1. "Cup lump" refers to

(A) Freshly tapped latex in cup

(B) Naturally coagulated latex in tapping cup

(C) Processed rubber sheet obtained from tapping cup

(D) Synthetic rubber obtained in a cup

(E) Answer not known

2. The term for the process of obtaining a standard, uniform quality of Natural rubber through technical specification is/are

(i) Standardized Rubber Production

(ii) Technically Specified Rubber

(iii) Graded Rubber Manufacturing

(A) (i) only

(B) (ii) only

(C) (i) and (iii) only

(D) (iii) only

(E) Answer not known

3. The primary characteristics of "Estate Brown Crepe" is

(A) It is white and translucent

(B) It is thin and pale brown

(C) It is ribbed and smoked

(D) It is dark brown and thick

(E) Answer not known

4. The purpose of passing the coagulum through a set of smooth rollers in Ribbed smoked sheet production is

(A) To increase the thickness

(B) To remove more serum and prepare for sheeting

(C) To add colour to the rubber

(D) To dry the rubber

(E) Answer not known

5. The kind of rubber that can be produced from field coagulum and latex is / are

(i) Technically specified rubber

(ii) Ribbed smoked sheets

(iii) Pale Latex crepe

(A) (i) only

(B) (ii) only

(C) (i) and (ii) only

(D) (ii) and (iii) only

(E) Answer not known

6. _____ is the starting material for sole crepe.

(A) Fresh Latex Coagulum

(B) Field Coagulum

(C) Spilled Latex

(D) Dried Pale Latex Crepe

(E) Answer not known

7. The process used to convert lumps and field coagulum into a uniform, clean rubber block for TSR production is

(A) Maceration
(B) Sheeting
(C) Vulcanisation
(D) Granulation
(E) Answer not known

8. The type of rubber made from field coagulum, such as tree scrap, shell scrap and cup lumps is

(A) Thin pale crepe
(B) Ribbed smoked sheets
(C) Technically specified Rubber
(D) Estate brown crepe
(E) Answer not known

9. It is economically essential to recover rubber from "Skim Latex" because

(i) Skim Latex has a higher protein content
(ii) 10% to 15% of the original rubber from field latex goes into the skim
(iii) Skim Latex is easy to coagulate spontaneously
(A) (i) only
(B) (ii) only
(C) (iii) only
(D) (i) and (iii) only
(E) Answer not known

10. The Skim Latex is

(A) The main product obtained from centrifuging field latex

(B) A by - product serum with a small proportion of rubber, obtained after centrifuging

(C) Concentrated Latex with high rubber content

(D) Field latex before any processing

(E) Answer not known

11. The typical Dry Rubber content of diluted latex used for Ribbed smoked sheet production is

(A) 10 – 12%

(B) 15 – 20%

(C) 5 – 8%

(D) 25 – 30%

(E) Answer not known

12. The concentration of acid typically used for coagulating field latex for crepe rubber is

(A) 1 – 2.5%

(B) 5 – 7.5%

(C) 10 – 12.5%

(D) 15 – 20%

(E) Answer not known

13. The purpose of adding sodium sulfite during the coagulation of field latex for crepe rubber is

(A) To accelerate coagulation

(B) To improve colour by preventing discolouration

(C) To increase the rubber content

(D) To make the latex more viscous

(E) Answer not known

14. The following is NOT a reason for the necessity of latex concentration

(A) Preference for high rubber content by industries

(B) Economy in transportation

(C) To increase water content

(D) High degree of purity

(E) Answer not known

15. The following concentration method(s) results in the partial removal of non rubber constituents and smaller rubber particles is / are

(i) Creaming

(ii) Centrifuging

(iii) Electro decantation

(iv) Evaporation

(A) (i), (ii) and (iii) only

(B) (iv) only

(C) (iii) only

(D) (ii) and (iv) only

(E) Answer not known

16. The outcome of methods that involve the partial removal of non-rubber constituents and smaller rubber particles is

(A) An increased particle size range
(B) A lower degree of purity
(C) A reduced particle size range and higher purity
(D) No change in rubber content
(E) Answer not known

17. The chemical(s) added to freshly collected latex to maintain its quality during storage is / are

(i) Sulphuric acid
(ii) Ammonia
(iii) Acetic acid
(iv) Sodium chloride

(A) (i) only
(B) (i) and (iii) only
(C) (iii) and (iv) only
(D) (ii) only
(E) Answer not known

18. The basis for the international grades of natural rubber is

(A) Geographical origin and price
(B) Process of manufacture, visual assessment and compliance with specification
(C) Rubber tree clone and yield
(D) Tapping method and frequency
(E) Answer not known

19. _____ is the largest component of latex.

(A) Rubber
(B) Protein
(C) Sugars
(D) Water
(E) Answer not known

20. _____ is the typical percentage range of rubber found in latex.

(A) 10 – 20%
(B) 1 – 2%
(C) 55 – 65%
(D) 30 – 40%
(E) Answer not known

21. Fluorocarbon rubbers are suitable for use in

(A) High temperature
(B) Low temperature
(C) Contact with low molecular weight ketones
(D) Contact with amines at high temperature
(E) Answer not known

22. Fluorocarbon rubbers are prepared by _____.

(A) Solution polymerisation
(B) Step polymerisation
(C) Free radical, emulsion polymerisation
(D) Cationic polymerisation
(E) Answer not known

23. Polyurethanes get strength from

(A) Crystallisation
(B) Hydrogen bonding
(C) Cross linking
(D) Fillers
(E) Answer not known

24. Which of the following elastomers find extensive use in footwear soles?

(A) Fluoro elastomer
(B) Silicones
(C) Nitrile rubber
(D) Polyurethanes
(E) Answer not known

25. Silicone rubbers are cured by

(A) Sulphur
(B) Metal oxide
(C) Diamines
(D) Peroxide
(E) Answer not known

26. The polymers which can be processed by casting method are

(A) Polyurethane and nitrile rubber
(B) Polyurethane and silicone rubber
(C) EPDM and silicone rubbers
(D) Fluoro elastomers and SBR
(E) Answer not known

27. The mechanical strength of polychloroprene rubber vulcanized is _____ and is due to _____.

(A) Good, High cross link density
(B) Good, Strain induced crystallisation
(C) Poor, High cross link density
(D) Poor, higher Tg
(E) Answer not known

28. Ozone resistance of NBR can be improved by

(A) Blending with PVC
(B) Hydrogenation
(C) Both (A) and (B)
(D) Neither (A) nor (B)
(E) Answer not known

29. High nitrile grade of NBR contains _____ % of acrylonitrile.

(A) 40 – 45
(B) 50 – 55
(C) 60 – 65
(D) > 65
(E) Answer not known

30. CR cannot be vulcanised by sulphur because :

(A) Cl deactivates the double bonds
(B) Very few double bonds in the polymer
(C) Of acidity of the rubber
(D) Both (B) and (C)
(E) Answer not known

31. Which of the following rubbers cannot be vulcanised by metal oxide?

(A) EPDM
(B) CR
(C) Chlorosulphonated Polyethylene
(D) Chlorinated Polyethylene
(E) Answer not known

32. NBR is prepared by

(A) Free radical polymerisation
(B) Cationic polymerisation
(C) Anionic polymerisation
(D) Solution polymerisation
(E) Answer not known

33. The upper service temperature limit for EPDM is

(A) 120°C
(B) 110°C
(C) 160°C
(D) 100°C
(E) Answer not known

34. The trade name of polychloroprene is

(A) Neoprene
(B) Santaprene
(C) Vulcaprene
(D) Formaprene
(E) Answer not known

35. NR cannot be blended with NBR mainly because of

(A) Difference in polarity
(B) Difference in cure time
(C) Difference in heat resistance
(D) Difference in viscosity
(E) Answer not known

36. High cis polybutadiene used in rubber industry contains

(A) 97% cis butadiene units
(B) 97% trans butadiene units
(C) 60% cis butadiene units
(D) 70% trans butadiene units
(E) Answer not known

37. Solution SBR is prepared by

(A) Cationic polymerisation
(B) Ziegler Natta polymerisation
(C) Free radical polymerisation
(D) Anionic polymerisation
(E) Answer not known

38. The differences in some properties, between natural rubber and synthetic polyisoprene are due to

(A) Protein content in natural rubber
(B) Degree of polymerisation
(C) Cross link density
(D) Cure rate
(E) Answer not known

39. Most polybutadiene are used in tire applications as a blend of NR and SBR where polybutadiene reduces _____ and improves _____ of the blend.

(A) Heat build up and abrasion resistance
(B) Abrasion resistance and Heat build up
(C) Abrasion resistance and resilience
(D) Flexibility and heat build up
(E) Answer not known

40. NR has better tear resistance than SBR because of :

(A) Strain induced crystallisation
(B) Higher cross link density
(C) Faster curing
(D) Lower Tg
(E) Answer not known

41. Azocarbonamide belongs to which of the following class of additives

(A) Curatives
(B) Heat stabilizers
(C) Blowing agents
(D) UV stabilizers
(E) Answer not known

42. Antimony mercaptides are used in PVC as

(A) UV-stabilizers
(B) Plasticizers
(C) Heat stabilizer
(D) Blowing agents
(E) Answer not known

43. Vulcanization retarders are primarily required in one of the following operations. Identify the most important one :

(A) Injection moulding of rubber compounds
(B) Calendering of rubber compounds
(C) Extrusion of rubber compounds
(D) Compression moulding of rubber compounds
(E) Answer not known

44. Identify the polymer which requires to be stabilized against heat effectively

(A) Polystyrene
(B) Polypropylene
(C) Polychloroprene
(D) Polyvinylchloride
(E) Answer not known

45. For latex compounding, the preferred accelerator class is

(A) Quanidines
(B) Sulphenamides
(C) Dithiocarbamates
(D) Benzoyl peroxide
(E) Answer not known

46. Identify the rubber which is not suitable for peroxide vulcanization

(A) Butyl rubber
(B) EPDM rubber
(C) Silicone rubber
(D) Natural rubber
(E) Answer not known

47. Tackiness of EPDM can be improved by adding

(A) Reclaimed rubber
(B) Tackifier resins
(C) Anti oxidants
(D) Plasticisers
(E) Answer not known

48. Inorganic fillers like silica, calcium carbonate, clay etc. do not give good reinforcement because

(A) They have poor interaction with the rubber
(B) They have large particle size
(C) They have moisture
(D) They slow down curing
(E) Answer not known

49. For NBR, the plasticiser commonly used is _____.

(A) Paraffinic oil
(B) Aromatic oil
(C) Naphthenic oil
(D) Ester type
(E) Answer not known

50. Example for non staining antioxidant is

(A) Quinolines
(B) Paraphenylene diamine derivatives
(C) Phenolic type
(D) Carbon black
(E) Answer not known

51. Peroxide vulcanization is used for rubber

(A) With high compression set
(B) Per fluoro elastomers
(C) With best elastic properties
(D) Does not have any reactive site for curing
(E) Answer not known

52. Overhead water tanks are predominantly black in colour because

(A) They are reinforced with carbon blacks
(B) Carbon blacks act as antioxidants
(C) Carbon blacks act as antiozonants
(D) Carbon blacks act as UV stabilizers
(E) Answer not known

53. Among the following oxides, identify the correct one to be used as a vulcanization activator :

(A) Silicon dioxide
(B) Magnesium oxide
(C) Zinc oxide
(D) Calcium oxide
(E) Answer not known

54. When peptizers are required in rubber processing?

(A) Conversion of Latex into rubber
(B) Mixing Rubber in two roll mills
(C) Compounding rubbers in internal mixers
(D) Vulcanization of the compound into a vulcanizate
(E) Answer not known

55. Identify the correct processing aid for a nitrile – rubber compound.

(A) Aromatic oil
(B) Naphthenic oil
(C) Phthalate ester based oils
(D) Paraffinic oil
(E) Answer not known

56. Bound rubber is an indication of the following :

(A) Extent of Rubber – Rubber Interaction
(B) Extent of Rubber – Filler Interaction
(C) Extent of Filler – Filler Interaction
(D) Extent of cross-link density
(E) Answer not known

57. Surface area of carbon blacks are measured by which of the following technique?

(A) Adsorption of cetyltrimethyl ammonium bromide
(B) Absorption of dibutyl phthalate
(C) Absorption of rubber
(D) Adsorption of aromatic oil
(E) Answer not known

58. For Sulphur vulcanization, sulphur can be substituted by

(A) DTDM (Dithio di morpholine)
(B) MBT
(C) MBTS
(D) ZDC
(E) Answer not known

59. CBS is a

(A) Ultra Fast accelerator
(B) Delayed action fast accelerator
(C) Slow accelerator
(D) Fast accelerator
(E) Answer not known

60. A non sulphur cure system for general purpose diene rubbers (e.g. N.R.) is

(A) Metal oxide
(B) Diamine + metal oxide
(C) Phenolic resin
(D) Bis-phenol A
(E) Answer not known

61. Fast Removal of water from latex after product manufacture may be achieved by

(A) Curing
(B) Precipitation
(C) Drying
(D) Gelling and coagulation
(E) Answer not known

62. Fillers are added to latex foam for

(A) Stiffening, Cost reduction and reducing shrinkage
(B) Cost savings only
(C) Reduction of shrinkage only
(D) Increasing strength
(E) Answer not known

63. In tyres, belted bias tyre means

(A) Tyre cord parallel to circumference
(B) Tyre cord 55° to circumference
(C) Tyre cord 90° to circumference
(D) Tyre cord 75° to circumference
(E) Answer not known

64. The components of a conveyor belt are

(A) Tread, head, inner lines
(B) Head, inner lines
(C) Carcass, cover compound
(D) Carcass, inner liner
(E) Answer not known

65. Strength of a tyre lies in its

(A) Head
(B) Head filler
(C) Carcass
(D) Tread
(E) Answer not known

66. Large hollow latex products are made by

(A) Extrusion
(B) Dipping
(C) Slush moulding
(D) Spreading
(E) Answer not known

67. Continuous vulcanisation of V belts can be done in

(A) Roto cure machine
(B) Hot air tunnel
(C) Microwave
(D) Gamma ray chamber
(E) Answer not known

68. The drum used to build a tyre is

(A) Made up of wood
(B) Made up of composite
(C) Collapsible
(D) Rigid
(E) Answer not known

69. In tyres, bias ply means

(A) Tyre cords perpendicular to tyre circumference
(B) Tyre cords parallel to tyre circumference
(C) Tyre cords 80° to tyre circumference
(D) Tyre cords about 50° to tyre circumference
(E) Answer not known

70. Cure time in compression moulding is generally vary between

(A) Below 5 seconds
(B) 5 seconds to 10 seconds
(C) More than 15 minutes
(D) 1 minute to 15 minutes
(E) Answer not known

71. Injection rate is expressed in

(A) cm^3/s (B) cm^2/s

(C) cm/s (D) m/s

(E) Answer not known

72. In injection moulding, the melt freezes first at

(A) Nozzle (B) Gate

(C) Runner (D) Sprue

(E) Answer not known

73. In calendaring, the output vary in the range of _____ depending on the sheet thickness.

(A) 0.1 to 2 m/s (B) 2 to 4 m/s

(C) 0.1 to 1 m/s (D) 1.1 to 5 m/s

(E) Answer not known

74. The function of the clamping system in a injection moulding process is

(A) To keep the mould halves tightly closed

(B) To allow venting in mould system

(C) To ensure proper alignment between mould halves

(D) To make the product with inserts

(E) Answer not known

75. Choose the correct statement/(s) with respect to calendaring.

(i) Number of Rolls are used.

(ii) Thickness of sheet is controlled by the gap called "Nip".

(iii) Calendars vary in respect of the No. of Rolls and the arrangement of the Rolls relative to one another.

(iv) Not possible to make film.

(A) (ii), (iii), (iv)
(B) (i), (ii), (iv)
(C) (i), (ii), (iii)
(D) (iv) only
(E) Answer not known

76. Choose the correct statement with respect to blow moulding process.

(A) It is considered as alternate method to compression moulding

(B) Low moulding pressure result in low internal stress and more proportional stress distribution in the product

(C) It is more expensive method to manufacture hollow bottles with narrow necks or mouths

(D) Blow moulded products have less resistance to impact and bending strains

(E) Answer not known

77. Choose correct statements with respect to advantages of rotational moulding.

(i) Moulding can be done with metal inserts and minor under cuts

(ii) No scrap or very little is produced

(iii) Moulding cycle is very short

(iv) Process suitable for moulding very less wall thickness (below 0.3 mm) also

(A) (i) and (iv) only
(B) (ii) and (iii) only
(C) (i) and (ii) only
(D) (iii) and (iv) only
(E) Answer not known

78. Choose the product which is not possible to the produced by extrusion.

(A) Tubing
(B) PVC pipe
(C) Pen Cap
(D) Sheets
(E) Answer not known

79. Choose the process by which the Dough Moulding Compounds (DMC) can be used as a raw material.

(A) Injection moulding

(B) Extrusion

(C) Compression moulding

(D) Blow moulding

(E) Answer not known

80. A plastic shrink wrapping with a thickness of 0.05 mm is to be produced using an annular die with a die gap of 0.8 mm. Assuming that the inflation of the bubble dominates the orientation in the film, determine the blow-up ratio required to give uniform biaxial orientation.

(A) 0.25

(B) 4

(C) 16

(D) 8

(E) Answer not known

81. ———————— is not a primary treatment method for effluent.

(A) Screening

(B) Sedimentation

(C) Chlorination

(D) Filtration

(E) Answer not known

82. Acid rain consists of mixture of

(A) Sulphuric acid, Nitric acid and Hydrochloric Acid
(B) Sulphuric Acid and Hydrochloric Acid
(C) Nitric acid and Hydrofluoric Acid
(D) Sulphuric Acid and Acetic acid
(E) Answer not known

83. The major hydrocarbon emitted into the Atmosphere by natural activities is

(A) Propane
(B) Butane
(C) Methane
(D) Pentane
(E) Answer not known

84. MRR stands for

(A) Material Removal Register
(B) Maintenance Report Register
(C) Material Receipt Register
(D) Machine Report Register
(E) Answer not known

85. Safety stock is held to

(A) Minimise storage space

(B) Protect against uncertanities is demand and lead

(C) Maximise storage space

(D) Increase inventory turnover

(E) Answer not known

86. The primary purpose of inventory management is

(A) To maximise inventory holding cost

(B) To minimise order quantities

(C) To supply and demand to meet customer needs

(D) To eliminate all safety stock

(E) Answer not known

87. Buildings within municipal limits should not be used for the storage of flammable liquids having flash point less than

(A) 105 °C

(B) 100 °C

(C) 98.6 °C

(D) 37.8 °C

(E) Answer not known

88. Fire fighting foams have been developed primarily

(A) To deal with hazards posed by electrical short circuiting
(B) To deal with hazards posed by liquid fuel fires
(C) To deal with hazards posed by gas fuel fires
(D) To deal with hazards posed by solid fuel fires
(E) Answer not known

89. Disposable respirators to be used for protection against

(A) Handling hot materials
(B) While working on electrical installation
(C) Exposive to steam
(D) Dust and nontoxic fumes
(E) Answer not known

90. As per IS standard the weight of safety shoes used for the protection of foot shall not exceed

(A) 400–700 grams
(B) 400–900 grams
(C) 400–600 grams
(D) 400–800 grams
(E) Answer not known

91. A workman is entitled to receive compensation from the employee.

(A) In case of accident or occupational disease
(B) In case of sick
(C) In case of personal leave
(D) In case of accident outside factory premises
(E) Answer not known

92. Under plantation act the minimum age required for children to work in plant is

(A) 12 years
(B) 14 years
(C) 16 years
(D) 18 years
(E) Answer not known

93. As per Factories Act 1948 a young person means

(A) a person who is a child
(B) a person who is either a child or adolescent
(C) a person who is an adolescent
(D) a person with more than 20 years of age
(E) Answer not known

94. No adult worker shall be allowed to work in a factory

(A) for more than 36 hours in a week
(B) for more than 40 hours in a week
(C) for more than 56 hours in a week
(D) for more than 48 hours in a week
(E) Answer not known

95. As per Factories Act 1948, child means,

(A) A person who has not completed 15^{th} year of age
(B) A person who has not completed 14^{th} year of age
(C) A person who has not completed 16^{th} year of age
(D) A person who has not completed 18^{th} year of age
(E) Answer not known

96. The commonly used preservative for field Latex is

(A) Water
(B) Ammonia
(C) Sugar
(D) Salt
(E) Answer not known

97. The main challenge in transporting Latex is

(A) its high viscosity
(B) its low density
(C) its tendency to coagulate
(D) its high temperature
(E) Answer not known

98. The two common methods for shipping latex are

(A) In bags and containers
(B) In tank and drums
(C) In bottles and barrels
(D) In crates and pallets
(E) Answer not known

99. The process followed while adding preservative to field Latex involves

(A) Heating, Drying and Cutting
(B) Filtering, Painting and Polishing
(C) Mixing with sand
(D) Addition of ammonia
(E) Answer not known

100. This is not a step in processing preserved field Latex

(A) Preservative addition
(B) Latex sieving
(C) Latex boiling
(D) Latex packing
(E) Answer not known

101. Latex dilution after tapping is caused by

(A) Increased rubber particle entry
(B) Solar heating
(C) Water infiltration from surrounding tree sections
(D) Cooling
(E) Answer not known

102. The part of tree in which the liquid latex resides is

(A) The leaves
(B) The roots
(C) The flowers
(D) The bark
(E) Answer not known

103. The initial tapping of a rubber tree aims to

(A) Promote taller growth
(B) Establish a tapping panel on the tree's bark and initiate the flow of latex
(C) Provide water
(D) Clean the bark
(E) Answer not known

104. Young rubber plants can be shielded from intense sun during initial planting by

(A) Shading with coconut leaves or old bags
(B) Hourly watering
(C) Application of shiny paper
(D) Indoor cultivation
(E) Answer not known

105. Optimal branching of rubber plants typically occurs at this height

(A) 0.5 to 1 meter
(B) 1.5 to 2 meters
(C) 2.5 to 3 meters
(D) 4 to 5 meters
(E) Answer not known

106. Crucial preliminary step(s) before planting rubber trees include(s)

(A) Immediate seed planting
(B) Land preparation and soil preparation
(C) Exclusive building construction
(D) Awaiting heavy rainfall
(E) Answer not known

107. This state is identified as a principal "Traditional Region" for rubber in India

(A) Assam
(B) Tripura
(C) Meghalaya
(D) Kerala
(E) Answer not known

108. The number of distinct categories of rubber planting materials is

(A) One
(B) Two
(C) Three
(D) Four
(E) Answer not known

109. Category – II comprises clones that have demonstrated this characteristics in India over an extended period

(A) Proven long-term efficacy
(B) Novelty
(C) Experimental utility only
(D) Pod performance
(E) Answer not known

110. Rubber tree leaves exhibit this characteristics appearance

(A) Trifoliate, resembling a clover leaf
(B) Round, like a dinner plate
(C) Long and slender, like grass
(D) Spiky, like a cactus
(E) Answer not known

111. During December to February in India, rubber tree leaves undergo this change

(A) They turn red
(B) They abscise
(C) They increase in size
(D) They produce rubber
(E) Answer not known

112. Rubber trees typically yield seeds during this period

(A) Between July and September
(B) Between January and March
(C) Only in December
(D) Between April and June
(E) Answer not known

113. Rubber seeds, if not collected promptly, experience this consequence(s)

(A) They absorb moisture and rapidly deteriorate
(B) They increase in size
(C) They gain strength
(D) They change colour
(E) Answer not known

114. The main plant species used to make natural rubber is

(A) Gutla-Percha
(B) Taraxacum
(C) Hevea brasiliensis
(D) Manikara
(E) Answer not known

115. The largest producer of natural rubber in 2025 is

(A) Malaysia
(B) India
(C) Thailand
(D) Indonesia
(E) Answer not known

116. Which of the following reduces crystallinity?

(A) Linear polymer chains
(B) Bulky side groups
(C) Regular repeating unit
(D) Annealing
(E) Answer not known

117. Which of the following factor increases the glass transition temperature?

(A) Flexible side groups
(B) Low molecular weight
(C) Strong intermolecular forces
(D) Presence of plasticizer
(E) Answer not known

118. Crystalline polymers are generally

(A) Transparent
(B) Opaque
(C) Flexible
(D) Not used in industry
(E) Answer not known

119. The transparency of a given polymer _____ as the size of the sperulite _____.

(A) increases, decreases
(B) decreases, increases
(C) increases, increases
(D) decreases, decreases
(E) Answer not known

120. Polyethylene, polyacetals and poly tetrafluoro ethylene are well known examples of

(A) Crystalline polymers
(B) Semi-crystalline polymers
(C) Amorphous polymers
(D) Liquid crystalline polymers
(E) Answer not known

121. Production of polyethylene terephthalate from dimethyl terephthalate and ethylene glycol is carried out by

(A) Solution polymerization

(B) Melt polycondensation technique

(C) Suspension polymerization

(D) Emulsion polymerization

(E) Answer not known

122. Which of the following statement is incorrect with respect to emulsion polymerization?

(A) Heterogenous system

(B) Exotherm dissipation is best

(C) Viscosity of the medium does not increase throughout the polymerization

(D) Suitable for producing low molecular weight products

(E) Answer not known

123. The reaction medium used in bulk polymerization is _____

(A) Water

(B) Solvent

(C) No medium

(D) Gas

(E) Answer not known

124. Styrene-divinyl benzene copolymer beads for the preparation of ion-exchange resins is made by

(A) Solution polymerization

(B) Mass polymerization

(C) Emulsion polymerization

(D) Pearl polymerization

(E) Answer not known

125. Which of the following exhibits non-Newtonian behaviour?

(A) Water
(B) Ethanol
(C) Polyethylene
(D) Toluene
(E) Answer not known

126. Number average molecular weight of polymers containing reactive functional groups are determined by _____

(A) End group analysis
(B) Ebulliometry
(C) Cryoscopy
(D) Membrane osmometry
(E) Answer not known

127. Molecular weight of the polymer (M) and degree of polymerization (Dp) are related by _____ where m is the molecular weight of the repeating unit.

(A) $M = Dp.m$
(B) $M = Dp/m$
(C) $M = D_p^2.m$
(D) $M = D_p^2/m$
(E) Answer not known

128. The ratio of _____ is called polydispersity.

(A) Weight average molecular weight to number average molecular weight
(B) Number average to weight average molecular weight
(C) Viscosity average to number average molecular weight
(D) Viscosity average to weight average molecular weight
(E) Answer not known

129. The weight average molecular weight of polymers can be determined by

(A) Cryoscopy
(B) Membrane osmometry
(C) End group analysis
(D) Light scattering
(E) Answer not known

130. Commercial polypropylene is about 90-95% _____.

(A) Isotactic
(B) Atactic
(C) Syndiotactic
(D) Copolymer
(E) Answer not known

131. Which of the following is an elastomer?

(A) ABS
(B) SBR
(C) HIPS
(D) SAN
(E) Answer not known

132. What is the polymer formed when hexamethylene diamine and adipic acid react?

(A) Nylon 6
(B) Nylon 6, 4
(C) Nylon 6, 6
(D) Nylon 6, 10
(E) Answer not known

133. Which are the monomers for the preparation of ABS?

(A) Acrylonitrile, butadiene and styrene
(B) Adipic acid, butane diol and sulphur
(C) Acrylonitrile, butric acid and styrene
(D) Adipic acid, butadiene and salicylic acid
(E) Answer not known

134. A plastic that does not flow until the external stress exceeds a critical threshold value

(A) Bingham Plastics
(B) Pseudo plastic
(C) Themoset
(D) Dilatant fluids
(E) Answer not known

135. _____ is an example of natural polymer.

(A) Polyethylene
(B) PVC
(C) Silk
(D) Nylon
(E) Answer not known

136. Bakelite is the trade name of

(A) Urea Formaldehyde
(B) Polyphenylene Oxide
(C) Phenol Formaldehyde
(D) Epoxy resin
(E) Answer not known

137. The most desirable features of polyester-glass laminates are/is

(A) Possible to construct large moulding
(B) Superior heat resistant to most rigid thermoplastics
(C) Possible to make fire resistant product
(D) All the above
(E) Answer not known

138. Which of the following plastics having poor tracking resistance?

(A) MF
(B) Alkyd resin
(C) UF
(D) PF
(E) Answer not known

139. In which of the following area about one-third of unsaturated polyester resin produced is used as polyester-glass laminates?

(A) Electronics
(B) Agriculture
(C) Roofing and building insulation
(D) Table top
(E) Answer not known

140. Which of the following plastics used in saucepan handles, saucepan lid knobs, cooker handles, welding tongs and electric iron parts?

(A) unsaturated polyester
(B) epoxy resin
(C) polyethylene
(D) phenol formaldehyde
(E) Answer not known

141. Which of the following plastics used in exhaust gas return valves to control pollution, carburetor parts, ignition plates in automotive sector?

(A) PPO
(B) PPS
(C) PE
(D) EPOXY
(E) Answer not known

142. Which of the following plastics is used in housing for typewriter, TV cabinets, television screen mounting in the form of composite with tough skin and foam core?

(A) Polyphenylene oxide
(B) Nylon
(C) Polyethylene
(D) Polystyrene
(E) Answer not known

143. Application of poly phenylene sulphides includes

(A) Cooking appliance
(B) Sterilisable medical
(C) Hair dryer components
(D) All the above
(E) Answer not known

144. Which of the following is correct with respect to general properties of polycarbonate (PC)?

(A) PC is having low melting temperature
(B) PC is virtually self-extinguishing
(C) PC is easy processable materials
(D) All the above
(E) Answer not known

145. Which of the following materials is widely used in equipment housing?

(A) PE
(B) PEEK
(C) ABS
(D) PS
(E) Answer not known

146. Which of the following statement is correct?

(A) PMMA is tougher than polystyrene
(B) Less tough than ABS
(C) Both (A) and (B) are correct
(D) (A) is correct, (B) is wrong
(E) Answer not known

147. Polyacetal is also called as

(A) Polyformaldehyde
(B) Poly oxymethylene
(C) Aliphatic polyethers
(D) All the above
(E) Answer not known

148. The chlorinated PVC has a chlorine content of _____

(A) 56.8%
(B) 62.8%
(C) 67%
(D) 65%
(E) Answer not known

149. Polystyrene is

(A) Amorphous in nature
(B) Crystalline in nature
(C) Semicrystalline in nature
(D) None of the above
(E) Answer not known

150. The glass transition temperature (Tg) of polyethylene is

(A) –180°C and –90°C
(B) 2°C and 80°C
(C) 40°C and 120°C
(D) –20°C and –120°C
(E) Answer not known

151. The presence of methyl group attached to alternate carbon atoms on the chain backbone of polypropylene can leads to

(A) Slight stiffening of the chain
(B) Increase in crystalline melting temperature
(C) Site for oxidation
(D) All the above
(E) Answer not known

152. Which of the following plastics are cross-linked?

(A) PE
(B) PP
(C) UF
(D) PC
(E) Answer not known

153. Candle wax can be repeatedly softened by heat and will solidify when cooled – This is an useful analogy to describe the material.

(A) Thermosetting plastics
(B) Thermoplastics
(C) Rubber
(D) Metal
(E) Answer not known

154. Which of the following plastic is thermo plastics?

(A) Polymethyl methacrylate
(B) Unsaturated Polyester
(C) Urea Formaldehyde
(D) Epoxy resin
(E) Answer not known

155. Plastics are classified based on processing behaviour as

(A) Engineering plastics
(B) Natural plastics
(C) Thermoplastics and Thermosets
(D) Speciality plastics
(E) Answer not known

156. Stock blenders are provided in rubber mixing mills to enhance the

(A) Dispersive mixing
(B) Mastication
(C) Distributive mixing
(D) Protection of the operator
(E) Answer not known

157. In single stage rubber compounding using internal mixers, curatives are added at the

(A) Start of the mixing cycle
(B) End of the mixing cycle
(C) Time of reaching mixing temperature
(D) To be withheld for subsequent stages
(E) Answer not known

158. Filler incorporation is assumed to be complete when the density of the mix is

(A) Minimum
(B) Maximum
(C) Equal to the density of the rubber
(D) Equal to the density of the oil
(E) Answer not known

159. Dispersive mixing of rubber can be considered to follow

(A) Second order kinetics
(B) Zeroth order kinetics
(C) First order kinetics
(D) Isothermal
(E) Answer not known

160. Dispersive mixing in an internal mixer is better when

(A) The temperature is low
(B) The temperature is high
(C) The ram pressure is low
(D) The rotor speed is high
(E) Answer not known

161. Viscosity of rubber compounds decreases as:

(A) Shear rate increases
(B) Shear rate decreases
(C) Volumetric flow rate increases
(D) Volumetric flow rate decreases
(E) Answer not known

162. In a two roll mill, mixing occurs at

(A) The rolls
(B) The middle of the rolls
(C) Nip gap
(D) Edge of the rolls
(E) Answer not known

163. In the incorporation stage of mixing, the carbon black forms relatively large agglomerates of _____ size.

(A) 10 – 50 mm
(B) 10 – 100 μm
(C) 1 mm – 10 mm
(D) 1 – 10 μm
(E) Answer not known

164. The output of a Banbury mixer

(A) Can be used as it is
(B) Needs a two roll mill for sheeting out for further use
(C) Can be stored as it is
(D) Comes out in a convenient form
(E) Answer not known

165. Whiting is Chemically

(A) Calcium Carbonate
(B) Silica
(C) Magnesium Carbonate
(D) Zinc oxide
(E) Answer not known

166. _____ can reduce lower service temperature limit of a rubber.

(A) Wax
(B) Curative
(C) Anti Oxidant
(D) Plasticiser
(E) Answer not known

167. In tyre manufacture, if building tack (ability of the rubber sheets to stick to each other, well) is poor which compounding ingredient you should add?

(A) Oil
(B) Wax
(C) Reclaimed rubber
(D) Tackifier resin
(E) Answer not known

168. Cracking or rupture of dried dipped latex goods is because of

(A) Improper Compounding
(B) Excessive curing
(C) Poor wet gel strength
(D) Improper dipping
(E) Answer not known

169. Ammonium Caseinate is used in latex as a

(A) Purifier of latex
(B) Protective colloid for latex
(C) Dispersing agent
(D) Jelling agent
(E) Answer not known

170. SBR resin latices are used in combination with other latices for the purpose of

(A) Improving the appearance of the vulcanizate
(B) Increase the modulus of the vulcanizate
(C) Reduce the cost of the product
(D) Increase the flexibility of the product
(E) Answer not known

171. In latex technology, the main role of dispersing agents is to

(A) Reduce the surface tension of the medium
(B) Reduce the particle size of the dispersion
(C) Increase the particle size of the dispersion
(D) Increase the surface tension of the medium
(E) Answer not known

172. For producing natural rubber gloves clays are added. How do you prepare clays to be added into the latex?

(A) Suspension
(B) Emulsion
(C) Dispersion
(D) Slurry
(E) Answer not known

173. Identify the correct form of natural rubber latex

(A) Dispersion
(B) Suspension
(C) Emulsion
(D) Solution
(E) Answer not known

174. To get dispersion of latex compounding ingredients of higher speeds _____ machine is preferred.

(A) Colloid mill
(B) Pebble mill
(C) Ball mill
(D) Attrition grinder
(E) Answer not known

175. To which of the following class of substances hydroxy Propyl methyl cellulose belong?

(A) Emulsifying agent
(B) Protective Colloid
(C) Dispersion agent
(D) Antiozonant
(E) Answer not known

176. How many electrodes used in twin enclosed Carbon arc apparatus?

(A) One upper and one lower
(B) Two upper and two lower
(C) Three upper and three lower
(D) Four Electrodes
(E) Answer not known

177. Flexural strength is also known as,

(i) Bending Strength
(ii) Bending modulus
(iii) Cross Breaking Strength
(iv) Modulus of Elasticity
(v) Shear stress

(A) (i) and (ii)
(B) (ii) and (iii)
(C) (iv) and (v)
(D) (i) and (iii)
(E) Answer not known

178. Which of the below mentioned form of test piece is not used for tear test,

(i) Crescent form

(ii) Angle form

(iii) Dumb - bell

(iv) Delft

(v) Circular Cylindrical form

(A) (i), (ii) and (iv) only
(B) (iii) and (iv) only
(C) (iii) and (v) only
(D) (i) and (v) only
(E) Answer not known

179. In Abrasion Resistance, increase in any of the below mentioned will results in greater wear or abrasion.

(i) Frictional force

(ii) Load

(iii) Centrifugal force

(iv) True area of contact

(A) (i) and (ii) only
(B) (ii) and (iii) only
(C) (iii) and (iv) only
(D) (i), (ii) and (iv) only
(E) Answer not known

180. Flexural strength is defined as

(A) the maximum stress developed in the surface of a prescribed shaped test piece when supported near the end loaded at the center until failure occurs

(B) the stress developed in the prescribed specimen load at the ends supported at centre

(C) pulling load applied in the longitudinal direction until specimen failed

(D) the maximum stress developed in the specimen subjected to cyclic loading

(E) Answer not known

181. Choose the correct statements with respect to Darometer Hardness tests

(i) It refers small pocket type hardness meter

(ii) It uses a spring to produce a indenting force

(iii) It is highly precise method

(iv) Sometimes by foot pressure indenting force is applied

(A) (i), (ii) and (iii)

(B) (iii), (iv) and (ii)

(C) (i), (ii) and (iv)

(D) (ii) and (iv) only

(E) Answer not known

182. The tests in which, the aim is to induce and/or propagate cracks without subjecting the test piece to large increase in temperature is known as

(A) Heat build-up
(B) Flex-cracking
(C) Creep
(D) Stress Relaxation
(E) Answer not known

183. Choose the wrong statements with respect to flex-cracking tests

(i) One of the most difficult problems is how to assess the degree of cracking

(ii) Visual examination is used to measure degree of cracking

(iii) Visual examination is operator independent

(iv) In cut-growth method, a 2 mm cut is made

(v) ASTM D814 specifies the Da-post flexer

(A) (iii) and (v) only
(B) (i) and (ii) only
(C) (ii) and (iii) only
(D) (iv) and (v) only
(E) Answer not known

184. Choose the correct statements related to Pendulum Impact tests

(i) Izod test requires a specimen to be clamped vertically as a cantilever beam

(ii) No additional weights may be added to the hammer for breaking tough specimens

(iii) There are digital display of impact energy is available in new impact machines

(iv) Izod and charpy tests use same type of striking noses

(A) (iv) and (iii) only
(B) (i) and (ii) only
(C) (i) and (iii) only
(D) (i) and (iv) only
(E) Answer not known

185. How many below listed types of failures encountered due to the impact load?

(i) Brittle fracture

(ii) Slight cracking

(iii) Yielding

(iv) Compressive buckling

(v) Shear

(A) (iii) and (iv) only
(B) (i) and (v) only
(C) (ii), (iii) and (v) only
(D) (i), (ii) and (iii) only
(E) Answer not known

186. In melt indexer set up, the insulation is provided in

(A) top surface only
(B) side walls only
(C) bottom only
(D) both side walls and bottom
(E) Answer not known

187. In melt flow index, the flow rate is calculated by

Where, L = length of the calibrated piston travel

d = density of the resin at test temperature

t = time of piston travel for length L

(A) $(426 \times L \times t) / d$
(B) $(426 \times L \times d) / t$
(C) $(426 \times t \times d) / L$
(D) $(426 \times L \times d) / t^2$
(E) Answer not known

188. The initial extrudate is discarded in melt flow index, because

(i) It may contain volatile gases
(ii) It may contain some air bubbles
(iii) It may contain some contaminants
(iv) The flow rate may vary in the beginning, so it is not possible to cut the initial extrudate

(A) (i) and (ii) only
(B) (ii) and (iii) only
(C) (iii) and (iv) only
(D) (i) and (iv) only
(E) Answer not known

189. In which of the following conditions, the micro hardness test is preferred?

(i) Thickness less than 4 mm

(ii) Thickness more than 4 mm

(iii) Where the standard dead load is altogether too large

(iv) It uses large diameter ball

(A) (i) only
(B) (i) and (iv) only
(C) (ii) and (iv) only
(D) (i) and (iii) only
(E) Answer not known

190. The meaning of fire endurance is

(A) how rapidly fire penetrates a wall or barrier
(B) how rapidly a material ignites
(C) how rapidly fire spreads across a polymer surface
(D) how rapidly the flame leads to extinction
(E) Answer not known

191. Environmental stress cracking resistance test reveals

(A) Notch sensitivity only
(B) Environmental resistance only
(C) Chemical resistance only
(D) Both environmental and effect of notch
(E) Answer not known

192. In Environmental stress cracking resistance, the notch will be a

(A) Stress Reducer
(B) Stress Riser
(C) Strain reducer
(D) None of the above
(E) Answer not known

193. In general the Rubber Industry will have more attention towards

(A) Compression set
(B) Creep
(C) Stress Relaxation
(D) Shear
(E) Answer not known

194. The effects of the microorganisms in the surface of the plastic components leads to

(i) Loss of properties

(ii) Change in aesthetic quality

(iii) Loss of transmission

(A) (i) only
(B) (ii) only
(C) (iii) only
(D) (i), (ii) and (iii)
(E) Answer not known

195. Tensile testing machines are often called "Universal", because it can be used for

(A) testing tensile, tear, adhesion and stress - strain characteristics in compression and shear

(B) testing tensile, flexural and cure characteristics

(C) testing tensile, shear, hardness and micro structural properties

(D) testing tensile, bonding, abrasion and creep

(E) Answer not known

196. An oscillating disc rheometer is used to measure the _____ of the compound before the onset of cure.

(A) Scorch

(B) Plasticity

(C) Stiffness

(D) Strength

(E) Answer not known

197. To determine the viscosity, the latex should have a total solids of _____.

(A) 66 ± 0.1%

(B) 58 ± 0.1%

(C) 60 ± 0.1%

(D) 62 ± 0.1%

(E) Answer not known

198. The volatile fatty acid is defined as the number of grams of _____ required to neutralize the volatile fatty acid in a latex sample containing 100g of total solids.

(A) Potassium hydroxide

(B) Acetic acid

(C) Aniline

(D) Hydrochloric acid

(E) Answer not known

199. The viscosity of latex is determined using

(A) Spectrophotometer
(B) Colorimeter
(C) Rotational viscometer
(D) Chromatography
(E) Answer not known

200. In the total solids test, what is the temperature at which the sample is dried for 16 hours?

(A) 100 ± 2°C
(B) 60 ± 5°C
(C) 70 ± 2°C
(D) 120 ± 2°C
(E) Answer not known