

PART III

20 — PHARMACEUTICAL TECHNOLOGY

(Answer ALL questions)

56. Which of the following phospholipids is localized to a greater extent in the outer leaflet of the membrane lipid bilayer?
- Choline phosphoglycerides
 - Ethanolamine phosphoglycerides
 - Inositol phosphoglycerides
 - Serine phosphoglycerides
57. The following substances are cell inclusions except
- Melanin
 - Glycogen
 - Lipids
 - Centrosome
58. Out of 24 mols of ATP formed in TCA cycle, 2 molecules of ATP can be formed at "substrate level" by which of the following reaction?
- Citric acid $\rightarrow$ Isocitric acid
 - Isocitrate $\rightarrow$ Oxaloacetate
 - Succinylcat $\rightarrow$ Succinic acid
 - Succinic acid $\rightarrow$ Fumarate
59. A nucleotide consists of
- A nitrogenous base like choline
 - Purine + pyrimidine base + sugar + phosphorous
 - Purine or pyrimidine base + sugar
 - Purine or pyrimidine base + phosphorous
60. Maltose is a disaccharide of
- Glucose and Galactose
 - Glucose and lactose
 - Glucose and Glucose
 - Fructose and lactose
61. Proteins contain
- Only L- α - amino acids
 - Only D-amino acids
 - DL-Amino acids
 - Both (a) and (b)
62. RNA does not contain
- Uracil
 - Adenine
 - Hydroxy methyl cytosine
 - Phosphate
63. Essential fatty acid:
- Linoleic acid
 - Linolenic acid
 - Arachidonic acid
 - All of the above
64. A coenzyme containing non aromatic hetero ring is
- ATP
 - NAD
 - Biotin
 - FMN
65. The ability of a pathogen to spread in the host tissues after establishing the infection is known as
- Adhesion
 - Invasiveness
 - Toxigenicity
 - None of the above
66. Staining material of gram positive bacterium is
- Fast green
 - Haematoxylin
 - Crystal violet
 - Safranin
67. Lysol is a
- Sterilent
 - Disinfectant
 - Antiseptic
 - Antifungal agent
68. Histones are found in
- Prokaryotes
 - Eukaryotes
 - Viruses
 - None of these

69. Which of the following is the process of converting sugar into alcohol?
- Oxidation
 - Pasteurization
 - Bleaching
 - Fermentation
70. In batch fermentation:
- Substrates are added to the system all at once and runs until product is harvested
 - Nutrients are continuously fed into the reactor and the product is siphoned off during the run
 - New batches of microorganisms are screened for increased yield
 - Small-scale production is used to synthesize product
71. While constructing the fermenter, which of the following is not required?
- High-speed Agitation and Aeration system
 - Temperature control system
 - pH control system
 - Sample facilities
72. Hormone insulin helps in the regulation of
- Blood sugar
 - Blood glucose
 - Urine sugar
 - Urine glucose
73. Cell-mediated immunity is the function of
- B lymphocytes
 - T lymphocytes
 - Plasma cells
 - Basophils
74. Antibodies are
- Proteins
 - Glycoproteins
 - Phospholipids
 - None of the above
75. Innate immunity is developed by
- Mechanical barriers
 - Chemical barriers
 - Both (a) and (b)
 - None of the above
76. The hinge region of the immunoglobulin consists of the disulfide bond that held the heterotetramer together. Also, it contributes to the flexibility of the antibody chain. Which one of the following antibody classes does not have a hinge region?
- IgA
 - IgD
 - IgE
 - IgG
77. Immediate type of hypersensitivity reactions are mediated by
- T-cells
 - β -cells
 - Mast cells
 - Macrophages
78. Immunoglobulin is associated with anaphylactic delayed hypersensitivity reaction
- IgE
 - IgA
 - IgD
 - IgM
79. Which of the following cells of the immune system do not perform phagocytosis?
- Macrophage
 - Neutrophil
 - Eosinophil
 - Basophil
80. Antigen is an important constituent of the vaccines, to avoid contamination and increase the immune response, a component such as adjuvant/stabilizer is added during the manufacturing process of a vaccine. Name the least commonly used adjuvant used in vaccine development?
- Formaldehyde
 - Aluminum sulfate
 - Potassium aluminum sulfate
 - Aluminum hydroxide

81. Which of the following statements is incorrect about the Live attenuated vaccine?
- It is prepared using whole weakened living bacteria or virus
 - It can generate a long-term immune response with the administration of a single dose
 - Measles, MMR, and oral polio vaccine are live attenuated vaccines
 - It is stable at normal room temperature
82. Slugging process applied in the ____ method of tablet preparation
- Wet Granulation
 - Dry Granulation
 - Both (a) and (b)
 - None of the above
83. _____ is sterile water for injection containing suitable antimicrobial agents.
- Water for Injection
 - Sterile Water for Injection
 - Bacteriostatic Water for Injection
 - All the above
84. Viscoelasticity of the ____ shall be assessed by creep test
- Lotions
 - Ointment
 - Suspension
 - Emulsion
85. Bloom strength of gelatin used in the capsule production is proportional to molecular weight of the gelatin which is measuring the
- Adhesive strength of gelatin with dipping pins
 - Cohesive strength of the crosslinking that occurs between gelatin molecules
 - Cohesive strength of the solvent molecules
 - Adhesive strength of gelatin with other polymer
86. Which one of the following Equipments is the best for evaporating concentrated aqueous and thermostable liquors?
- Climbing Film Evaporator
 - Evaporating Pan
 - Horizontal Tube evaporator
 - Triple effect evaporator
87. The rate of flow of the filtrate through the filter cake _____ to the thickness of the cake.
- remains constant
 - is directly proportional
 - is inversely proportional
 - none of the above
88. Area Under the curve shall be calculated by
- Trapezoidal method
 - Integration method
 - Cut and weigh method
 - All of the above
89. Choose the Level of correlation which states, the amount of drug dissolved at several time points of the dissolution profile to one or several pharmacokinetic parameters?
- Level A
 - Level B
 - Level C
 - Multiple level C
90. Opaque nature of hard gelatin capsule is due to the following ingredient
- Titanium dioxide
 - Sorbitol
 - Glycerin
 - Polyhydric alcohol
91. Zero order release kinetics is achieved in
- Enteric coating
 - Sustain release
 - Controlled release
 - Immediate release
92. Downward creaming states _____ rate of sedimentation.
- Same
 - Positive
 - Negative
 - No change
93. Energies required for the following transitions in increasing order
(P) $n \rightarrow \pi^*$
(Q) $\sigma \rightarrow \sigma^*$
(R) $n \rightarrow \sigma^*$
(S) $\pi \rightarrow \pi^*$
- $P < Q < R < S$
 - $Q < S < R < P$
 - $S < R < Q < P$
 - $P < S < R < Q$
94. Mid IR Region mainly consists of
- 4000-500 cm^{-1}
 - 4000-600 cm^{-1}
 - 4000-400 cm^{-1}
 - 4000-800 cm^{-1}

15. Overtones are mainly observed in
- Near IR
 - Mid IR
 - Far IR
 - None of the above
16. Signal splitting in NMR arises from
- Shielding effect
 - Spin-Spin decoupling
 - Spin-Spin coupling
 - Deshielding effect
17. Choose the correct sequence of MS procedure?
- The ion signal is processed into mass spectra.
 - The ions are detected usually by a quantitative method.
 - The ions are separated according to their mass to charge ratio in an analyzer by electromagnetic fields.
 - The components of the sample are ionized by one of a variety of methods (e.g. by impacting them with an electron beam) which result in the formation of charged particles.
 - A sample is loaded into the MS instrument and undergoes vaporization
- $p \rightarrow q \rightarrow r \rightarrow s \rightarrow w$
 - $w \rightarrow s \rightarrow r \rightarrow q \rightarrow p$
 - $p \rightarrow w \rightarrow r \rightarrow s \rightarrow q$
 - $q \rightarrow w \rightarrow r \rightarrow s \rightarrow p$
18. Ionization interference can be eliminated by addition of
- EDTA
 - Cryolite
 - Cesium salts
 - Lanthanum Chloride
19. Atomic emission spectroscopy is
- The measurement of absorbance of emitted light at a particular wavelength from the atoms that are excited thermally
 - The measurement of intensity of emitted light at a particular wavelength from the atoms that are excited by monochromatic light.
 - The measurement of intensity of emitted light at a particular wavelength from the atoms that are excited thermally.
 - The measurement of intensity of absorbed light at a particular wavelength from the atoms that are excited thermally
100. In which Chromatography stationary phase is more polar than mobile phase?
- Reversed chromatography
 - Liquid liquid Chromatography
 - Ion exchange
 - None of the above
101. Which force is involved in the Chromatography?
- Hydrogen bonding
 - London force
 - Electric static force
 - All of the above
102. In open tubular GC columns the outer layer is constructed with
- Polyimide
 - Silica glass
 - Aluminium
 - Thermostable plastic
- R, S
 - P, Q
 - Q, R
 - P, R
103. For the separation of which of the following substances, Gas-solid chromatography is being used?
- Thermally stable organic components
 - Low molecular weight gaseous species
 - Thermally stable inorganic components
 - Volatile organic components
104. Which of the following is not an advantage of Syringe type pumps used in High pressure liquid chromatography?
- Independent of viscosity
 - Pulse-less flow
 - Unlimited solvent capacity
 - High pressure capability
105. Which of the following pulse damper takes up some amount of the pulsation energy which is released to provide smooth pressure without pulsations?
- Flexible bellows or compressible gas passed through tee columns
 - Flexible inert diaphragm
 - Electronic pulse damper
 - Electrical pulse damper

106. The particle size in HPTLC is
- 0.5 μm
 - 1 μm
 - 5 μm
 - 10 μm
107. The relative adsorption of each component of the mixture is expressed in terms of its _____.
- Acceleration factor
 - Retardation factor
 - Both acceleration and retardation factor
 - None of the above
108. Match the following drugs with their correct classifications-
- | | |
|------------------|-------------------------------------|
| i. Betaxolol | A. β_1 -adrenergic agonist |
| ii. Carvedilol | B. Mixed acting sympathomimetics |
| iii. Epinephrine | C. Mixed α/β blocker |
| iv. Amphetamine | D. Nonselective adrenergic agonists |
- i-A, ii-C, iii-D, iv-B
 - i-D, ii-B, iii-C, iv-A
 - i-A, ii-C, iii-D, iv-B
 - i-B, ii-D, iii-C, iv-A
109. Match the following with correct classifications of the drugs.
- | | |
|-----------------|---|
| i. Albuterol | A. β_1 -adrenergic agonist |
| ii. Dopamine | B. Nonselective adrenergic agonist |
| iii. Clonidine | C. β_2 -adrenergic agonist |
| iv. Epinephrine | D. Selective α_2 -adrenergic agonist |
- i-B, ii-D, iii-C, iv-A
 - i-C, ii-A, iii-D, iv-B
 - i-D, ii-A, iii-C, iv-B
 - i-D, ii-B, iii-C, iv-A
110. Which amongst the following statements is/are incorrect related to the SAR of opiates?
- Replacement of alcoholic hydroxyl with $-\text{OC}_2\text{H}_5$ makes the compound 2.4 times more active than morphine.
 - Replacement of alcoholic hydroxyl with $-\text{OCOCH}_3$ will also activates the compound by 4.2 times.
 - Replacement of alcoholic hydroxyl with ketone group inactivates the compound and makes it lesser active.
- I, II
 - I
 - III
 - None
111. Patient with hypercholesterolemia taking a combination of two anti hyperlipidemic drugs. After 4 days the patient complaining of sever myalgia and increase in creatine kinase. Which drugs did this patient use?
- Cholestyramine and Lovastatin
 - Fenofibrate and Ezetimibe
 - Lovastatin and Fenofibrate
 - Niacin and Ezetimibe
112. Which of the following approach is considered under the 'Ligand based drug designing'?
- Molecular docking
 - Pharmacophore modeling
 - QSAR Modeling
 - (b) and (c) both
113. QSAR method involves
- Target structure
 - Target properties
 - Ligand x-ray structure
 - Ligand properties
114. Lipinski's rule of five is used for
- Docking
 - Similarity search
 - Drug likeness
 - Dynamics simulation
115. What is meant by ADME in pharmacokinetics?
- Affinity, dosage, marketing, efficacy
 - Absorption, distribution, metabolism, excretion
 - Agonism, dependence, mobility, efficiency
 - Antagonism, deficiency, mean, efflux