires acetone and

- (A) Phosgene
 - (B) Calcium hypochlorite
 - (C) Chlorine
 - (D) Ammonium chloride
- Answer: Option B

96. Which is a high grade pulp?

- (A) Rag pulp
 - (B) Mechanical pulp
 - (C) Sulphate pulp
 - (D) Sulphite pulp
- Answer: Option C

97. The most popular and common detergent i.e., alkyl benzene sulfonate (ABS) is a/an _____ detergent.

- (A) Cationic
 - (B) Anionic
 - (C) Amphoteric
 - (D) Semi polar
- Answer: Option B

98. _____ is a thermosetting plastic.

- (A) Polythene
- (B) Epoxy polymer

- (C) P.V.C.
(D) Polystyrene
Answer: Option B

99. _____ Nature of hypo (sodium thiosulphate) makes it useful in photography.

- (A) Oxidising
(B) Reducing
(C) Complex forming
(D) Photochemical
Answer: Option C

100. Zeolite is used in the

- (A) Water treatment
(B) Glass manufacture
(C) Hydrogenation of fatty oil as a catalyst
(D) Development of exposed photographic plate
Answer: Option A

101. Molecular weight of plastics ranges from

- (A) 5000 to 10000
(B) 20000 to 250000
(C) 500 to 5000
(D) 106 to 109
Answer: Option B

102. The end bleaching agent used to remove last traces of colour bodies from the pulp is

- (A) Chlorine dioxide (ClO_2)
(B) MgO
(C) SO_2 gas
(D) Mercaptans
Answer: Option A

103. Starting material for the production of styrene butadiene rubber (SBR) is

- (A) Ethyl alcohol
(B) Ethylene
(C) Both (A) & (B)
(D) Neither (A) nor (B)
Answer: Option C

104. Manufacture of phthalic anhydride uses _____ as a catalyst.

- (A) Ni
(B) Cr
(C) V_2O_5
(D) Al_2O_3
Answer: Option C

105. Major component of flint glass is

- (A) Lead oxide
(B) Silica
(C) Alumina
(D) Soda
Answer: Option A

106. Pick out the false statement pertaining to water treatment.

- (A) Aeration of water is effective in CO_2 removal
(B) The zeolite water softening process reduces the hardness of water by not more than 50%
(C) Sodium sulphate or sodium carbonate do not cause hardness in water
(D) Water with pH value less than 7, is acidic
Answer: Option B

107. Cation exchanger is regenerated usually with

- (A) NaOH
(B) H_2SO_4
(C) Hydrazine
(D) Alum solution

Answer: Option B

108. Which of the following is not an insecticide?

- (A) Hydrocyanic acid
- (B) Nicotine
- (C) Sodium fluoride
- (D) Hexane

Answer: Option D

109. Nylon-6 is manufactured from

- (A) Caprolactam
- (B) Hexamethylene diamine and adipic acid
- (C) Hexamethylene diamine and Maleic anhydride
- (D) Hexamethylene diamine and Sebacic acid

Answer: Option A

110. Catalyst used in the oxidation of benzene to produce Maleic anhydride is

- (A) V_2O_5
- (B) Pt
- (C) Ni
- (D) Cr

Answer: Option A

111. Fat splitting catalyst is

- (A) $CaCO_3$
- (B) ZnO
- (C) Al_2O_3
- (D) Fe

Answer: Option B

112. In the manufacture of H_2SO_4 , vanadium catalyst as compared to platinum catalyst

- (A) Gives higher conversion efficiency
- (B) Has a longer life and is not poisoned by arsenic
- (C) Handles lower SO_2 content gas (7 -10% SO_2), thus increasing the capital cost of the plant
- (D) All (A), (B) and (C)

Answer: Option D

113. Poly Vinyl Chloride (P.V.C.) is a _____ material.

- (A) Thermosetting
- (B) Thermoplastic
- (C) Fibrous
- (D) Chemically active

Answer: Option B

114. _____ acid is the main constituent of cotton seed oil.

- (A) Acetic
- (B) Linoleic
- (C) Palmitic
- (D) Oleic

Answer: Option B

115. _____ is used as a flux in the smelting of copper ore like chalcopyrite.

- (A) Coke breeze
- (B) Lime powder
- (C) Silica/quartz
- (D) Dolomite

Answer: Option C

116. Sugar content in sugarcane on cane basis is about _____ percent by weight.

- (A) 1 to 5
- (B) 5 to 10
- (C) 15 to 20
- (D) 20 to 30

Answer: Option B

117. Glauber's salt is chemically

- (A) Calcium sulphate
- (B) Potassium sulphate
- (C) Potassium chlorate
- (D) None of these

Answer: Option D

118. Hydrazine is used in water treatment for the removal of

- (A) Colloidal impurities
- (B) Dissolved oxygen
- (C) Turbidity
- (D) Chlorinous taste

Answer: Option B

119. Sulphuric acid completely saturated with sulphur trioxide is called

- (A) Concentrated sulphuric acid
- (B) Oleum
- (C) Sulphurous acid
- (D) Dilute sulphuric acid

Answer: Option A

120. _____ glass is used for the manufacture of optical glass.

- (A) Pyrex
- (B) Soda
- (C) Flint
- (D) Crooke's

Answer: Option C

121. Commercial production of Vanaspati is done by _____ of edible vegetable oils.

- (A) Hydrogenation
- (B) Oxidation
- (C) Hydrolysis
- (D) Hydrocracking

Answer: Option A

122. Synthesis gas is a mixture of

- (A) CO and H₂
- (B) N₂ and H₂
- (C) H₂, CH₄ and CO
- (D) CO₂ and H₂

Answer: Option A

123. Which of the following is an ore of iron?

- (A) Galena
- (B) Chalcopyrite
- (C) Hematite
- (D) Bauxite

Answer: Option C

124. Which of the following is an yellow pigment?

- (A) Titanium dioxide
- (B) Ferrous sulphate
- (C) Lead chromates
- (D) Zinc sulphides

Answer: Option C

125. Double Contact Double Absorption (DCDA) process is the most recent process for the manufacture of

- (A) Nitric acid
- (B) Sulphuric acid
- (C) Ammonium sulphate
- (D) Hydrochloric acid

Answer: Option B

126. Hydrazine (N₂H₄) is used mainly as a/an

- (A) Explosive
 - (B) Rocket fuel
 - (C) Detergents additive
 - (D) None of these
- Answer: Option B

127. Naphthalene is removed from coke oven gas by

- (A) Adsorbing on palladium
 - (B) Absorbing in ethanolamine
 - (C) Scrubbing with wash oil
 - (D) Passing it through electrostatic precipitator
- Answer: Option C

128. Dacron is a

- (A) Condensation product of Hexamethylene diamine and adipic acid
 - (B) Thermosetting material
 - (C) Condensation product of dimethyl terephthalate and ethylene glycol
 - (D) None of these
- Answer: Option D

129. Catalyst used during the manufacture of 'Vanaspati Ghee' is

- (A) Zinc
 - (B) Nickel
 - (C) Platinum
 - (D) Copper
- Answer: Option B

130. Fat dispersed in water is exemplified by

- (A) Colloids
 - (B) Gel
 - (C) Butter
 - (D) Emulsion
- Answer: Option C

131. Enzymes are

- (A) Proteins with high molecular weight (around 10,000)
 - (B) Derived from living organisms
 - (C) Catalyst for temperature sensitive reactions
 - (D) All (A), (B) and (C)
- Answer: Option D

132. Zeigler process

- (A) Produces high density polyethylene
 - (B) Produces low density polyethylene
 - (C) Uses no catalyst
 - (D) Employs very high pressure
- Answer: Option A

133. In Kraft process of paper manufacture, white cooking liquor consists of caustic soda

- (A) Sodium sulphide & sodium carbonate
 - (B) Sodium sulphite & sodium carbonate
 - (C) Sodium sulphite & sodium sulphide
 - (D) None of these
- Answer: Option A

134. 99.5% purity oxygen is used in

- (A) Cutting and welding by oxy-acetylene flame
 - (B) Hospitals for medicinal purposes
 - (C) Gas masks and artificial breathing apparatus
 - (D) All (A), (B), and (C)
- Answer: Option D

135. Chemical formula of 'salt cake' is

- (A) Na_2SO_4
- (B) CaSO_4

- (C) MgSO_4
 - (D) BaSO_4
- Answer: Option A

136. Chalcopyrite is the main ore of

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

Answer: Option A

137. Linde process of gas liquefaction employs

- (A) Exchange of heat with colder stream
- (B) Adiabatic expansion through a throttle valve (Joule-Thomson expansion)
- (C) Adiabatic expansion against a piston or in a turbine
- (D) Merely compressing the gas beyond its critical pressure

Answer: Option B

138. Pig iron is produced by blast furnaces in India using mostly the iron ore named

- (A) Hematite
- (B) Magnetite
- (C) Siderite
- (D) Chalcopyrite

Answer: Option A

139. _____ is a thermosetting plastic.

- (A) Polyvinyl chloride
- (B) Polythene
- (C) Bakelite
- (D) Teflon

Answer: Option C

140. Lubricating greases are a mixture of

- (A) Mineral oil, soap and additives
- (B) Mineral oil and metallic soap
- (C) Mineral oil and fatty oil
- (D) Fatty oil and metallic soap

Answer: Option A

141. Antibiotic

- (A) Inhibits/destroys the growth of microorganisms
- (B) Is used as a pain reliever
- (C) Is an antimalarial
- (D) Is an anaesthetic

Answer: Option A

142. Which of the following fuel gases contains maximum amount of carbon monoxide?

- (A) Coke oven gas
- (B) Water gas
- (C) Blast furnace gas
- (D) L.D. converter gas

Answer: Option D

143. Digestion of wood-base materials (for manufacture of pulp) is done to

- (A) Remove lignin
- (B) Produce long fibres
- (C) Prevent deterioration on storage
- (D) None of these

Answer: Option A

144. _____ process is used for producing soda ash.

- (A) Chamber
- (B) Chance
- (C) Tromp
- (D) Solvay

Answer: Option D

145. Thermosetting plastic materials

- (A) Can be repeatedly melted
- (B) Is useful for melt casting
- (C) Cannot be melted after forming
- (D) Is useful for spinning

Answer: Option C

146. Starting material for the production of butadiene in India is

- (A) Naphthalene
- (B) Benzol
- (C) Ethyl alcohol
- (D) Phthalic anhydride

Answer: Option C

147. Pick out the wrong statement.

- (A) Low intensity explosives are also called propellants, whereas high intensity explosive are called detonators
- (B) Gun powder comprises of 75% salt petre, 15% charcoal and 10% sulphur
- (C) Lead azide is a popular military explosive
- (D) TNT is a hygroscopic explosive having very high melting point and is non-toxic to human being

Answer: Option D

148. Main constituents of cotton fiber is

- (A) Lignin
- (B) Cellulose
- (C) Starch
- (D) Gelatine

Answer: Option B

149. Rancidity of the fatty oil can be reduced by its

- (A) Decoloration
- (B) Hydrogenation
- (C) Oxidation
- (D) Purification

Answer: Option B

150. Chrome tanning and vegetable tanning are done for

- (A) Light & heavy leather respectively
- (B) Heavy & light leather respectively
- (C) Both light & heavy leather
- (D) Neither light nor heavy leather

Answer: Option A

151. Temperature during hydrogenation of oil should not be more than 200°C, otherwise it will result in

- (A) Pyrolysis of oil
- (B) Sintering of porous catalyst
- (C) Hydrogen embrittlement
- (D) All (A), (B) and (C)

Answer: Option D

152. Pick out the wrong statement.

- (A) Strongly caking coal should not be used in the Lurgi gasifier
- (B) Acetylene gas cannot be used for illumination purpose
- (C) Water gas is called blue gas because of the color of the flame, when it is burnt
- (D) Gaseous fuels require less percentage of excess air for combustion as compared to liquid fuels

Answer: Option B

153. Oleum produces fumes of

- (A) SO₂
- (B) H₂SO₄
- (C) SO₃

(D) $\text{SO}_2 + \text{H}_2\text{SO}_4$
Answer: Option C

154. The difference between saponification value and acid value is

- (A) Called ester value
- (B) Always negative
- (C) Constant for all fatty oils
- (D) None of these

Answer: Option A

155. Which of the following is not produced commercially from sea water?

- (A) Magnesium & potassium compounds
- (B) Common salt
- (C) Bromine
- (D) Iodine

Answer: Option D

156. Which of the following may be viewed as a catalyst in the manufacture of soda ash by Solvay process?

- (A) NH_3
- (B) NaCl
- (C) CaO
- (D) Coke

Answer: Option A

157. The most commonly used substance to speed up the sedimentation of sewage is

- (A) Lime
- (B) Sulphuric acid
- (C) Chlorine
- (D) Sodium bisulphite

Answer: Option A

158. Which catalyst is used in the manufacture of ethylene oxide by oxidation of ethylene?

- (A) AgO
- (B) Al_2O_3
- (C) ZnCl_2
- (D) Fe_2O_3

Answer: Option A

159. Hydrogen gas is not produced commercially (for nitrogenous fertiliser manufacture) by

- (A) Iron-steam reaction
- (B) Electrolysis of water
- (C) Steam reforming of naphtha
- (D) Its cryogenic separation from coke oven gas

Answer: Option A

160. Multistage catalytic converter is not used in the

- (A) Conversion of SO_2 to SO_3
- (B) NH_3 synthesis reaction
- (C) Both (A) and (B)
- (D) Neither (A) nor (B)

Answer: Option B

161. _____ is an ore of lead.

- (A) Quartz
- (B) Galena
- (C) Siderite
- (D) Chalcopyrite

Answer: Option B

162. Carbon tetrachloride (CCl_4) is the starting raw material for the manufacture of

- (A) Trichloroethylene
- (B) Perchloroethylene
- (C) Parathion
- (D) Methanol

Answer: Option B

163. Presence of H₂S in raw water (to be chlorinated) results in the

- (A) Reduced softening capacity of zeolite
- (B) Increased dosage of chlorine to provide a disinfecting residual in the water
- (C) Easy removal of its hardness
- (D) None of these

Answer: Option B

164. Which allotrope of sulphur is insoluble in carbon disulphide?

- (A) Rhombic sulphur
- (B) Monoclinic sulphur
- (C) Plastic sulphur
- (D) Milk of sulphur

Answer: Option C

165. Platinum catalyst used in the earlier days of sulphuric acid manufacture by contact process suffers from the drawback like

- (A) High cost
- (B) Fragile nature
- (C) Easy poisoning tendency
- (D) All (A), (B) and (C)

Answer: Option D

166. Refractory bricks burnt at very high temperature have got

- (A) Greater resistance to corrosion by slags
- (B) Less resistance to corrosion by slags
- (C) High spalling tendency
- (D) None of these

Answer: Option A

167. Separation of fresh water from sea water can be done by the _____ operation.

- (A) Osmosis
- (B) Reverse osmosis
- (C) Absorption
- (D) Adsorption

Answer: Option B

168. Main constituent of limestone is

- (A) CaCO₃
- (B) MgCO₃
- (C) Na₂CO₃
- (D) CaSO₄

Answer: Option A

169. The main use of activated carbon in water treatment is to control

- (A) Bacterial growth
- (B) Taste and odour
- (C) Turbidity
- (D) None of these

Answer: Option B

170. Sulphuric acid saturated with SO₃ is called

- (A) Concentrated H₂SO₄
- (B) Sulphurous acid
- (C) Oleum
- (D) None of these

Answer: Option C

171. Pick out the wrong statement.

- (A) Dry process is used for the manufacture of cement, when the raw material is blast furnace slag
- (B) Portland cement is made employing wet process
- (C) Gypsum is added to Portland cement to lengthen its setting time
- (D) None of these

Answer: Option D

172. Hydrogenation of oil does not

- (A) Remove double bonds
- (B) Raise its melting point
- (C) Improve its resistance to oxidation
- (D) None of these

Answer: Option D

173. Fatty material used in soap making is

- (A) Fatty acid
- (B) Fatty alcohols
- (C) Tallow
- (D) Detergents

Answer: Option C

174. Stereospecific agents are exemplified by

- (A) Radiation
- (B) Supported metal oxide catalysts
- (C) Ziegler catalysts
- (D) All (A), (B) & (C)

Answer: Option D

175. The enzyme which converts starch into the disaccharides maltose is

- (A) Diastase
- (B) Maltase
- (C) Yeast
- (D) None of these

Answer: Option A

176. Percentage of alcohol in beer may be around _____ percent.

- (A) 2-8
- (B) 18-23
- (C) 27-32
- (D) 1-4

Answer: Option A

177. _____ of rubber decreases after its vulcanisation.

- (A) Resistance to the action of organic solvent
- (B) Tackiness
- (C) Maximum service temperature
- (D) Tensile strength

Answer: Option B

178. Salt is added in the kettle during soap manufacture to separate

- (A) Soap from lye
- (B) Glycerine from lye
- (C) The metallic soap
- (D) The unsaponified fat from soap

Answer: Option A

179. Reaction of an alcohol with organic acid is called the _____ reaction.

- (A) Saponification
- (B) Esterification
- (C) Neutralisation
- (D) Acidification

Answer: Option B

180. The main product of high temperature carbonisation of coal is

- (A) Coke
- (B) Ammonia
- (C) Tar
- (D) Phenol

Answer: Option A

181. The major use of butadiene is

- (A) As a plasticiser for unsaturated polyester
- (B) In the manufacture of synthetic rubber
- (C) As an anti-skinning agent in paint
- (D) None of these

Answer: Option B

182. Nylon-66 is so named because the

- (A) Average degree of polymerisation of the polymer is 1966
- (B) Number of carbon atoms between two nitrogen atoms are 6
- (C) Number of nitrogen atoms between two carbon atoms are 6
- (D) Polymer was first synthesised in 1966

Answer: Option A

183. Which glass is usually used in optical work?

- (A) Lead glass
- (B) High silica (borosilicate) glass
- (C) Photo-sensitive glass
- (D) Fibre glass

Answer: Option C

184. Bitterns is a/an

- (A) Unsaturated fat
- (B) Starting material for the production of iodine
- (C) By-product of chlor-alkali industry
- (D) None of these

Answer: Option D

185. Starting material for the commercial production of ethyl alcohol in India is

- (A) Rice
- (B) Molasses
- (C) Fruit of Mahua tree
- (D) Maize

Answer: Option B

186. Permanent hardness of water can be removed by

- (A) Simply boiling
- (B) Adding alum
- (C) Passing it through cation & anion exchangers
- (D) All (A), (B) and (C)

Answer: Option C

187. _____ acid is an unsaturated fatty acid.

- (A) Palmitic
- (B) Oleic
- (C) Stearic
- (D) Oxalic

Answer: Option B

188. The yield of tar from high temperature carbonisation of dry coal is about _____ percent.

- (A) 3
- (B) 12
- (C) 22
- (D) 0.3

Answer: Option A

189. Which of the following paper does not require a filler during manufacture?

- (A) Bond paper
- (B) Writing paper
- (C) Blotting paper
- (D) Coloured paper

Answer: Option C

190. Main product in calcium carbide-water reaction is

- (A) $\text{Ca}(\text{OH})_2$

- (B) C_2H_2
- (C) CO_2
- (D) $CaCO_3$

Answer: Option B

191. Fourdrinier machine is used in the manufacture of

- (A) Sugar
- (B) Paper
- (C) Alcohol from molasses
- (D) Phenol formaldehyde

Answer: Option B

192. The main aim behind cooling the digested chip at the bottom portion of the digester by injecting cold black liquor is to

- (A) Avoid mechanical weakening of fibre
- (B) Remove lignin by way of crystallisation
- (C) Increase the cellulose content
- (D) None of these

Answer: Option A

193. A mineral is termed as 'ore', if

- (A) A metal can be economically extracted from it
- (B) It contains $\geq 40\%$ metal
- (C) The metal present in it is costly
- (D) All (A), (B) and (C)

Answer: Option A

194. Thermoplastic materials

- (A) Do not soften on application of heat
- (B) Are heavily branched molecules
- (C) Are solvent insoluble
- (D) None of these

Answer: Option D

195. Na_2CO_3 is called

- (A) Washing soda
- (B) Soda ash
- (C) Plaster of Paris
- (D) Calcite

Answer: Option B

196. Flexible foam (for mattresses) is usually made of

- (A) PVC
- (B) Silicone
- (C) Polyurethanes
- (D) Polyamides

Answer: Option C

197. Hydrogenation of oil takes place in a/an _____ reactor.

- (A) Autothermal
- (B) Trickle bed
- (C) Plug flow
- (D) None of these

Answer: Option B

198. Which of the following is an additional step in the manufacture of paper from bagasse as compared to that from bamboo?

- (A) Depithing
- (B) Digestion
- (C) Bleaching
- (D) None of these

Answer: Option A

199. Salt is the basic raw material for the manufacture of

- (A) Cement

- (B) Glass
 - (C) Potteries
 - (D) Caustic soda
- Answer: Option D

200. The most widely used coagulant for removing suspended impurities from water is

- (A) Bleaching powder
- (B) Chlorine
- (C) Calcium sulphate
- (D) Alum

Answer: Option D

201. Glycerine is recovered from lye by

- (A) Evaporation followed by vacuum distillation
- (B) Liquid extraction technique
- (C) Extractive distillation technique
- (D) None of these

Answer: Option A

202. Iron ore hematite is concentrated using

- (A) Electromagnetic separation mainly
- (B) Gravity separation
- (C) Froth floatation
- (D) Roasting

Answer: Option B

203. Which of the following is not an antibiotic?

- (A) Penicillin
- (B) Streptomycin
- (C) Tetracycline
- (D) Quinine

Answer: Option D

204. Which of the following is an unsaturated fatty acid?

- (A) Lauric acid
- (B) Palmitic acid
- (C) Stearic acid
- (D) Oleic acid

Answer: Option D

205. Enzymes are organic catalysts used in the _____ reactions.

- (A) Chemical
- (B) Biochemical
- (C) Photochemical
- (D) Electrochemical

Answer: Option B

206. Percentage of glycerine present in the spent lye obtained during soap manufacture is about

- (A) 0.5
- (B) 5
- (C) 20
- (D) 35

Answer: Option B

207. Rosin soap is added during paper manufacture to

- (A) Impart adhesive properties
- (B) Improve opacity
- (C) Impart resistance to penetration by liquids
- (D) None of these

Answer: Option C

208. High purity nitrogen is used in

- (A) Making protective gas (95% N₂ + 5% H₂) for annealing of cold rolled steel strip coils
- (B) Fire fighting purposes
- (C) Both (A) & (B)

(D) Neither (A) nor (B)

Answer: Option C

209. Solvay process is used for the manufacture of

- (A) Caustic soda
- (B) Soda ash
- (C) Caustic potash
- (D) Soda lime

Answer: Option B

210. The main use of HCl is in the

- (A) Drilling of petroleum wells and pickling of steel sheets
- (B) Manufacture of cationic detergent
- (C) Treatment of spent fuel of nuclear reactor
- (D) None of these

Answer: Option A

211. The purpose of tanning in leather industry is to

- (A) Stiffen the leather
- (B) Smoothen the leather
- (C) Make it flexible
- (D) Impart water resistance

Answer: Option A

212. Sand and _____ is fused at 1300°C, to produce sodium silicate.

- (A) Limestone
- (B) Soda ash
- (C) Coke
- (D) Sodium sulphate

Answer: Option B

213. Glycerine is a by-product of the _____ industry.

- (A) Soap
- (B) Detergent
- (C) Oil hydrogenation
- (D) Paint

Answer: Option A

214. The chamber process is

- (A) Preferred over contact process for producing 98 to 100% H_2SO_4 and various oleums
- (B) Non-catalytic and operates only on pyrites
- (C) A batch process for directly producing high strength (98 to 100%) H_2SO_4
- (D) None of these

Answer: Option D

215. Refractory bricks having high thermal conductivity is desirable, when it is to be used in the

- (A) L.D. converter
- (B) Blast furnace
- (C) Rotary kiln
- (D) Recuperator

Answer: Option D

216. Hydrophilic group of a soap or detergent solution is

- (A) Water hating
- (B) Soil loving
- (C) Water loving
- (D) None of these

Answer: Option C

217. Bleaching powder (chemically known as calcium chloro hypochlorite) is commercially produced by the action of chlorine on

- (A) Slaked lime
- (B) Soda lime
- (C) Calcium perchlorate
- (D) None of these

Answer: Option A

218. Haemoglobin is a/an

- (A) Amino acid
- (B) Biological catalyst
- (C) Protein
- (D) Enzyme

Answer: Option C

219. The amount of benzene present in pure Benzol is about _____ percent.

- (A) 30
- (B) 50
- (C) 70
- (D) 90

Answer: Option C

220. Oxygen is separated by distillation from air after its liquefaction. The boiling point of oxygen is about _____ °C.

- (A) -83
- (B) -183
- (C) -196
- (D) -218

Answer: Option B

221. Pick out the wrong statement.

- (A) Cold rubber (SBR) is superior as compared to hot rubber (SBR)
- (B) Polymerisation temperature can modify the properties of SBR
- (C) Production of cold SBR employs lower pressure as compared to that of hot SBR
- (D) None of these

Answer: Option D

222. Esterification reaction produces

- (A) Detergent
- (B) Vanaspati
- (C) Soap
- (D) Mercaptans

Answer: Option C

223. Enamels

- (A) Give good glossy finish
- (B) Are same as varnish
- (C) Are prepared from non-drying oil
- (D) Do not contain pigment

Answer: Option A

224. Chlorine gas is produced by the electrolysis of brine (NaCl solution with solid NaCl make up) in mercury electrolytic cell. Which of the following is the anodic reaction?

- (A) Oxidation of Na^+ ions
- (B) Oxidation of Cl^- ions
- (C) Reduction of Na^+ ions
- (D) Reduction of Cl^- ions

Answer: Option B

225. Permanent hardness of water can be removed by

- (A) Addition of soda ash to it
- (B) Treating it with zeolites
- (C) Passing it through sodium hexametaphosphate
- (D) All (A), (B), and (C)

Answer: Option D

226. Sulphur addition in soap is done to

- (A) Improve the soap texture
- (B) Cure pimples & dandruff
- (C) Fasten lather formation
- (D) Increase its cleansing action

Answer: Option B

227. Polymerisation product of C_2F_4 (carbon tetrafluoride) is called P.T.F.E (poly chloro tetra fluoro ethylene). It is also called

- (A) Polyurethane
- (B) Silicone
- (C) Teflon
- (D) Epoxy resin

Answer: Option C

228. Glass is

- (A) Mainly CaO
- (B) Subjected to galvanising
- (C) A super cooled liquid
- (D) All (A), (B) and (C)

Answer: Option C

229. $CaCl(OCl)$ is the chemical formula of

- (A) Hypo
- (B) Bleaching powder
- (C) Plaster of Paris
- (D) Aqua regia

Answer: Option B

230. In sulphate pulp manufacture, the pressure and temperature in the digester is

- (A) 10 atm., 800 °C
- (B) 10 atm., 170-180°C
- (C) 1 atm., 170 - 180°C
- (D) 1 atm., 800°C

Answer: Option B

231. Pick out the wrong statement.

- (A) Chamber process of sulphuric acid manufacture produces pure acid of concentration $< 80\%$
- (B) Contact process of sulphuric acid manufacture produces pure acid of concentration $\geq 98\%$
- (C) 75% oleum can be produced by distillation of 20% oleum
- (D) Contact process of sulphuric acid manufacture uses nickel as the catalyst

Answer: Option D

232. The basic constituent of vegetable oils is

- (A) Triglyceride
- (B) Fatty acids
- (C) Fatty alcohol
- (D) Mono esters

Answer: Option A

233. Bio-degradable detergents

- (A) Can be readily oxidised
- (B) Pose problem in sewerage plant
- (C) Have an isoparaffinic structure
- (D) Should not be used as it spoils the cloth

Answer: Option A

234. Fusion of bauxite and _____ produces high alumina cement.

- (A) Alum
- (B) Limestone
- (C) Coke
- (D) Quartz

Answer: Option B

235. Laboratory glass wares which reacts with hydrofluoric acid, are made of the _____ glass.

- (A) Lead
- (B) Borosilicate
- (C) Soda lime
- (D) Alkali silicate

Answer: Option B

236. _____ are used as corrosion inhibitor for iron & steel in aqueous solutions.

- (A) Phosphates
- (B) Chromates
- (C) Sulphates
- (D) Bi-carbonates

Answer: Option B

237. Polymethyl methacrylate (PMMA) is known as

- (A) Bakelite
- (B) Teflon
- (C) Perspex
- (D) Nylon-6

Answer: Option C

238. Which is the main reducing agent during production of iron from iron ore in a blast furnace?

- (A) C
- (B) CO
- (C) CO₂
- (D) H₂

Answer: Option B

239. Function of thinner in a paint is to

- (A) Accelerate the oxidation of oil
- (B) Prevent gelling of the paint
- (C) Suspend pigments & dissolve film forming materials
- (D) Form a protective film

Answer: Option C

240. Which of the following is not responsible for causing permanent hardness of water?

- (A) Ca(HCO₃)₂
- (B) CaCl₂
- (C) MgCl₂
- (D) None of these

Answer: Option A

241. Metallic soap is _____ salt of fatty acids.

- (A) Sodium
- (B) Potassium
- (C) Both sodium & potassium
- (D) Aluminium or calcium

Answer: Option D

242. Neon gas is

- (A) Flammable in nature
- (B) Used in color discharge tube
- (C) Filled in lamps having tungsten filament
- (D) All (A), (B) and (C)

Answer: Option B

243. DDT stands for

- (A) Diethyl-diphenyl-trichloromethane
- (B) Dichloro-diphenyl-trichloromethane
- (C) diphenyl-dichloro-trichloromethane
- (D) Dichloro-diphenyl-trichloroethane

Answer: Option D

244. Which of the following contains least amount of N₂?

- (A) Coke oven gas
- (B) Blast furnace gas
- (C) Producer gas
- (D) Water gas (blue gas)

Answer: Option A

245. Fish contains about _____ percent oil.

- (A) 5
- (B) 10
- (C) 20
- (D) 35

Answer: Option C

246. Oxidation of SO₂ to SO₃ is favoured by

- (A) Low temperature and low pressure
- (B) Low temperature and high pressure
- (C) High temperature and low pressure
- (D) High temperature and high pressure

Answer: Option B

247. Solvent extracted oil

- (A) Has low free fatty acid content
- (B) Is odourless
- (C) Has more of unsaturates
- (D) None of these

Answer: Option D

248. Exothermic condensation reaction of monochlorobenzene with chloral in presence of 20% oleum as catalyst produces DDT. The reaction temperature is maintained at _____ °C.

- (A) 15-30
- (B) 90-100
- (C) 250-300
- (D) < 0

Answer: Option A

249. _____ is obtained as a by-product in the manufacture of sodium hydroxide using brine.

- (A) Chlorine
- (B) Ammonium chloride
- (C) Sodium carbonate
- (D) Sodium bi-carbonate

Answer: Option A

250. Paper pulp produced by Kraft/sulphate process is

- (A) Bleached easily
- (B) Dull white in color
- (C) Strong fibrous
- (D) Dark colored

Answer: Option C

251. Phenol is mainly used

- (A) To produce benzene
- (B) To produce phenol formaldehyde
- (C) To produce polyester resin
- (D) As a plasticiser for unsaturated polyester

Answer: Option B

252. White phosphorous is stored under water, because

- (A) It does not react with water
- (B) It is poisonous
- (C) Its kindling temperature in dry air is very low
- (D) It is unstable

Answer: Option C

253. Phthalic anhydride is used

- (A) In making PVC
- (B) As plasticisers
- (C) In insecticides manufacture
- (D) For making nylon-6

Answer: Option B

254. Styrene is produced from ethyl benzene by the process of

- (A) Dehydrogenation
- (B) Oxidation
- (C) Alkylation
- (D) Dehydration

Answer: Option A

255. _____ glass has the lowest co-efficient of thermal expansion and hence is more heat resistant.

- (A) Pyrex
- (B) Soda lime
- (C) Lead
- (D) High silica

Answer: Option A

256. Pure rectified spirit contains about _____ percent alcohol.

- (A) 45
- (B) 70
- (C) 95
- (D) 99.5

Answer: Option C

257. Which is the most suitable dye for synthetic fibres?

- (A) Acid dye
- (B) Azoic dye
- (C) Pigment dye
- (D) Mordant dye

Answer: Option A

258. The catalyst used in the manufacture of DDT (from chloral and chlorobenzene) is

- (A) Dilute H_2SO_4
- (B) Oleum
- (C) Ultraviolet light
- (D) None of these

Answer: Option B

259. Nickel is not used as a catalyst in the

- (A) Fischer-Tropsch process
- (B) Shift conversion
- (C) Hydrogenation of oil
- (D) Ostwald's process of HNO_3 manufacture

Answer: Option D

260. Solvay process as compared to dual process (i.e. modified Solvay process).

- (A) Can use low grade brine
- (B) Has less corrosion problems
- (C) Involves higher investment in NH_3 recovery units than that for crystallisation units for NH_4Cl
- (D) Both (B) and (C)

Answer: Option D

261. Hard water

- (A) Does not affect the lather formation by soap
- (B) Is not unfit for drinking purpose
- (C) Pollutes the water stream
- (D) All (A), (B) and (C)

Answer: Option B

262. Insulin is an _____ drug.

- (A) Anti-malarial
- (B) Anti-TB
- (C) Antibiotic
- (D) None of these

Answer: Option D

263. Pick out the wrong statement pertaining to the soap manufacture.

- (A) Transparent soaps are made by cold process
- (B) Organic pigments are used as colouring materials in the soap manufacture
- (C) Both laundry as well as toilet soaps are manufactured by hot process
- (D) Colourless rosin is used in the manufacture of laundry soaps

Answer: Option A

264. Molasses is the starting material for the production of

- (A) Alcohol
- (B) Essential oil
- (C) Fatty acids
- (D) Masseccuite

Answer: Option A

265. Zeolite removes both temporary as well as permanent hardness of water by precipitating calcium and magnesium present in water as insoluble zeolites. Used zeolite is regenerated by flushing with the solution of

- (A) Calcium sulphate
- (B) Sodium chloride
- (C) Sodium sulphate
- (D) Magnesium chloride

Answer: Option B

266. Prussian blue is chemically represented by

- (A) $\text{FeO} \cdot \text{TiO}_2$
- (B) $\text{Ca SO}_4 \cdot 2\text{H}_2\text{O}$
- (C) $\text{Fe}_4 [\text{Fe} (\text{CN}_6)_3]$
- (D) $\text{AlF}_3 \cdot 3\text{N}_3\text{F}$

Answer: Option C

267. Purity of oxygen used for blowing in steel making L.D. converter is 99.5%. The boiling point of oxygen is about _____ °C.

- (A) -53
- (B) -103
- (C) -183
- (D) -196

Answer: Option C

268. Pick out the wrong statement.

- (A) Azoic dyes are mostly applied on cotton fabrics
- (B) Basic dyes (e.g. amino derivatives) are applied mostly to paper
- (C) Mordant dyes are applied mainly to wools
- (D) None of these

Answer: Option D

269. Frasch process is for

- (A) Making oxygen
- (B) Producing helium
- (C) Mining sulphur
- (D) Making nitrogen

Answer: Option C

270. Metallic soap (e.g. aluminium or calcium salts of fatty acids) can be used

- (A) As a lubricant
- (B) As a rust preventive
- (C) In hard water for cleaning of cloth
- (D) As a foam depressant in distillation column

Answer: Option A

271. Mercury electrolytic cells are preferred over diaphragm electrolytic cell (for production of caustic soda), as it

- (A) Has larger production capacity per unit cell
- (B) Consumes less power per ton of Cl_2 produced
- (C) Produces high purity (70%) caustic soda directly
- (D) All (A), (B) and (C)

Answer: Option D

272. Air used in aerobic fermentation must be sterilized, otherwise the

- (A) Recovery of product will be difficult
- (B) Contamination of pure culture would result
- (C) Uniformity of product cannot be achieved
- (D) None of these

Answer: Option B

273. The drug used in contraceptives is

- (A) Sulfadiazine
- (B) Mestranol
- (C) Methyl salicylate
- (D) Penicillin

Answer: Option B

274. Lime and soda ash are added to water to remove

- (A) Bicarbonates & sulphates of calcium and magnesium
- (B) Undesirable taste and odour
- (C) Bacteria
- (D) Its corrosiveness

Answer: Option A

275. Neoprene is a

- (A) Monomer
- (B) Synthetic rubber
- (C) Polyester
- (D) None of these

Answer: Option B

276. Process conditions in fermentator used for production of penicillin is

- (A) 25°C, 2 atm
- (B) 50°C, 10 atm
- (C) 30°C, 200 mm Hg (absolute)
- (D) 90°C, 45 atm

Answer: Option A

277. Gun powder, which is an explosive comprises of charcoal, sulphur and

- (A) Glycerine
- (B) Salt petre
- (C) Nitro glycerine
- (D) Dynamite

Answer: Option B

278. Bromides contained in hot mother liquor is treated with _____ during manufacture of bromine from sea water.

- (A) SO₃
- (B) Cl₂
- (C) NH₃
- (D) SO₂

Answer: Option B

279. High temperature carbonisation of coal takes place at _____ °C.

- (A) 2000
- (B) 700
- (C) 1100
- (D) < 500

Answer: Option C

280. High magnesia lime is added to hot sugar cane juice (during the manufacture of sugar) to

- (A) Flocculate the impurities
- (B) Facilitate fast filtration
- (C) Both (A) and (B)
- (D) Neither (A) nor (B)

Answer: Option C

281. Viscose rayon is chemically

- (A) Cellulose nitrate
- (B) Regenerated cellulose nitrate
- (C) Cellulose acetate
- (D) Regenerated cellulose acetate

Answer: Option D

282. Mannheim furnace is used in the manufacture of

- (A) Hydrochloric acid
- (B) H_2SO_4 by Chamber process
- (C) Calcium carbide
- (D) Corundum

Answer: Option A

283. Mercury cells for caustic soda manufacture, compared to diaphragm cells

- (A) Require lower initial investment
- (B) Require more power
- (C) Produce lower concentration NaOH
- (D) None of these

Answer: Option D

284. For the hydrogenation of oils, _____ (i) _____ is commonly used as catalyst and _____ (ii) _____ is a catalyst poison.

- (A) (i) platinum (ii) sulphur
- (B) (i) palladium (ii) oxygen
- (C) (i) nickel (ii) sulphur
- (D) (i) nickel (ii) oxygen

Answer: Option C

285. Sucrose content in the raw juice extracted from sugar cane is about _____ percent.

- (A) 1 - 2
- (B) 15 - 20
- (C) 50 - 60
- (D) 80 - 85

Answer: Option B

286. Varnish does not contain

- (A) Pigment
- (B) Thinner
- (C) Dryer
- (D) Anti-skimming agent

Answer: Option A

287. Builders are added in soap to act as

- (A) Cleaning power booster
- (B) Anti-redeposition agent
- (C) Corrosion inhibitor
- (D) Fabric brightener

Answer: Option A

288. Which of the following coals has the highest calorific value?

- (A) Lignite
- (B) Sub-bituminous
- (C) Anthracite
- (D) Peat

Answer: Option C

289. Which of the following is the most adverse factor challenging the choice of mercury electrolytic cell process for the production of caustic soda?

- (A) High cost of mercury
- (B) High specific gravity of mercury
- (C) Non-availability of high purity mercury
- (D) Pollution of water stream by mercury

Answer: Option D

290. Molecular weights of polymers are in the range of

- (A) $10^2 - 10^2$
- (B) $10^5 - 10^9$
- (C) $10^2 - 10^7$
- (D) $10^9 - 10^{11}$

Answer: Option C

291. Ceramics are produced from silicates or clayish materials: Which of the following is not a ceramic material?

- (A) Slag cement
- (B) Glasses
- (C) Porcelain/Potteries
- (D) Teflon

Answer: Option D

292. Finely ground calcium aluminate & silicate is a/an

- (A) Cermet
- (B) Cement
- (C) Abrasive
- (D) Explosive

Answer: Option B

293. Phosphate rock is a raw material for the manufacture of

- (A) Phosphoric acid
- (B) Phosphorous
- (C) Superphosphates
- (D) All (A), (B) and (C)

Answer: Option D

294. Transportation of 35% oleum during winter suffers from the problem of freezing, which can be overcome by the addition of small quantity of

- (A) Nitric acid
- (B) Hydrochloric acid
- (C) Methyl alcohol
- (D) Formic acid

Answer: Option A

295. Which of the following is the second major component of cement?

- (A) Al_2O_3
- (B) SiO_2
- (C) CaO
- (D) Fe_2O_3

Answer: Option B

296. The main component of Pyrex glass is

- (A) Zinc
- (B) Lead
- (C) Boron
- (D) Selenium

Answer: Option B

297. Pick out the endothermic reaction out of the following.

- (A) $C + \frac{1}{2}O_2 = CO$
- (B) $CO + 3H_2 = CH_4 + H_2O$
- (C) $CaCO_3 = CaO + CO_2$
- (D) $CO + \frac{1}{2}O_2 = CO_2$

Answer: Option C

298. Phosphoric acid is prepared from

- (A) Cryolite
- (B) Chalcopyrite
- (C) Rock phosphate
- (D) None of these

Answer: Option C

299. The terminology 'BTX' used in coal tar distillation industry refers to

- (A) Benzol-toluol-xylol
- (B) Benzol-toluene-xylene
- (C) Benzene-toluol-xylol
- (D) Benzene-toluene-xylene

Answer: Option D

300. Graphite is a/an

- (A) Electrical insulator
- (B) Allotrope of carbon
- (C) Moderator used in nuclear reactor
- (D) Both (B) and (C)

Answer: Option D

301. Pitch (a product of coal tar distillation) is always mixed with creosote oil, when it is to be burnt in a burner, because

- (A) Its calorific value is very less
- (B) Tar neutralises the residual acids present in pitch
- (C) It reduces viscosity and imparts fluidity for its transportation through pipelines at economic pressure drop
- (D) All (A), (B) and (C)

Answer: Option C

302. Kaolin is a/an

- (A) Refractory material
- (B) Synthetic resin
- (C) Artificial abrasive
- (D) Blue pigment

Answer: Option A

303. Calcination of limestone is not done in a _____ kiln for producing lime.

- (A) Vertical shaft
- (B) Rotary
- (C) Fluidised bed
- (D) Fixed bed

Answer: Option D

304. In the manufacture of viscose rayon, the raw material used industrially is

- (A) Eucalyptus wood
- (B) Bamboo
- (C) Bagasse
- (D) Fine teak wood

Answer: Option D

305. Starting raw material for the manufacture of alum is

- (A) Alumina
- (B) Gypsum
- (C) Bauxite
- (D) Ammonium bicarbonate

Answer: Option C

306. Plasticisers are added to paints to

- (A) Make it corrosion resistant
- (B) Make glossy surface
- (C) Give elasticity & prevent cracking of the film
- (D) Increase atmospheric oxidation

Answer: Option C

307. Function of sodium thiosulphate (hypo) in development of photographic film/plate is to

- (A) Brighten the faint images
- (B) Remove metallic silver
- (C) Convert silver chloride to silver
- (D) Remove unexposed silver halide

Answer: Option D

308. BHC (Benzene hexachloride) is made by the chlorination of benzene

- (A) Which is an addition reaction
- (B) Which is a substitution reaction
- (C) In absolute dark
- (D) In presence of sunlight

Answer: Option A

309. The combustion reaction, $C + O_2 = CO_2$, is

- (A) Exothermic
- (B) Endothermic
- (C) Autocatalytic
- (D) None of these

Answer: Option A

310. _____ iron is the purest form of iron.

- (A) Cast
- (B) Wrought
- (C) Pig
- (D) High silicon

Answer: Option B

311. Mercury electrolytic cell produces 50-70% NaOH solution. Its operating temperature is _____ °C.

- (A) 25
- (B) 60-70
- (C) 150-200
- (D) 250-300

Answer: Option B

312. Nitro-glycerine absorbed in wood flour, sodium nitrate or ammonium nitrate is commercially used as controlled explosive called dynamite. The raw material used for its manufacture are glycerine, nitric acid and

- (A) Sulphuric acid
- (B) Phosphoric acid
- (C) Hydrochloric acid
- (D) Hydrofluoric acid

Answer: Option A

313. Styrene-butadiene-rubber (SBR) as compared to natural rubber has

- (A) Poorer tensile strength
- (B) Poorer resistance to oxidation
- (C) Greater amount of heat build-up under heavy loading
- (D) All (A), (B) and (C)

Answer: Option D

314. Neoprene is chemically known as

- (A) Polybutadiene
- (B) Styrene butadiene rubber (SBR)
- (C) Polyurethane
- (D) Polychlorophrene

Answer: Option D

315. Impurities present in brine is normally removed by treatment with

- (A) NH_3 and CO_2
- (B) Lime and soda ash
- (C) Lime, ammonia and carbon
- (D) All (A), (B) and (C)

Answer: Option D

316. Platinum is a versatile catalyst for many processes in chemical industries. It is highly prone to be poisoned by the presence of

- (A) Carbon
- (B) Arsenic
- (C) Lead

(D) Sulphur
Answer: Option B

317. Producer gas consists mainly of

- (A) CO, CO₂, N₂, H₂
 - (B) CO, H₂
 - (C) H₂, CH₄
 - (D) C₂H₂, CO₂, H₂
- Answer: Option A

318. Pick out the true statement pertaining to water treatment.

- (A) Slow sand filters can remove colour completely
 - (B) Activated carbon can be used for taste & odour control without subsequent filtration
 - (C) Application of activated carbon reduces the temporary hardness of water
 - (D) Normally, the turbidity is removed by adding a coagulant prior to sedimentation
- Answer: Option D

319. Commonly used glass is known as the _____ glass.

- (A) Flint
 - (B) Hard
 - (C) Pyrex
 - (D) Soda
- Answer: Option D

320. Consider the production of ammonia from methane and air as raw materials. The catalysts used are: (i) _____ for steam reforming of methane and (ii) _____ for ammonia synthesis.

- (A) (i) - Ni/Al₂O₃; (ii) - Cu - ZnO/Al₂O₃
 - (B) (i) - Fe/Al₂O₃; (ii) - Cu - ZnO/Al₂O₃
 - (C) (i) - Ni/Al₂O₃; (ii) - Fe/Al₂O₃
 - (D) (i) - Fe/Al₂O₃; (ii) - Ni/Al₂O₃
- Answer: Option C

321. Which of the following is not a raw material used for the manufacture of ordinary glass?

- (A) Iron oxide
 - (B) Soda ash
 - (C) Limestone
 - (D) Silica
- Answer: Option A

322. Which of the following processes does not produce Cl₂ as a co-product during the manufacture of caustic soda?

- (A) Diaphragm electrolytic cell process
 - (B) Mercury electrolytic cell process
 - (C) Lime-soda process
 - (D) None of these
- Answer: Option C

323. L.D. converter is used in the production of

- (A) Pig iron
 - (B) Steel
 - (C) Copper
 - (D) Zinc
- Answer: Option B

324. Fermentator temperature during production of alcohol from molasses is around _____ °C.

- (A) 5
 - (B) 30
 - (C) 130
 - (D) 300
- Answer: Option B

325. Raw materials used for producing _____ cement does not contain iron oxide.

- (A) Waterproof

- (B) Slag
 - (C) White
 - (D) Pozzolan
- Answer: Option C

326. Conversion of CO to CO₂ by steam in presence of a catalyst is called

- (A) Steam reforming
- (B) Shift conversion
- (C) Steam gasification
- (D) None of these

Answer: Option B

327. Saponification value/number of an oil or fat is a measure of its

- (A) Fatty acid content
- (B) Degree of unsaturation of the fatty acids present in it
- (C) Average molecular weight
- (D) Insoluble fatty acid content

Answer: Option C

328. Cooking liquor in case of sulphite process is

- (A) Sodium sulphite and sodium bisulphite
- (B) Magnesium sulphite and free SO₂ in acid medium
- (C) Magnesium sulphate and magnesium bicarbonate
- (D) None of these

Answer: Option A

329. Salt cake is chemically represented by

- (A) Na₂SO₄
- (B) CaSO₄ · ½H₂O
- (C) MgSO₄
- (D) BaSO₄

Answer: Option A

330. Which of the following is not a pyrite ore?

- (A) Celestite
- (B) Galena
- (C) Gypsum
- (D) Siderite

Answer: Option D

331. Rotary kiln is not involved in the production of

- (A) Cement
- (B) Lime from limestone
- (C) Slaked lime from quick lime
- (D) None of these

Answer: Option C

332. _____ is an ore concentrating metallurgical process involving a chemical change.

- (A) Electromagnetic separation
- (B) Froth floatation
- (C) Roasting
- (D) None of these

Answer: Option C

333. Fusel oil is a/an

- (A) Essential oil
- (B) Extract from medicinal herbs
- (C) Mixture of higher molecular weight alcohols (a by-product obtained during production of alcohol from molasses).
- (D) None of these

Answer: Option C

334. Solvent used for extraction of oil is

- (A) Hexane
- (B) Methyl ethyl ketone

- (C) Furfural
 - (D) None of these
- Answer: Option A

335. Titanium dioxide is a/an _____ colour pigment.

- (A) White
- (B) Black
- (C) Yellow
- (D) Blue

Answer: Option A

336. Bordeaux mixture is a/an

- (A) Fertiliser
- (B) Inorganic fungicide
- (C) Insecticide
- (D) Explosive

Answer: Option B

337. Concentration of NaOH solution produced by mercury electrolytic cell is about _____ percent.

- (A) 10
- (B) 25
- (C) 50
- (D) 98

Answer: Option C

338. The most stable allotropic form of phosphorous is the _____ phosphorous.

- (A) White
- (B) Black
- (C) Yellow
- (D) Red

Answer: Option B

339. Type of glass used in optical work is the _____ glass.

- (A) Soda-lime
- (B) Fibre
- (C) Lead
- (D) Borosilicate

Answer: Option C

340. Commercial production of calcium carbide requires limestone and _____ as raw materials.

- (A) Coke
- (B) Sand
- (C) Soda ash
- (D) Fuel oil

Answer: Option B

341. Esterification reaction

- (A) Produces soap
- (B) Is reversible
- (C) Is a reaction between an alcohol and an organic acid
- (D) All (A), (B) and (C)

Answer: Option D

342. Bleaching action of bleaching powder is due to its _____ properties.

- (A) Reducing
- (B) Oxidising
- (C) Disinfecting
- (D) None of these

Answer: Option B

343. The most economical pulp for the production of newsprint would be the _____ pulp.

- (A) Ground-wood
- (B) Sulphate

- (C) Sulphite
 - (D) Semi-chemical
- Answer: Option A

344. Alkylbenzene sulfonate (ABS) is a

- (A) Detergent
- (B) Rubber
- (C) Pesticide
- (D) Polyester

Answer: Option A

345. Very fine suspended and colloidal impurities are removed from water by a process called

- (A) Sedimentation
- (B) Coagulation
- (C) Disinfection
- (D) Softening

Answer: Option B

346. Portland cement consists mainly of

- (A) CaO & SiO₂
- (B) SiO₂ & Al₂O₃
- (C) CaO & Al₂O₃
- (D) CaO & Fe₂O₃

Answer: Option A

347. Ethyl alcohol cannot be produced

- (A) From waste sulphite substrate of paper mills
- (B) By Esterification and hydrolysis of ethylene
- (C) From molasses
- (D) None of these

Answer: Option D

348. Fluorescent dyes are added in detergents to

- (A) Act as fabric brightener (by converting ultraviolet light to visible light) thereby improving the whiteness appearance of white fabrics
- (B) Attain distinctiveness from other brands
- (C) Act as tarnish inhibitor for metals like German silver
- (D) None of these

Answer: Option A

349. Which of the following sugars is the sweetest?

- (A) Glucose
- (B) Fructose
- (C) Sucrose
- (D) Lactose

Answer: Option B

350. Varnish does not contain

- (A) Thinner
- (B) Pigment
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option B

351. Temporary hardness of water can be removed by

- (A) Addition of alum (a coagulant)
- (B) Boiling
- (C) Filtration (through gravity sand filter)
- (D) Addition of lime

Answer: Option B

352. Main constituents of natural rubber is

- (A) Polystyrene
- (B) Polyisoprene
- (C) Polybutadiene

(D) Polychlorophrene
Answer: Option B

353. Epoxy resin

- (A) Is a good adhesive
 - (B) Is an elastomer
 - (C) Cannot be used for surface coatings
 - (D) Is a polyester
- Answer: Option A

354. Deacon's method is used for the manufacture of

- (A) Glauber's salt
 - (B) Common salt
 - (C) Chlorine
 - (D) Graphite electrode
- Answer: Option C

355. Hydrogenation of oil/fat does not

- (A) Improve its resistance to rancid oxidation
 - (B) Raise its melting point
 - (C) Remove double bonds
 - (D) None of these
- Answer: Option D

356. Pick out the wrong statement.

- (A) Hard glass which is used for making laboratory glass wares is a mixture of sodium borosilicate and aluminium borosilicate
 - (B) Glass is decolorized during its manufacture by adding antimony oxide, manganese dioxide or arsenic oxide
 - (C) Ordinary glass is represented chemically by $\text{Na}_2\text{O} \cdot \text{CaO} \cdot 6\text{SiO}_2$
 - (D) Red color is imparted to glass by addition of arsenic oxide
- Answer: Option D

357. Mineral oils (e.g. petroleum oils) are preferred over fatty oils (e.g. mustard oil, ghee, tallow, palm oil, olive oil etc.) as a lubricant due to its

- (A) Poor oxidation stability and high gum forming tendency
 - (B) Greater tendency of decomposition at elevated temperature
 - (C) Hydrolysis tendency in presence of water
 - (D) All (A), (B) and (C)
- Answer: Option D

358. Which of the following is not required in the manufacture of soda ash by Solvay process?

- (A) Ammonia
 - (B) Limestone
 - (C) Nitric acid
 - (D) None of these
- Answer: Option C

359. Fusion of limestone and _____ produces high alumina cement.

- (A) Sand
 - (B) Bauxite
 - (C) Quicklime
 - (D) Calcite
- Answer: Option B

360. Basic oxide is absent in _____ glass.

- (A) Flint
 - (B) Pyrex
 - (C) Quartz
 - (D) All (A), (B) & (C)
- Answer: Option C

361. In the Lurgi coal gasifier

- (A) Coking coals cannot be used
- (B) Low carbon conversion efficiency is achieved

- (C) Entrainment of solids is higher
 - (D) Large quantity of coal can be processed
- Answer: Option D

362. Thermosetting materials

- (A) Are cross-linked molecules
- (B) Soften on application of heat
- (C) Are solvent soluble
- (D) None of these

Answer: Option A

363. Cement mainly contains

- (A) CaO, SiO₂, Al₂O₃
- (B) MgO, SiO₂, K₂O
- (C) Al₂O₃, MgO, Fe₂O₃
- (D) CaO, MgO, K₂O

Answer: Option A

364. Silicone is a/an

- (A) Thermoplastic
- (B) Inorganic polymer
- (C) Monomer
- (D) None of these

Answer: Option B

365. Claude process of gas liquefaction employs

- (A) Merely compression of gas beyond its critical pressure
- (B) Joule-Thomson expansion cooling
- (C) Heat exchange with colder stream
- (D) Adiabatic expansion against a piston or in a turbine

Answer: Option D

366. Liquor poisoning generally occurs due to the presence of _____ in it.

- (A) Ethyl alcohol
- (B) Impurities
- (C) Methyl alcohol
- (D) Carbonic acid

Answer: Option C

367. Cellulose percentage in bamboo fibre is about

- (A) 10
- (B) 20
- (C) 50
- (D) 85

Answer: Option C

368. The process involved in converting rubber into a thin sheet or coating it on fabric is called

- (A) Extrusion
- (B) Mastication
- (C) Calendaring
- (D) Vulcanisation

Answer: Option C

369. Neoprene is the trade name of

- (A) Polyurethane
- (B) Phenol formaldehyde
- (C) Polychlorophrene
- (D) Styrene-butadiene rubber

Answer: Option C

370. Sulphur removal by heating of pyrite ore in presence of air is called its

- (A) Reduction
- (B) Roasting
- (C) Calcination
- (D) Smelting

Answer: Option B

371. Analgesic drugs are

- (A) Pain relievers
- (B) Antibiotics
- (C) Used in the treatment of T.B.
- (D) Used in the treatment of typhoid

Answer: Option A

372. Alcohol content in freshly prepared natural and fortified wine may be respectively around _____ percent.

- (A) 7-14 and 14-30
- (B) 7-14 and 40-50
- (C) 14 - 30 and 40-50
- (D) 10 - 20 and 40 - 50

Answer: Option A

373. _____ process is used for the manufacture of sodium carbonate by ammonia soda process.

- (A) Ostwald's
- (B) Bosch
- (C) Solvay
- (D) Haber's

Answer: Option C

374. Saponification number of an oil or fat

- (A) Gives an idea about its molecular weight
- (B) Is inversely proportional to its molecular weight
- (C) Detects its adulteration
- (D) All (A), (B) & (C)

Answer: Option D

375. Pick out the wrong statement. Iodine value of an oil or fat is

- (A) The number of grams of iodine taken up by 100 gm of oil or fat
- (B) A measure of its unsaturation
- (C) Helpful in findings its adulteration & its suitability for making soap
- (D) Independent of the type of oil, whether it is drying or non-drying

Answer: Option D

376. Coke used for the production of calcium carbide should have

- (A) Low ash content
- (B) Low ignition temperature
- (C) High electrical resistivity
- (D) All (A), (B) and (C)

Answer: Option D

377. Pick out the wrong statement.

- (A) Kraft method of pulp manufacture can process all types of fibrous raw materials
- (B) Digestion time for bagasse is less than that for wood base materials
- (C) Both temperature and pressure in the digester is less in case of the sulphite method as compared to that in the sulphate method
- (D) None of these

Answer: Option D

378. The gasification reaction represented by, $C + H_2O = CO + H_2$, is a/an _____ reaction.

- (A) Exothermic
- (B) Endothermic
- (C) Catalytic
- (D) Autocatalytic

Answer: Option B

379. Hydrogenation of edible vegetable oils

- (A) Is an exothermic reaction
- (B) Increases their melting point
- (C) Is done in presence of nickel catalyst

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

Answer: Option D

380. H₂S is scrubbed from refinery gases by absorption using

(A) Dilute H₂SO₄

(B) Ethanol amine

(C) Chilled water

(D) Tri-butyl phosphate

Answer: Option B

381. Which of the following is an endothermic reaction?

(A) Absorption of SO₃ in 98% H₂SO₄

(B) C + H₂O = CO + H₂

(C) Thermal dissociation of iron pyrites

(D) Both (B) and (C)

Answer: Option D

382. Pasteurisation of milk means

(A) Removal of fatty and albuminous substance from it

(B) Killing of organisms present in it by heating it at controlled temperature without changing its natural characteristics

(C) Inhibiting the growth of micro-organisms without killing them

(D) None of these

Answer: Option B

383. Alcohol is produced by the

(A) Oxidation of an aldehyde

(B) Hydrolysis of an ether

(C) Esterification of a fat

(D) None of these

Answer: Option B

384. Sucrose is a disaccharide consisting of

(A) Glucose and glucose

(B) Glucose and fructose

(C) Glucose and galactose

(D) Fructose and galactose

Answer: Option B

385. Alum [Al₂(SO₄)₃] is used as a coagulant in water treatment to remove

(A) Colour

(B) Turbidity

(C) Bacteria

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

Answer: Option D

386. All enzymes are made of

(A) Fats

(B) Carbohydrates

(C) Proteins

(D) Amino acids

Answer: Option C

387. Main constituent of dolomite is

(A) CaCO₃

(B) MgCO₃

(C) K₂CO₃

(D) Na₂CO₃

Answer: Option B

388. Essential oils are usually obtained using

(A) Steam distillation

(B) Extractive distillation

(C) Solvent extraction

(D) Leaching

Answer: Option D

389. Nickel is not used as a catalyst in the _____ reaction.

- (A) Shift conversion
- (B) Oil hydrogenation
- (C) Steaming reforming of naphtha
- (D) Ammonia cracking/dissociation

Answer: Option A

390. Which of the following is an organometallic compound?

- (A) Isopropyl alcohol
- (B) Tetra-ethyl lead
- (C) Zeolite
- (D) Cumene

Answer: Option B

391. Pick out the wrong statement.

- (A) Catalytic hydrogenation of carbon monoxide produces methyl alcohol
- (B) In nylon-6, the number 6 represents the total number of carbon atoms in the ring
- (C) Raw materials for DDT manufacture are benzene and chlorine
- (D) Ethanolamines are produced by using ammonia and ethylene oxide as raw material

Answer: Option C

392. _____ is not a constituent of gun powder.

- (A) Carbon
- (B) Charcoal
- (C) Sulphur
- (D) Potassium nitrate

Answer: Option A

393. Which one of the following is not likely to be a constituent of vegetable oils?

- (A) Citric acid
- (B) Oleic acid
- (C) Stearic acid
- (D) Glycerol

Answer: Option A

394. Gelatine which is a nitrogenous organic protein is obtained by the hydrolysis of

- (A) Collagen
- (B) Tannin
- (C) Molasses
- (D) Carbohydrate

Answer: Option A

395. Resistance to fusion of the refractory under a steady rising temperature condition is called

- (A) Spalling
- (B) Refractoriness
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option B

396. Zeolite is a/an

- (A) Naturally occurring clay which is capable of exchanging cations
- (B) Abrasive material
- (C) Catalyst used in shift conversion
- (D) None of these

Answer: Option A

397. Setting of plaster of Paris is accompanied with

- (A) Hydration
- (B) Dehydration
- (C) Hydrolysis
- (D) Loss of CO₂

Answer: Option A

398. Polycaprolactam is commercially known as

- (A) Nylon-6
- (B) Nylon-66
- (C) Dacron
- (D) Rayon

Answer: Option A

399. Cumene (isopropyl benzene) is made by

- (A) Oxidation of naphthalene
- (B) Propylene alkylation of benzene
- (C) Polymerisation of a mixture of benzene & propylene
- (D) None of these

Answer: Option B

400. Vanillin is a type of

- (A) Anti-pyretic drug
- (B) Food preservative
- (C) Flavour
- (D) Dye

Answer: Option C

401. Roasting of metallurgical ores is done mainly to

- (A) Dehydrate it
- (B) Sinter the ore
- (C) Remove CO_2 & H_2O
- (D) Remove arsenic & sulphur

Answer: Option D

402. Co-efficient of thermal expansion of glass is decreased by the addition of _____ during its manufacture.

- (A) CaO
- (B) MnO_2
- (C) ZnO
- (D) FeS

Answer: Option C

403. Black liquor is converted into white liquor by

- (A) Evaporation and burning the concentrate followed by causticisation of products
- (B) Multi-effect evaporation only
- (C) Selective liquid extraction
- (D) Extractive distillation

Answer: Option A

404. Masseccuite is a terminology used in the _____ industry.

- (A) Paint
- (B) Oil hydrogenation
- (C) Soap
- (D) Sugar

Answer: Option D

405. Which of the following is not an abrasive material?

- (A) Bakelite
- (B) Pumice
- (C) Corundum
- (D) Carborundum

Answer: Option A

406. Wood charcoal is used for decolouration of sugar, because it _____ the coloured materials.

- (A) Adsorbs
- (B) Oxidises
- (C) Reduces
- (D) Converts

Answer: Option A

407. More than 100 percent of _____ is present in oleum.

- (A) SO_3
- (B) H_2SO_4
- (C) H_2SO_3
- (D) SO_2

Answer: Option B

408. Thermal pyrolysis of ethylene dichloride produces

- (A) Trichloroethylene
- (B) Vinyl chloride
- (C) Ethanol amine
- (D) Ethylene oxide

Answer: Option B

409. Oxidation of ortho-xylene in presence of _____ catalyst is done to produce phthalic anhydride on commercial scale.

- (A) Nickel
- (B) Vanadium
- (C) Alumina
- (D) Iron

Answer: Option B

410. Argon is the third largest constituent of air (followed by N_2 & O_2). Its percentage by volume in air is

- (A) 0.14
- (B) 0.34
- (C) 0.94
- (D) 1.4

Answer: Option C

411. $\text{Ca}(\text{OH})_2$ is called

- (A) Quicklime
- (B) Slaked lime
- (C) Limestone
- (D) Gypsum

Answer: Option B

412. Diaphragm electrolytic cell as compared to mercury electrolytic cell

- (A) Produces 70% NaOH solution
- (B) Requires less specific power consumption for the production of chlorine
- (C) Requires lesser investment for similar capacity
- (D) All (A), (B) and (C)

Answer: Option C

413. Helium is produced on commercial scale from

- (A) Air
- (B) Natural gas
- (C) Coke oven gas
- (D) None of these

Answer: Option B

414. Concentration of sulphide ores is done usually by

- (A) Roasting
- (B) Smelting
- (C) Froth floatation
- (D) Electromagnetic separation

Answer: Option C

415. RDX (an explosive), which is more sensitive but less toxic than TNT, is chemically

- (A) Cyclo trimethylene trinitramine
- (B) Trinitro resorcinol
- (C) Cyclo tetramethylene tetranitramine
- (D) Trinitrobenzene

Answer: Option A

416. Bleaching of paper pulp is done with

- (A) Activated clay
- (B) Bromine
- (C) Chlorine or chlorine dioxide
- (D) Magnesium sulphite

Answer: Option C

417. Pick out the wrong statement.

- (A) Conversion of SO_2 to SO_3 in Monsanto-4 pass converter is about 98%
- (B) The chemical formula of oleum is $\text{H}_2\text{S}_2\text{O}_7$, which is formed by saturating sulphuric acid with sulphur trioxide
- (C) Vitriol oil is nothing but technical sulphuric acid
- (D) Decomposition of sulphuric acid on heating does not start before its boiling

Answer: Option D

418. Which of the following processes is absent in glass manufacturing process?

- (A) Sintering
- (B) Annealing
- (C) Shaping or forming
- (D) Melting

Answer: Option A

419. Catalytic oxidation of naphthalene produces

- (A) Styrene
- (B) Phenol
- (C) Phthalic anhydride
- (D) None of these

Answer: Option C

420. 90% of the caprolactam is converted to nylon-6 on its condensation polymerisation in the reactor maintained at _____ °C.

- (A) < 0
- (B) 10-30
- (C) 250-280
- (D) 500-600

Answer: Option B

421. Oils are partially hydrogenated (not fully) to manufacture Vanaspati, because fully saturated solidified oils

- (A) Cause cholesterol build up and blood clotting
- (B) Are prone to rancid oxidation
- (C) Always contain some amount of nickel (as their complete removal is very difficult)
- (D) Have affinity to retain harmful sulphur compounds

Answer: Option A

422. Pick out the wrong statement pertaining to the properties of glasses. Glasses generally have

- (A) High electrical insulation properties
- (B) Sharp melting points
- (C) Low co-efficient of thermal expansion
- (D) Compressive strength much greater than their tensile strengths

Answer: Option B

423. Which of the following is a bleaching agent added in the detergents to facilitate removal of stains caused due to blood, tea etc?

- (A) Sodium silicate
- (B) Sodium borate
- (C) Sodium tripolyphosphate (STPP)
- (D) Caustic soda

Answer: Option B

424. Fats as compared to oils have

- (A) More unsaturated glycerides of fatty acids
- (B) Less unsaturated glycerides of fatty acids
- (C) Much higher reactivity to oxygen
- (D) Lower melting point

Answer: Option B

425. Bromine is used in the preparation of

- (A) Fire extinguishing compounds
- (B) Fire proofing agents
- (C) Dyes and antiknock compounds
- (D) All (A), (B) and (C)

Answer: Option D

426. Vinyl chloride ($\text{CH}_2 = \text{CH.Cl}$) is produced by the thermal pyrolysis of ethylene dichloride at a pressure & temperature of

- (A) 4 kgf/cm² & 500°C
- (B) 10 kgf/cm² & 1000°C
- (C) 40 kg/cm² & 200°C
- (D) 100 kgf/cm² & 500°C

Answer: Option A

427. Addition of calcium oxide to water produces

- (A) Exothermic heat
- (B) Hissing sound
- (C) Slaked lime
- (D) All (A), (B) & (C)

Answer: Option D

428. Calcareous & argillaceous materials are used in the manufacture of

- (A) Lead
- (B) Cement
- (C) Carbon disulphide
- (D) None of these

Answer: Option B

429. _____ process is used for the commercial production of nitric acid by the catalytic oxidation of ammonia.

- (A) Solvay
- (B) Ostwald's
- (C) Haber's
- (D) None of these

Answer: Option B

430. Dichloro diphenyl _____ is the full form of DDT (an insecticide).

- (A) Tetrachloroethane
- (B) Trichloroethane
- (C) Tetrachloromethane
- (D) Trichloromethane

Answer: Option B

431. Dense soda ash used in the manufacture of glass, is chemically represented by

- (A) Na_2CO_3
- (B) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
- (C) $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
- (D) Na_2HCO_3

Answer: Option C

432. Isopropyl benzene produced by alkylation of benzene with propylene is known as

- (A) Neoprene
- (B) Cumene
- (C) Gelatin
- (D) Mercaptans

Answer: Option B

433. Which of the following is a detergent?

- (A) Benzene hexachloride
- (B) Alkyl benzene sulphonate
- (C) Polytetrafluoroethylene
- (D) Cellulose nitrate

Answer: Option B

434. Pick out the wrong statement.

- (A) Fibrillation of fibre during paper manufacture is done to develop the strength in paper
- (B) Alkali consumption in digestion/cooking of bamboo is measured in terms of permanganate number
- (C) Bagasse fibre contains both lignin & cellulose
- (D) Presence of sodium sulphate in pulp makes the pulp bleachability poor

Answer: Option D

435. Coagulant is used _____ filtration.

- (A) Before
- (B) After
- (C) During
- (D) To avoid

Answer: Option A

436. Detergent is produced by the sulphonation of dodecyl benzene, which is an _____ reaction.

- (A) Endothermic
- (B) Exothermic
- (C) Irreversible
- (D) Both (B) and (C)

Answer: Option D

437. Catalyst used in the manufacture of sulphuric acid by chamber & contact processes are respectively

- (A) V_2O_5 & Cr_2O_3 .
- (B) Oxides of nitrogen & Cr_2O_3
- (C) V_2O_5 on a porous carrier & oxides of nitrogen
- (D) Oxides of nitrogen & V_2O_5 on a porous carrier

Answer: Option D

438. In multistage equilibrium conversion of SO_2 to SO_3 ($2SO_2 + O_2 \rightleftharpoons 2SO_3$), the reverse reaction becomes appreciable at a temperature of $550^\circ C$. The percentage equilibrium conversion of SO_2 to SO_3 can be increased by

- (A) Increasing the oxygen concentration
- (B) Putting more quantity of V_2O_5 catalyst in the converter
- (C) Removing some quantity of SO_3 during intermediate stage
- (D) Maintaining low temperature & pressure in the converter

Answer: Option C

439. Pick out the wrong statement.

- (A) Pasteurisation of milk involves moderate heating followed by cooling
- (B) Bakeries and breweries make use of yeasts
- (C) Enzyme is a complex nitrogenous compound
- (D) Oils and fats are alkaloids

Answer: Option D

440. Fumigant insecticides

- (A) Kill insects, when they eat it
- (B) Emit poisonous vapour
- (C) Are absorbed throughout the plant
- (D) None of these

Answer: Option B

441. Calgon used in water treatment is chemically

- (A) Sodium phosphate
- (B) Sodium hexametaphosphate
- (C) Calcium phosphate
- (D) Tricresyl phosphate

Answer: Option B

442. Nitrogen is an essential component of

- (A) Mineral salts

- (B) Carbohydrates
 - (C) Fats
 - (D) Proteins
- Answer: Option D

443. Caprolactam (a raw material for nylon-6 manufacture) is produced from

- (A) Phenol
- (B) Naphthalene
- (C) Benzene
- (D) Pyridine

Answer: Option C

444. High temperature carbonisation of coal produces

- (A) Inferior coke compared to low temperature carbonisation
- (B) Less of gases compared to liquid products
- (C) Larger quantity of tar compared to low temperature carbonisation
- (D) None of these

Answer: Option D

445. The type of high refractive index glass used in optical instruments is _____ glass.

- (A) Pyrex
- (B) Flint
- (C) Crookes
- (D) None of these

Answer: Option B

446. Which of the following is used as a coagulant in water treatment?

- (A) Chloramine
- (B) Chlorine
- (C) Ferrous sulphate
- (D) Hydrogen peroxide

Answer: Option C

447. Which of the following is a co-product during the manufacture of caustic soda by electrolysis of brine?

- (A) Na_2CO_3
- (B) NaHCO_3
- (C) H_2
- (D) None of these

Answer: Option C

448. Vegetable oils contain large quantity of glycerides of unsaturated acids. When the vegetable oils contain high amount of saturated fatty acids, it is termed as _____ oil.

- (A) Drying
- (B) Semi-drying
- (C) Non-drying
- (D) None of these

Answer: Option C

449. Fermentation of molasses to produce ethyl alcohol is done at _____ °C.

- (A) 20 - 30
- (B) < - 5
- (C) 100 - 150
- (D) 250 - 300

Answer: Option A

450. Nylon-66 is manufactured from

- (A) Hexamethylene diamine and adipic acid
- (B) Hexamethylene diamine and Maleic anhydride
- (C) Caprolactam
- (D) Dimethyl terephthalate and ethylene glycol

Answer: Option A

451. Anion exchanger is regenerated usually with

- (A) NaOH

- (B) H_2SO_4
 - (C) Hydrazine
 - (D) Alum solution
- Answer: Option A

452. Sodium chloride content in sea water is about _____ gms/litre.

- (A) 2
- (B) 10
- (C) 25
- (D) 50

Answer: Option C

453. Which of the following has sodium bicarbonate as its main constituent?

- (A) Baking soda
- (B) Baking powder
- (C) Washing soda
- (D) None of these

Answer: Option B

454. Low purity oxygen is used for

- (A) L.D. steel making
- (B) Cutting and welding of metals
- (C) Medicinal purposes
- (D) Chemical oxidation processes

Answer: Option D

455. Lindane is

- (A) Not a fumigant
- (B) BHC (Benzene Hexachloride) containing 99% γ -isomer
- (C) A by-product of BHC manufacture
- (D) Both (B) and (C)

Answer: Option B

456. Highly porous refractory bricks are

- (A) Less susceptible to chemical attack by molten fluxes and gases etc
- (B) Very strong
- (C) Having very high thermal conductivity
- (D) None of these

Answer: Option D

457. Carboxymethyl cellulose (CMC) is added in detergents to act as a/an

- (A) Surfactant
- (B) Builder
- (C) Optical brightening agent
- (D) Anti soil redeposition agent

Answer: Option D

458. The temperature in the calcium carbide furnace is _____ °C.

- (A) 200-300
- (B) 700-850
- (C) 2000-2200
- (D) 4000-4500

Answer: Option C

459. Kopper-Totzek coal gasifier

- (A) Can give ammonia synthesis gas ($\text{H}_2 + \text{N}_2$)
- (B) Is a moving bed reactor
- (C) Cannot use coking coal
- (D) Operate at very high pressure

Answer: Option A

460. Polyvinyl chloride (PVC) is

- (A) A thermosetting material
- (B) A condensation polymerisation product
- (C) Made by employing emulsion polymerisation

(D) None of these
Answer: Option C

461. Most easily and cheaply available fibrous raw material for paper manufacture available in India is bamboo. The yield of pulp produced from fibrous raw material by mechanical process is about _____ percent.

- (A) 75
- (B) < 10
- (C) > 30
- (D) 50

Answer: Option B

462. The basic difference between vegetable oils and fats is in their

- (A) Density
- (B) Chemical properties
- (C) Physical state
- (D) Composition

Answer: Option C

463. 'Synthesis gas' meant for the synthesis of organic compound is a variable mixture of

- (A) N_2 & H_2
- (B) CO_2 & H_2
- (C) CO & H_2
- (D) C & H_2

Answer: Option C

464. Drinking (potable) water treatment does not involve

- (A) Coagulation
- (B) Sedimentation
- (C) Softening
- (D) Disinfection

Answer: Option C

465. Starting raw material for the manufacture of Maleic anhydride is

- (A) *n*-butene
- (B) Benzene
- (C) Either (A) or (B)
- (D) Neither (A) nor (B)

Answer: Option C

466. Removal of dirt/soil by soaps or detergent does not involve the _____ of soil.

- (A) Emulsification
- (B) Dispersion
- (C) Precipitation
- (D) Wetting

Answer: Option C

467. Thorium is mainly used

- (A) For the manufacture of gas mantles
- (B) As a fissile fuel in a nuclear reactor
- (C) In the manufacture of hydrogen bomb
- (D) In the treatment of cancer

Answer: Option A

468. Pick out the wrong statement pertaining to nitric acid.

- (A) About 90% of nitric acid is manufactured by Ostwald's process
- (B) It is a strong mono basic acid which reacts with almost all the metals except noble metals
- (C) Yellow color of impure nitric acid is because of dissolved oxides of nitrogen (mainly NO_2)
- (D) Arc process of nitric acid manufacture is economical as compared to Ostwald's process

Answer: Option D

469. Which oil is preferred for paint manufacture?

- (A) Drying oil
- (B) Non-drying oil
- (C) Semi-drying oil

(D) Saturated oil
Answer: Option A

470. Tall oil obtained as a by-product from the black liquor recovery is

- (A) A black, sticky & viscous liquid
- (B) Used in the manufacture of greases, emulsions & soaps
- (C) Composed mainly of rosin & fatty acids
- (D) All (A), (B) & (C)

Answer: Option D

471. Which of the following, when pyrolysed, produces Perchloroethylene?

- (A) Ethylene dichloride
- (B) Chlorobenzene
- (C) Carbon tetrachloride
- (D) Chlorinated paraffin

Answer: Option C

472. Magnesium and calcium _____ cause temporary hardness of water.

- (A) Carbonates
- (B) Bicarbonates
- (C) Phosphates
- (D) Sulphates

Answer: Option B

473. Pick out the exothermic reaction out of the following:

- (A) $C + H_2O = CO + H_2$
- (B) $CaC_2 + H_2O = Ca(OH)_2 + C_2H_2$
- (C) $MgCO_3 = MgO + CO_2$
- (D) All (A), (B) and (C)

Answer: Option B

474. Terylene is

- (A) Same as Dacron
- (B) A polyester
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

475. _____ paper is used in the manufacture of newsprint paper.

- (A) Ground-wood
- (B) Board
- (C) Tissue
- (D) Wrapping

Answer: Option A

476. Bakelite is chemically known as

- (A) Polyvinyl chloride (PVC)
- (B) Polybutadiene
- (C) Phenol formaldehyde
- (D) Polyurethane

Answer: Option C

477. Which of the following is the main constituent of the mother liquor produced in salt industry?

- (A) Quick lime
- (B) Glauber's salt
- (C) Salt petre
- (D) Bromine

Answer: Option D

478. Unsaturated oils compared to saturated oils have

- (A) Lower melting point & higher reactivity to oxygen
- (B) Higher melting point & higher reactivity to oxygen
- (C) Lower melting point & lower reactivity to oxygen
- (D) Higher melting point & lower reactivity to oxygen

Answer: Option A

479. Concentration of hydrogen peroxide is done by

- (A) Crystallisation
- (B) Vacuum crystallisation
- (C) Atmospheric distillation
- (D) Dehydration

Answer: Option B

480. Production of one ton of dry paper pulp requires about _____ tons of bamboo or wood.

- (A) 1
- (B) 2.5
- (C) 5
- (D) 10

Answer: Option B

481. Transparent soaps (e.g. Pears) are

- (A) Usually soft soap (made from coconut oil) in which cane sugar & alcohol are added and finally washed with methylated spirit to achieve transparency
- (B) Metallic soaps with frothing agent and free Stearic acid to achieve transparency
- (C) Metallic soaps with frothing agent from which glycerine has not been recovered
- (D) None of these

Answer: Option A

482. Wax is a

- (A) Mixture of glycerides
- (B) Mixture of esters of polyhydric alcohols excepting glycerine
- (C) Liquid at room temperature
- (D) Mixture of glycerides of fatty acids

Answer: Option B

483. The biochemical treatment applied to sewage effluents is a process of

- (A) Dehydration
- (B) Reduction
- (C) Oxidation
- (D) Polymerisation

Answer: Option C

484. Ordinary glass is not a/an

- (A) Amorphous isotropic material
- (B) Supercooled liquid
- (C) Material with sharp definite melting point
- (D) Electrical insulator

Answer: Option C

485. Hydrochloric acid is also known as

- (A) Oil of vitriol
- (B) Muriatic acid
- (C) Strong organic acid
- (D) Green acid

Answer: Option B

486. At very high concentration of enzymes, the rate of fermentation chemical reaction is _____ the concentration of reactants.

- (A) Independent of
- (B) Directly proportional to
- (C) Inversely proportional to
- (D) Proportional to the square of

Answer: Option A

487. Higher viscosity index of a lubricating oil denotes

- (A) Less changes in fluidity of oil with temperature
- (B) Substantially high change in fluidity of oil with temperature
- (C) Its unsuitability under varying temperature conditions

(D) None of these
Answer: Option A

488. Very dilute solutions are generally used in fermentation reactions for which the optimum temperature range is _____ °C.

- (A) -5 to 0
- (B) 5 to 10
- (C) 30 to 50
- (D) 75 to 80

Answer: Option C

489. Chloral is used in the manufacture of

- (A) DDT
- (B) BHC
- (C) Parathion
- (D) None of these

Answer: Option A

490. _____ is used as a flux in the extraction of iron from iron ore (haematite) in blast furnace.

- (A) Bauxite
- (B) Limestone
- (C) Quartz
- (D) Manganese

Answer: Option B

491. Reverse osmosis is normally used for the

- (A) Separation of isotopes of uranium from gaseous uranium hexafluoride
- (B) Separation of helium from natural gas
- (C) Desalination of brackish water to produce potable (drinking) water
- (D) Purification of oxygen

Answer: Option C

492. Dry ice (solidified CO₂) is used for the

- (A) Storage & shipment of frozen foods and ice-creams
- (B) Liquefaction of permanent gases
- (C) Liquefaction of natural gas
- (D) None of these

Answer: Option A

493. Superior quality laboratory apparatus is made of the _____ glass having low thermal co-efficient of expansion & high chemical resistance.

- (A) Flint
- (B) Soda
- (C) Pyrex
- (D) Potash

Answer: Option C

494. The catalyst used in shift converter is

- (A) Nickel
- (B) Vanadium
- (C) Silica gel
- (D) Alumina

Answer: Option A

495. CaO is called

- (A) Quick lime
- (B) Slaked lime
- (C) Limestone
- (D) Calcite

Answer: Option A

496. Use of chlorine in the treatment of sewage

- (A) Helps in grease separation
- (B) Increases the biological oxygen demand (BOD)

(C) Causes bulking of activated sludge

(D) Aids in flocculation

Answer: Option A

497. Exothermic neutralisation reaction between caustic soda and dodecylbenzene sulfonic acid produces sodium dodecylbenzene sulphate, which is a/an

(A) Explosive

(B) Soap

(C) Detergent

(D) Analgesic drug

Answer: Option C

498. Viscosity index improver (like polystyrene or polyisobutylene) is added to lubricant to

(A) Reduce its viscosity

(B) Increase its viscosity

(C) Reduce the variation in its viscosity with temperature

(D) Increase the variation in its viscosity with temperature

Answer: Option C

499. Styrene butadiene rubber (SBR) is

(A) A natural rubber

(B) A synthetic polymer

(C) A synthetic monomer

(D) Another name of silicone rubber

Answer: Option B

500. _____ is a polysaccharide.

(A) Maltose

(B) Starch

(C) Sucrose

(D) Glucose

Answer: Option B

501. Chemical name of aspirin (an analgesic drug) is

(A) Acetylsalicylic acid

(B) Nictonic acid

(C) Calcium acetate

(D) Methyl salicylate

Answer: Option A

502. A unit operation is exemplified by the process of

(A) Reduction

(B) Desorption

(C) Nitration

(D) Combustion

Answer: Option B

503. Catalytic oxidation-dehydrogenation of methyl alcohol produces

(A) Formaldehyde

(B) Phenol

(C) Acetone

(D) Maleic anhydride

Answer: Option A

504. The catalyst used in the manufacture of DDT is

(A) Alumina

(B) Silica

(C) 20% oleum

(D) Aluminium chloride

Answer: Option C

505. _____ is produced by the dehydrogenation of ethyl benzene.

(A) Styrene

(B) Ethyl alcohol

(C) Cumene

(D) Phenol
Answer: Option A

506. Raw material used in alcohol distilleries in India is

- (A) Molasses
 - (B) Benzol
 - (C) Methylated spirit
 - (D) None of these
- Answer: Option A

507. Good quality of edible salt is obtained from brine by the process of

- (A) Solar evaporation
 - (B) Vacuum evaporation
 - (C) Freeze drying
 - (D) Electrolysis
- Answer: Option B

508. The noble gas which occurs most abundantly in the atmosphere is

- (A) Helium
 - (B) Neon
 - (C) Krypton
 - (D) Argon
- Answer: Option D

509. In primitive days, _____ was being manufactured by Leblanc Process.

- (A) Alum
 - (B) Washing soda
 - (C) Soda ash
 - (D) Calcium carbide
- Answer: Option C

510. Viscose rayon

- (A) Cannot be made from sulphite pulp
 - (B) Utilises H_2SO_4 , NaOH and CS_2 during its manufacture
 - (C) Cannot yield textile grade fibre
 - (D) None of these
- Answer: Option B

511. Dehydrogenation of ethyl benzene produces

- (A) Styrene
 - (B) Naphthalene
 - (C) Phenol
 - (D) Benzoic acid
- Answer: Option A

512. Oil is a/an

- (A) Mixture of glycerides
 - (B) Mixture of glycerides of fatty acids
 - (C) Solid at normal temperature
 - (D) Ester of alcohols other than glycerine
- Answer: Option B

513. Main use of hydrazine is

- (A) As a rocket fuel
 - (B) In water treatment
 - (C) As a disinfectant
 - (D) As fire retardant
- Answer: Option A

514. Raw materials for 'Solvay Process' for manufacture of the soda ash are

- (A) Salt, limestone and coke or gas
 - (B) Ammonia, salt and limestone
 - (C) Ammonia limestone and coke
 - (D) None of these
- Answer: Option A

515. The function of gypsum addition during cement making is to

- (A) Increase the density of cement
- (B) Decrease the cement setting rate
- (C) Both (A) and (B)
- (D) Neither (A) nor (B)

Answer: Option B

516. Sodium bisulphite is used for _____ water.

- (A) Deaeration
- (B) Dechlorination
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option C

517. Catalyst used in the hydrogenation of oil is

- (A) Nickel
- (B) Platinum
- (C) Iron
- (D) Alumina

Answer: Option A

518. Which of the following is the purest form of water out of the following?

- (A) Underground water
- (B) Rain water
- (C) Well water
- (D) Lake water

Answer: Option B

519. The catalyst used in the production of elemental sulphur from H_2S (by oxidation-reduction) is

- (A) Alumina
- (B) Silica gel
- (C) Platinum
- (D) Nickel

Answer: Option A

520. Chemical name of soda ash is

- (A) Sodium bicarbonate
- (B) Sodium thiosulphate
- (C) Potassium carbonate
- (D) None of these

Answer: Option D

521. 10% oleum comprises of 10% free

- (A) SO_2
- (B) H_2SO_3
- (C) SO_3
- (D) H_2SO_4

Answer: Option C

522. _____ are added in lacquers to remove film brittleness and to improve adhesion.

- (A) Film forming materials
- (B) Plasticisers
- (C) Diluents
- (D) Solvents

Answer: Option B

523. A cane sugar factory having sugar production rate of 10 tons/day will produce about _____ tons/day of bagasse (after consumption by the factory for heating etc.).

- (A) 1
- (B) 10
- (C) 25
- (D) 40

Answer: Option B

524. DDT should not be allowed to come in contact with iron (during its manufacture) to

- (A) Avoid its decomposition
- (B) Prevent sulphonation of the monochlorobenzene by the acid catalyst
- (C) Achieve non-hygroscopic property
- (D) None of these

Answer: Option A

525. Alum is commercially produced from

- (A) Gypsum
- (B) Feldspar
- (C) Galena
- (D) Bauxite

Answer: Option D

526. Which is the most efficient absorbent for SO_3 out of the following?

- (A) 20% oleum
- (B) 65% oleum
- (C) 78% H_2SO_4
- (D) 98% H_2SO_4

Answer: Option D

527. In nylon-66, the first and second numbers (i.e., 6) respectively designate the number of carbon atoms present in the

- (A) Diamine and the ring
- (B) Dibasic acid and the ring
- (C) Diamine and the dibasic acid
- (D) None of these

Answer: Option C

528. Calcination of gypsum produces

- (A) Plaster of Paris
- (B) Salt cake
- (C) Nitre cake
- (D) Lime

Answer: Option A

529. Ethylene oxide is produced by oxidation of ethylene in presence of AgO catalyst at

- (A) 1 atm & 100°C
- (B) 5 atm & 275°C
- (C) 100 atm & 500°C
- (D) 50 atm & 1000°C

Answer: Option B

530. Styrene is produced from ethyl benzene by the process of

- (A) Dehydrogenation
- (B) Oxidation
- (C) Alkylation
- (D) Dehydration

Answer: Option A

531. The metallic aluminium is obtained from pure alumina in the presence of fused cryolite by

- (A) Electrolysis
- (B) Electrolytic reduction
- (C) Electrolytic oxidation
- (D) None of these

Answer: Option B

532. Conversion of SO_2 to SO_3 in Monsanto 4-pass converter is about _____ percent.

- (A) 80
- (B) 90
- (C) 98
- (D) 100

Answer: Option C

533. A 'unit process' is exemplified by the

- (A) Distillation
- (B) Hydrogenation of oils
- (C) Absorption
- (D) Humidification

Answer: Option B

534. Pick out the wrong statement.

- (A) Eosin requirement in tallow soap is about 40-50% which fastens the lather formation, softens the hard soaps and increases its cleansing action
- (B) Soap powder is prepared by mixing soap with hydrated sodium carbonate
- (C) Detergents differ from soaps in their action in hard water
- (D) Tarnish inhibitor (e.g., Benzotriazole) is added in soap to facilitate the removal of stains due to tea, blood etc

Answer: Option D

535. Sodium carbonate (soda ash) is not used in the manufacture of

- (A) Fire extinguishers
- (B) Sugar
- (C) Baking powder
- (D) Detergents

Answer: Option D

536. _____ is the major constituent of the Portland cement.

- (A) Calcium carbonate
- (B) Calcium oxide
- (C) Tricalcium silicate
- (D) Calcium sulphate

Answer: Option C

537. Chemical name of 'alum' is

- (A) Barium sulphate
- (B) Aluminium sulphate
- (C) Aluminium chloride
- (D) Calcium sulphate

Answer: Option B

538. Polythene is a/an _____ polymerisation product.

- (A) Addition
- (B) Condensation
- (C) Thermosetting
- (D) None of these

Answer: Option A

539. The only commercial Fischer-Tropsch plant for producing liquid hydrocarbon fuel from coal is located at

- (A) SASOL (in South Africa)
- (B) Redcar (U.K.)
- (C) Los Angeles (U.S.A.)
- (D) Trombay (India)

Answer: Option A

540. Aryl benzene sulphonate (ABS) is a

- (A) Detergent
- (B) Plasticiser for unsaturated polyester
- (C) Starting material for the synthesis of glycerine
- (D) Coating ingredient for photographic film

Answer: Option A

541. The ideal pulp for the manufacture of paper should have high _____ content.

- (A) Cellulose
- (B) Lignin
- (C) Both (A) & (B)
- (D) None of these

Answer: Option A

542. The major constituents of glass are

- (A) Lime, clay and soda ash
- (B) Sand, lime and soda ash
- (C) Silica, alumina and clay
- (D) Silica, alumina and soda ash

Answer: Option B

543. Production of alcohol by fermentation of molasses is a/an _____ process.

- (A) Anaerobic
- (B) Aerobic
- (C) Endothermic
- (D) Both (B) and (C)

Answer: Option B

544. Sulphuric acid solution having a specific gravity of 1.20 at room temperature is used mainly for the

- (A) Fertiliser manufacture
- (B) Car battery solution
- (C) Synthesis of oleum
- (D) Water treatment

Answer: Option B

545. Which of the following is not a food additive?

- (A) Citric acid
- (B) Invertase
- (C) Benzoyl peroxide
- (D) Ammonium chloride

Answer: Option D

546. Litharge is

- (A) Lead oxide
- (B) Zinc oxide
- (C) Zinc sulphide
- (D) Cellulosic photographic material

Answer: Option A

547. During the absorption of HCl gas in water (to produce liquid HCl), the gas is kept above dew point to

- (A) Increase the rate of absorption
- (B) Avoid corrosion
- (C) Reduce the cooling water circulation rate
- (D) None of these

Answer: Option B

548. Comparing sulphate process with sulphite process, we find that _____ in the later.

- (A) Both temperature & pressure in the former is less than that
- (B) Both temperature & pressure in the former is more than that
- (C) Temperature is more in the former whereas pressure is more
- (D) Pressure is more in the former whereas temperature is less

Answer: Option B

549. Pick out the correct statement.

- (A) A fat is converted into oil by its hydrogenation
- (B) There is no difference between a fat and an oil so far as its physical properties are concerned
- (C) All vegetable oils except coconut oil, contains fatty acids having more than sixteen carbon atoms
- (D) Vegetable oils are classified as drying, non-drying and semi drying oils depending upon their fatty acids content

Answer: Option C

550. Acetone is produced by catalytic dehydrogenation of

- (A) Phenol
- (B) Naphthalene
- (C) Isopropanol

(D) Ethyl benzene
Answer: Option C

551. Coal tar is used as a

- (A) Binding material for coal briquettes
- (B) Fuel in rotary kiln
- (C) Binder in making carbon electrodes
- (D) All (A), (B) and (C)

Answer: Option D

552. Which form of sulphur is the most stable at room temperature?

- (A) Plastic
- (B) Monoclinic
- (C) Rhombic
- (D) Flowers of sulphur

Answer: Option C

553. With increase in temperature, the equilibrium constant at constant pressure (K_p) for oxidation of sulphur dioxide

- (A) Increases
- (B) Increases linearly
- (C) Decreases
- (D) Decreases linearly

Answer: Option C

554. Glycerine is not used in the

- (A) Manufacture of explosive
- (B) Conditioning and humidification of tobacco
- (C) Manufacture of pharmaceuticals
- (D) None of these

Answer: Option D

555. Dacron is a/an

- (A) Polyester
- (B) Unsaturated polyester
- (C) Polyamide
- (D) Inorganic polymer

Answer: Option A

556. High acid value of an oil or fat is an indication of

- (A) Storage under improper conditions
- (B) Absence of unsaturation
- (C) Its smaller molecular weight
- (D) None of these

Answer: Option A

557. Trinitrotoluene (TNT), an explosive, is made by the nitration of

- (A) Nitrobenzene
- (B) Toluene
- (C) Nitrotoluene
- (D) Benzene

Answer: Option B

558. Brackish water which contains mostly dissolved salt, can be purified by the _____ process.

- (A) Reverse osmosis
- (B) Sand filter
- (C) Lime soda
- (D) Permutit

Answer: Option A

559. _____ is used as a catalyst in fat splitting.

- (A) ZnO
- (B) Ni
- (C) V_2O_5

(D) FeO

Answer: Option A

560. _____ is produced using molasses as the starting raw material.

(A) Methyl alcohol

(B) Ethyl alcohol

(C) Benzol

(D) Dimethyl ether

Answer: Option B

561. In the production of soda ash by Solvay process, the by-product is

(A) CaCl₂

(B) NH₄Cl

(C) NH₃

(D) NaOH

Answer: Option A

562. How much temperature is maintained during quicklime manufacture in the calcination zone of the vertical shaft kiln?

(A) 500°C

(B) 750°C

(C) 1000°C

(D) 1500°C

Answer: Option C

563. Sodium salt of higher molecular weight fatty acid is termed as the _____ soap.

(A) Hard

(B) Soft

(C) Metallic

(D) Lubricating

Answer: Option B

564. Vulcanisation of rubber

(A) Decreases its tensile strength

(B) Increases its ozone & oxygen reactivity

(C) Increases its oil & solvent resistance

(D) Converts its plasticity into elasticity

Answer: Option D

565. Which of the following additives/water proofing agents is added to lower the hydrophilic (moisture loving) characteristic of cement?

(A) Xanthates

(B) Stearic acid

(C) Calcium & aluminium stearate

(D) Formic acid

Answer: Option C

566. Hydrazine is largely used

(A) As a starting material for 'hypo'

(B) In photographic industry

(C) As rocket fuel

(D) In printing industry

Answer: Option C

567. The product obtained on mixing calcium oxide with water is called

(A) Quicklime

(B) Slaked lime

(C) Milk of lime

(D) None of these

Answer: Option B

568. Pick out the wrong statement pertaining to solvent extraction of oil. Rate of extraction

(A) Decreases with decrease of thickness of the flakes

(B) Increases with the increasing flake size keeping the flake thickness constant

(C) Increases considerably with the rise of temperature

(D) Decreases as the moisture content of flakes increases

Answer: Option D

569. Zeolite used in water softening process (cation exchange) is regenerated by washing with

- (A) Brine
- (B) Chloramines
- (C) Sodium bisulphite
- (D) Liquid chlorines

Answer: Option A

570. Bromine content in sea water may be around _____ ppm.

- (A) 70
- (B) 640
- (C) 1875
- (D) 2500

Answer: Option A

571. The purpose of adding Na_2CO_3 to water of low alkalinity is to

- (A) Permit the use of alum as a coagulant
- (B) Increase the softening capacity of zeolite
- (C) Facilitate easy regeneration of zeolite
- (D) All (A), (B) and (C)

Answer: Option A

572. Margarine is a/an

- (A) Fat
- (B) Explosive
- (C) Plasticiser
- (D) Rocket propellant

Answer: Option A

573. Main constituents of Portland cement are calcium aluminate and

- (A) Gypsum
- (B) Silicates
- (C) Sodium silicate
- (D) Carbonates

Answer: Option B

574. Cumene is the starting material for the production of

- (A) Benzoic acid
- (B) Phenol and acetone
- (C) Isoprene
- (D) Styrene

Answer: Option B

575. Glauber's salt is chemically represented by

- (A) $\text{Na}_2\text{SO}_4 \cdot 10\text{H}_2\text{O}$
- (B) $\text{CaCl}(\text{OCl})$
- (C) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$
- (D) $(\text{NH}_4)_2\text{SO}_4$

Answer: Option A

576. Liquefaction of gases cannot be done by

- (A) Exchange of heat with colder stream
- (B) Adiabatic expansion through a throttle valve (Joule-Thomson expansion)
- (C) Merely compressing it beyond critical pressure
- (D) Adiabatic expansion against a piston or in a turbine

Answer: Option C

577. Which of the following is used as a binding material in soap to improve soap texture?

- (A) Rosin
- (B) Borax
- (C) Benzyl acetate
- (D) Sodium carbonate

Answer: Option B

578. Alcohol percentage in molasses may be around

- (A) 10
- (B) 40
- (C) 70
- (D) 85

Answer: Option B

579. Heating of _____ to 120°C, produces plaster of paris.

- (A) Blue vitriol
- (B) Gypsum
- (C) Calcium silicate
- (D) Calcium sulphate

Answer: Option B

580. Adipic acid is an intermediate in the manufacture of

- (A) Perspex
- (B) Nylon-66
- (C) Polystyrene
- (D) Bakelite

Answer: Option B

581. During the manufacture of sulphuric acid, the temperature of molten sulphur is not increased beyond 160°C, as

- (A) It is very corrosive at elevated temperature
- (B) Its viscosity is not reduced on further heating (hence pressure drop on pumping it, cannot be further reduced)
- (C) It decomposes on further increasing the temperature
- (D) None of these

Answer: Option B

582. Average sulphur content in Indian pyrites is about _____ percent.

- (A) 15
- (B) 35
- (C) 55
- (D) 70

Answer: Option B

583. In industrial nomenclature, alcohol means

- (A) Butyl alcohol
- (B) Propyl alcohol
- (C) Ethanol
- (D) Methyl alcohol

Answer: Option C

584. The process used for the manufacture of ethyl alcohol from molasses is

- (A) Distillation
- (B) Dehydration
- (C) Dehydrogenation
- (D) None of these

Answer: Option D

585. Gun powder uses

- (A) Sulphur
- (B) Charcoal
- (C) Potassium nitrate
- (D) All (A), (B), & (C)

Answer: Option D

586. Presence of sodium tripolyphosphate (an additive) in synthetic detergent

- (A) Facilitates its use even in hard water (by sequestering the water-hardening Ca & Mg ions)
- (B) Inhibits its corrosive effects
- (C) Does not allow redeposition of dirt on the cleaned surface
- (D) None of these

Answer: Option A

587. Triple superphosphate is manufactured by reacting

- (A) Phosphate rock with phosphoric acid
- (B) Phosphate rock with sulphuric acid
- (C) Phosphate rock with nitric acid
- (D) Ammonium phosphate with phosphoric acid

Answer: Option A

588. Ultimate analysis of coal determines its _____ content.

- (A) Carbon, hydrogen, nitrogen & sulphur
- (B) Carbon, ash, sulphur & nitrogen
- (C) Carbon, sulphur, volatile matter & ash
- (D) Carbon, volatile matter, ash & moisture

Answer: Option C

589. Phenol formaldehyde resin is used as an adhesive in making

- (A) Laminates
- (B) Card boxes
- (C) Furniture
- (D) Books

Answer: Option A

590. Poly Tetrafluoroethylene (P.T.F.E.) is known as

- (A) Bakelite
- (B) Teflon
- (C) Celluloid
- (D) Dacron

Answer: Option B

591. Percentage of uranium in Carnotite ore found in Jadugoda (Jharkhand) is about

- (A) 0.1 to 0.5
- (B) 1 to 5
- (C) 5 to 10
- (D) 15 to 25

Answer: Option A

592. Systemic insecticides

- (A) Are absorbed throughout the plant
- (B) Kill insects following external bodily contact
- (C) Are stomach poisons
- (D) Emit poisonous vapour

Answer: Option A

593. Phthalic anhydride is produced by the oxidation of

- (A) Naphthalene
- (B) Benzene
- (C) Toluene
- (D) Aniline

Answer: Option B

594. Most commonly used rubber vulcanising agent is

- (A) Sulphur
- (B) Bromine
- (C) Platinum
- (D) Alumina

Answer: Option A

595. Chemical name of Grignard reagent is

- (A) Sodium thiosulphate
- (B) Ethyl magnesium chloride
- (C) Sodium sulphite
- (D) Sodium bicarbonate

Answer: Option B

596. Yeast is used in the manufacture of

- (A) Penicillin
 - (B) Antibiotics
 - (C) Wine
 - (D) Pasteurised milk
- Answer: Option C

597. Pick out the wrong statement.

- (A) DDT is manufactured by the condensation of chlorobenzene with chloral at 30°C in presence of oleum, which is a highly exothermic reaction
- (B) Chloral is obtained by the chlorination of ethyl alcohol
- (C) Insecticides acting on the insects through the respiratory system are called fumigants
- (D) Benzene hexachloride is not a contact insecticide

Answer: Option D

598. Carbon content of pitch (residue of coal tar distillation) is around _____ percent.

- (A) 70
- (B) 55
- (C) 80
- (D) 94

Answer: Option D

599. Lurgi coal gasifier is a pressurised _____ bed reactor.

- (A) Moving
- (B) Fixed
- (C) Fluidised
- (D) Entrained

Answer: Option A

600. Soaps remove dirt by

- (A) Increasing the surface tension
- (B) Decreasing wettability
- (C) Supplying hydrophilic group
- (D) None of these

Answer: Option D

601. Riboflavin is a/an

- (A) Vitamin
- (B) Analgesic drug
- (C) Anaesthetics
- (D) Anti-malarial drug

Answer: Option A

602. Coke oven gas consists mainly of

- (A) H₂, & CH₄
- (B) CO, & CO₂
- (C) H₂, & CO
- (D) CH₄, & CO

Answer: Option A

603. Sea weeds are an important source of

- (A) Fluorine
- (B) Chlorine
- (C) Bromine
- (D) Iodine

Answer: Option D

604. A good quality coal should have

- (A) Low fusion point of ash
- (B) High ash content
- (C) High sulphur content
- (D) None of these

Answer: Option D

605. Bakelite is

- (A) Same as Polytetrafluoroethylene (PTFE)

- (B) An inorganic polymer
 - (C) Same as thermosetting phenol-formaldehyde
 - (D) Not a polymer
- Answer: Option C

606. Potassium is kept & transported under

- (A) Water
- (B) Liquid ammonia
- (C) Kerosene oil
- (D) Alcohol

Answer: Option C

607. Oils and fats are converted to soap in a process called

- (A) Hydrogenation
- (B) Esterification
- (C) Saponification
- (D) None of these

Answer: Option C

608. Pick out the wrong statement.

- (A) High early strength cement are made from materials having high silica to lime ratio
- (B) The function of gypsum in cement is to enhance its initial setting rate
- (C) Acid resistant cements are known as silicate cement
- (D) Major component of greyish Portland cement is tricalcium silicate

Answer: Option A

609. Free alkali in a toilet soap is _____ that in a laundry shop.

- (A) Less than
- (B) More than
- (C) Same
- (D) None of these

Answer: Option A

610. A substance produced by a living organism and capable of anti-microbial activity is called a/an

- (A) Antibiotic
- (B) Antiseptic
- (C) Disinfectant
- (D) None of these

Answer: Option A

611. Solvay process is not used for the manufacture of potassium carbonate, because of the reason that potassium bicarbonate

- (A) Is prone to thermal decomposition
- (B) Has high water solubility and is unstable
- (C) Is soluble in ammonium chloride and potassium chloride solution
- (D) All (A), (B) and (C)

Answer: Option C

612. Washing soda is chemically represented by

- (A) Na_2CO_3
- (B) $\text{Na}_2\text{CO}_3 \cdot \text{H}_2\text{O}$
- (C) $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$
- (D) NaHCO_3

Answer: Option C

613. Which of the following is a disaccharide?

- (A) Sucrose
- (B) Glucose
- (C) Starch
- (D) Maltose

Answer: Option A

614. Absorption of SO_3 in 97% H_2SO_4 is

- (A) Exothermic

- (B) Endothermic
 - (C) Not possible
 - (D) None of these
- Answer: Option A

615. Out of the following processes of paper pulp manufacture, the maximum corrosion problem in digestion & handling equipments is encountered in the _____ process.

- (A) Mechanical
 - (B) Sulphate/Kraft
 - (C) Sulphite
 - (D) Neutral sulphite semi-chemical
- Answer: Option D

616. Phthalic anhydride is made by the

- (A) Oxidation of naphthalene
 - (B) Oxidation of benzene
 - (C) Dehydrogenation of ethyl benzene
 - (D) None of these
- Answer: Option A

617. Oxygen is produced by fractionation of air using _____ process.

- (A) Linde's
 - (B) Claude's
 - (C) Either (A) or (B)
 - (D) None of these
- Answer: Option C

618. Use of water having dissolved oxygen in boilers promotes

- (A) Corrosion
 - (B) Sequestration
 - (C) Scale formation
 - (D) None of these
- Answer: Option A

619. Dehydrogenation of Isopropanol produces

- (A) Propyl alcohol
 - (B) Acetone
 - (C) Trichloroethylene
 - (D) Formaldehyde
- Answer: Option B

620. Hydrogenation of vegetable oils is a/an _____ reaction.

- (A) Endothermic
 - (B) Autocatalytic
 - (C) Exothermic
 - (D) Homogenous
- Answer: Option C

621. Which of the following is a constituent of vinegar?

- (A) Around 10% alcohol
 - (B) Around 1% acetic acid
 - (C) Both (A) and (B)
 - (D) Neither (A) nor (B)
- Answer: Option C

622. Cement setting under water employs a/an _____ process.

- (A) Hydration
 - (B) Decomposition
 - (C) Oxidation
 - (D) Reduction
- Answer: Option A

623. 'Hollander beater' machine used in the paper manufacturing plant does not accomplish the task of

- (A) Final rolling out of paper

- (B) Cutting of fibres
 - (C) Hydration of fibres
 - (D) Fibrillation of fibre
- Answer: Option A

624. Paper grade bamboo contains about _____ percent cellulose.

- (A) 5
- (B) 20
- (C) 40
- (D) 60

Answer: Option A

625. Deaeration of water in its treatment is necessary, as it

- (A) Minimises its turbidity
- (B) Helps in controlling its taste and odour
- (C) Minimises its corrosiveness
- (D) None of these

Answer: Option C

626. Oil produced by solvent extraction

- (A) Has low free fatty acid content
- (B) Is odourless
- (C) Both (A) & (B)
- (D) Neither (A) nor (B)

Answer: Option D

627. The major constituent of black liquor generated during paper manufacture is sodium

- (A) Sulphate
- (B) Carbonate
- (C) Hydroxide
- (D) Bi-carbonate

Answer: Option B

628. Synthetic glycerine is produced from

- (A) Toluene
- (B) Phenol
- (C) Propylene
- (D) Naphthalene

Answer: Option C

629. Most widely and commonly used coagulant for the removal of suspended impurities in water is

- (A) Bleaching powder
- (B) Slaked lime
- (C) Alum
- (D) Copper sulphate

Answer: Option C

630. Permanent hardness of water is due to the presence of calcium & magnesium

- (A) Bi-carbonates
- (B) Sulphates & chlorides
- (C) Carbonate
- (D) None of these

Answer: Option B

631. Flash point of most vegetable oils is about _____ °C.

- (A) 50
- (B) 100
- (C) 200
- (D) 300

Answer: Option C

632. Glycerine can be obtained from

- (A) Fat
- (B) Naphthalene

- (C) Cumene
 - (D) Sucrose
- Answer: Option A

633. Common salt is generally not produced commonly by _____ method from brine.

- (A) Freeze drying
- (B) Electrolytic
- (C) Solar evaporation
- (D) Vacuum evaporation

Answer: Option A

634. Which of the following is not produced on commercial scale from sea water?

- (A) Bromine
- (B) Magnesium compounds
- (C) Potassium compounds
- (D) Sodium sulphate

Answer: Option D

635. Dacron (or Terylene) fibres as compared to nylon fibres have

- (A) Better heat & acid resistant properties
- (B) Poorer resistance to alkalis
- (C) Poorer dyeability
- (D) All (A), (B) and (C)

Answer: Option D

636. Parathion and Malathion are

- (A) Pesticides
- (B) Plasticisers for unsaturated polyesters
- (C) Pain-relieving drugs (analgesic)
- (D) Tranquilisers

Answer: Option A

637. Which of the following is a constituent of coffee?

- (A) Caffeine
- (B) Nicotine
- (C) Calgon
- (D) Lignin

Answer: Option A

638. Raw materials required for the manufacture of _____ is acetylene and hydrochloric acid.

- (A) Phthalic anhydride
- (B) Vinyl chloride
- (C) Maleic anhydride
- (D) Dacron

Answer: Option B

639. Sudden temperature fluctuation does not affect pyrex glass, because of its

- (A) Low co-efficient of expansion
- (B) High co-efficient of expansion
- (C) High melting point
- (D) Both (B) and (C)

Answer: Option A

640. Grignard reagent is chemically known as

- (A) Ethyl magnesium chloride
- (B) Methyl magnesium chloride
- (C) Dichlorophenol
- (D) Monochloroacetic acid

Answer: Option A

641. Reaction of ethylene glycol and dimethyl terephthalate (DMT) produces

- (A) Nylon-6
- (B) Dacron
- (C) Polyester

(D) PVC
Answer: Option B

642. Use of hydrated lime in water treatment

- (A) Before filtration, reduces the bacterial load on filters
 - (B) After filtration, combats the corrosiveness of water due to the presence of O₂ & CO₂
 - (C) Is to adjust the pH value
 - (D) All (A), (B) and (C)
- Answer: Option D

643. Sucrose content in cane sugar may be around _____ percent.

- (A) 50
 - (B) 70
 - (C) 95
 - (D) 80
- Answer: Option C

644. Plaster of Paris is

- (A) CaSO₄.½H₂O
 - (B) Used for setting of broken bones
 - (C) Both (A) and (B)
 - (D) Same as gypsum
- Answer: Option C

645. Commercial scale production of hydrogen from iron-steam reaction represented by, $3\text{Fe} + 3\text{H}_2\text{O} = \text{Fe}_3\text{O}_4 + 4\text{H}_2$, is not practised, as it is

- (A) A slow reaction
 - (B) A discontinuous reaction (requiring regeneration of iron by water gas intermittently)
 - (C) Still in development stage (by employing fluidised bed technique)
 - (D) All (A), (B) and (C)
- Answer: Option D

646. Blue vitriol is chemically

- (A) Copper sulphate
 - (B) Ferrous sulphate
 - (C) Copper nitrate
 - (D) Aluminium sulphate
- Answer: Option A

647. Which of the following is a detergent?

- (A) Fatty alcohol
 - (B) Alkyl benzene sulphonate (ABS)
 - (C) Fatty acids
 - (D) Methylene chloride
- Answer: Option B

648. Silicon carbide is a/an

- (A) Adhesive
 - (B) Abrasive
 - (C) Type of glass
 - (D) Brittle material
- Answer: Option B

649. Electro deposition of metals i.e. electroplating is never done on

- (A) Metals
 - (B) Alloys
 - (C) Refractories
 - (D) Non-metals
- Answer: Option C

650. Le-Blanc process is a primitive process for the manufacture of

- (A) Caustic soda
- (B) Soda ash
- (C) Bromine from sea water
- (D) Hydrochloric acid

Answer: Option B

651. Gypsum is chemically

- (A) Calcium chloride
- (B) Potassium sulphate
- (C) Sodium sulphate
- (D) Calcium sulphate

Answer: Option D

652. A bio-catalyst produced by living cells which acts independent of the cell is called a/an

- (A) Substrate
- (B) Enzyme
- (C) Nutrient
- (D) None of these

Answer: Option B

653. Sulphuric acid is mainly used in the _____ industry.

- (A) Fertiliser
- (B) Steel
- (C) Paper
- (D) Paint

Answer: Option A

654. Trinitro-toluene (TNT) is

- (A) Used in glycerine manufacture
- (B) An explosive
- (C) Used in dye manufacture
- (D) None of these

Answer: Option B

655. Hollander beater used during paper pulp manufacture does not facilitate the _____ of fibre.

- (A) Cutting
- (B) Fibrillation
- (C) Hydration
- (D) Strengthening

Answer: Option D

656. Which of the following is used as a coagulant in treating turbid water?

- (A) Chlorine
- (B) Ferric sulphate
- (C) Calcium sulphate
- (D) Activated carbon

Answer: Option B

657. Masseccuite is

- (A) Used for paper making
- (B) Used as a cattle feed
- (C) Highly acidic in nature
- (D) None of these

Answer: Option D

658. Electric bulbs are made of _____ glass.

- (A) Jena
- (B) Flint
- (C) Crookes
- (D) Pyrex

Answer: Option B

659. An alkali metal salt of Palmitic acid is known as

- (A) Soap
- (B) Metallic soap
- (C) Detergent
- (D) Alkaloid

Answer: Option B