

PART III

16 – LEATHER TECHNOLOGY

(Answer ALL questions)

41. What is the diameter of the collagen molecule?
- 15 Å
 - 24 Å
 - 14 nm
 - 24 nm
42. Which of these is a post translational modification in collagen biosynthesis?
- mRNA formation
 - Peptide bond formation
 - Glycosylation
 - Transcription
43. Electronegativity is defined as the power of an atom in a molecule to _____
- Repel electrons towards itself
 - Attract electrons towards itself
 - Expand itself
 - All of the above
44. Which of the following is function of Flame or Emission system in Atomic Absorption Spectroscopy?
- To split the beam into two
 - To break the steady light into pulsating light
 - To filter unwanted components
 - To reduce the sample into atomic state
45. What is the Shrinkage temperature of native collagen fibers in skin?
- ~60°C
 - ~37°C
 - ~90°C
 - ~120°C
46. What is the major protein constituent in a hide?
- Collagen
 - Gelatin
 - Mucin
 - Keratin
47. During staining, the smear is heat-fixed in order to _____
- kill the organism so that dyes will penetrate
 - attach the organism firmly to the slide
 - kill the organism and attach the organism firmly to the slide
 - neither kill the organism nor attach the organism firmly to the slide
48. Which of the following constituents present in skin associated with thermo-regulatory function?
- Keratinocytes
 - Sweat glands
 - Nerve cells
 - Fibroblast cells
49. Which enzyme is used for unhairing?
- Protease
 - Amylase
 - Lipase
 - Glycosidase
50. Which of the following is the commonly used to reduce acid swelling during pickling process?
- Sodium chloride
 - Silver chloride
 - Barium chloride
 - Ammonium chloride

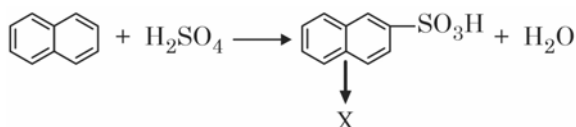
51. Bio-deterioration of hides and skin before tanning process, Hair slip occurs due to
 - a. *Aspergillus niger*
 - b. *Streptococcus* sp
 - c. *Aspergillus fumigates*
 - d. *Pseudomonas* sp
52. Which of the following amino acids has higher percentage in Type I collagen?
 - a. Methionine
 - b. Proline
 - c. Glycine
 - d. Guanosine
53. What is the average molecular weight of Type I collagen molecule?
 - a. 300 KDa
 - b. 3000 KDa
 - c. 30 KDa
 - d. 3 KDa
54. Defective cross-linking of collagen results in
 - a. marfan syndrome
 - b. lathyrism
 - c. fibrosis
 - d. osteogenesis imperfecta
55. Which of the following vitamins require sun light exposure to skin for its synthesis?
 - a. Vitamin A
 - b. Vitamin B
 - c. Vitamin C
 - d. Vitamin D
56. Which of the following is a non-fibrous protein present in skin?
 - a. Collagen
 - b. Reticulin
 - c. Keratin
 - d. Globulin
57. Which of the following raw materials is most suitable for making spongy garment leather?
 - a. Cow hide
 - b. Sheep skin
 - c. Buffalo hide
 - d. Goat skin
58. Which of the following enzymes is involved in the crosslinking of collagen fibrils?
 - a. Prolyl hydroxylase
 - b. Lysyl hydroxylase
 - c. Prolyl oxidase
 - d. Lysyl oxidase
59. The major force, which affects the wetting back of wet blue skins is
 - a. adhesive
 - b. cohesive
 - c. hydrogen bonds
 - d. van der Waals
60. Which of the following enzymes are capable of breaking down native Type I collagen triple helical domain at more than one site?
 - a. Glycosidase
 - b. Trypsin
 - c. Chymotrypsin
 - d. Bacterial Collagenase
61. Pick out the right order which has high fiber density
 - a. Epidermis > Corium minor > Adipose
 - b. Epidermis > Dermis > Adipose
 - c. Corium minor > Corium Major > Adipose
 - d. Adipose > Corium major > Grain
62. What is the functional role of vegetable tannins in plants?
 - a. To resist microbial attack
 - b. To increase water uptake
 - c. To act as secondary metabolites
 - d. To involve in photosynthesis

63. Which chemical is used to remove hair from the skin?
- Calcium hydroxide
 - Sodium Sulfide
 - Hydrogen sulfide
 - Calcium carbonate
64. Chrome soaps give _____ stains in wet blue skins
- Black
 - Pink
 - Brown
 - Red
65. Permissible limit of total chromium discharge as Cr in treated effluent is
- 1 ppm
 - 2 ppm
 - 3 ppm
 - 4 ppm
66. Mechanism of chrome tanning is based on
- Coordinate covalent cross-linking
 - Hydrogen bonding
 - Covalent crosslinks
 - Unipoint fixation through ionic interactions
67. Which tanning system is more suitable for football leather manufacturing?
- Zirconium tanning
 - Chrome tanning
 - Oil tanning
 - Aldehyde tanning
68. Which the mixed indicator is used for nitrogen estimation?
- bromophenol blue and thymol blue
 - thymol blue and cresol red
 - methyl orange and methyl red
 - methyl red and bromocresol green
69. Which type of crosslinking occurs in collagen stabilization during oil tanning?
- Hydrogen bonding
 - Co-ordinate covalent
 - Covalent
 - Ionic bond
70. Aldehyde pre-treatment is generally carried out for
- Garment leather
 - Chamois leather
 - Sole leather
 - Lining leather
71. Snuffing on grain is called _____ leather
- Nubuck
 - Suede
 - Full grain
 - Oil finish
72. Which chemical is used as an indicator in determining the purity of sodium chloride?
- Potassium chromate
 - Potassium permanganate
 - Silver nitrate
 - Silver chloride

73. How Sulfonation followed by condensation process is called during syntan manufacture?
- Neradol
 - Novolak
 - Sulfone
 - Neutralization
74. Which property is mainly incorporated by melamine syntan?
- Grain Tightness
 - Selective Filling
 - Bleaching
 - Neutralization
75. Which one of the following is the shape of test specimens for tensile strength of leather?
- Rectangle
 - Trapezoidal
 - Dumbbell
 - Square
76. Condensation is an important step in syntan manufacture which contributes towards
- Solubility
 - Crosslinking
 - Dispersion
 - Diffusion
77. Which of the following is used as a reducing agent in the preparation of BCS?
- Hydrogen Peroxide
 - Fluorine
 - Molasses
 - Hydroxide ions
78. Barkometer is used to:
- Determine the shrinkage temperature of leather
 - Determine the concentration of tannin solution
 - Determine the protein content in solution
 - Determine the fat content in solution
79. What is the water solubility properties of a surfactant with HLB range of 1-4?
- Insoluble
 - Soluble
 - Stable
 - Milky dispersion
80. Protein finishing is preferred for which type of leather?
- Glaze leathers
 - Nubuck
 - Laminated
 - Suede
81. Chromophores consists of _____ which are responsible for color.
- Functional groups with localized electrons
 - Functional groups with localized protons
 - Functional groups with delocalized protons
 - Functional groups with delocalized electrons

82. Which deliming agent is ideal for the manufacture of glove leather?
- Ammonium chloride
 - Ammonium sulphate
 - Sodium bicarbonate
 - Sodium sulphate

83. What is the product name (X)?



- Phenol sulfonic acid
 - Naphthalene sulfonic acid
 - Polyhydroxy sulfonic acid
 - Benzenesulfonic acid
84. Washing after neutralization is necessary to ensure
- removal of excess alkali
 - removal of chromium hydroxide formed
 - removal of neutral salts
 - effective fixation of dyes and fat liquors
85. For making light and bright colored leathers _____ syntans are preferable.
- Quebracho tannins
 - Sulphone
 - Phenolic
 - Replacement

86. The position of an auxochromic group in a dye molecule influences
- colour characteristics
 - solubility
 - Fastness property
 - Charge

87. What is an ideal cutting direction of leather?
- Parallel to stretch direction
 - Perpendicular to stretch direction
 - Diagonal to stretch direction
 - None of the above

88. Snuffing is an important machinery operation for which type of leathers?
- Suede
 - Nubuck
 - Upper
 - Sole

89. Which technique is used to determine the particle size?
- Dynamic Light scattering
 - Xray Diffraction
 - Vibrational Spectroscopy
 - Nuclear Magnetic Resonance

90. What is the approximate molecular weight of syntan, if the average number of phenolic nuclei per molecule is 5 with mole ratio of 0.8?
- 300-350 dalton
 - 750-900 dalton
 - 1500-2000 dalton
 - 2500-3000 dalton

91. Which base coat is preferred for a low absorbency crust leather?
 - a. Sealing Coat
 - b. Clearing Coat
 - c. Impregnation Coat
 - d. Both (a) and (c)
92. Which type of thread is used in shoe stitching that provides excellent sewing and superior tensile strength?
 - a. Cellulose
 - b. Polyamide base
 - c. Cotton
 - d. Spandex
93. The purpose of skiving machine is to _____ the thickness of a leather component along the edge to the desired thickness
 - a. Increase
 - b. Maximize
 - c. Improve
 - d. Reduce
94. Which theory is based on the assumption that the rigidity of the resin arises from intermolecular friction binding the chains together in a rigid network. On heating, these frictional forces are weakened to allow the plasticizer molecules to lubricate the chains?
 - a. Lubrication Theory
 - b. Gel Theory
 - c. Free Volume Theory
 - d. Mechanistic Theory
95. The first phase of a growth curve is
 - a. Log phase
 - b. Lag phase
 - c. Stationary phase
 - d. Decline Phase
96. Which of the following mechanisms is referred for shank material used in shoe?
 - a. Double side supported beam mechanism
 - b. Roller mechanism
 - c. Cantilever beam mechanism
 - d. Slider crank mechanism
97. What is the abbreviation of FRP?
 - a. Fibre Reinforced Plastics
 - b. Fabric Reinforced Polymer
 - c. Fibre Re-Structured Plastics
 - d. None of the above
98. Which is not considered in basic styles of footwear?
 - a. Derby
 - b. Oxford
 - c. Peep Toe
 - d. Slip on
99. Hotmelts adhesive is
 - a. Thermoplastic in nature
 - b. Thermosetting in nature
 - c. Electrostatic in nature
 - d. None of the above
100. Primary treatment of waste water includes
 - a. sedimentation
 - b. aerobic treatment
 - c. anaerobic treatment
 - d. biological oxidation