Dr.G.R.Damodaran College of Science

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CRISL rated 'A' (TN) for MBA and MIB Programmes

I MSC [2017-2019]
SEMESTER I
CORE: BIOCHEMISTRY - 158A
Multiple Choice Questions.

1. Inulin is hydrolysed to give _____.
   A. fructose
   B. glucose
   C. maltose
   D. both a and b
   ANSWER: A

2. A drug which prevents uric acid synthesis by inhibiting the enzyme xanthine oxidase is
   A. Aspirin
   B. Allopurinol
   C. Colchicine
   D. Probenecid
   ANSWER: B

3. Which of the following is required for crystallization and storage of the hormone insulin?
   A. Mn++
   B. Cl++
   C. Mg++
   D. Zn++
   ANSWER: D

4. The secondary structure of protein is _____.
   A. helical
   B. sheetlike
   C. globular
   D. both helical and sheetlike
   ANSWER: D

5. Amino acids are linked by what kind of bonds to form the primary structure of a protein?
   A. Disulfide
   B. Hydrogen
   C. Ionic
   D. Peptide
   ANSWER: D

6. The sequence of amino acids is the _____ structure of proteins.
   A. primary
   B. secondary
   C. tertiary
   D. quaternary
   ANSWER: A

7. Oxidation of which substance in the body yields the most calories
   A. Glucose

B. Glycogen
C. Protein
D. Lipids
ANSWER: D

8. The alpha and beta isomers of glucose are also called _____.
A. positive and negative types.
B. D and L types.
C. anomers.
D. epimers.
ANSWER: C

9. Which of the following is structurally the simplest amino acid?
A. Proline
B. Serine
C. Cysteine
D. Glycine
ANSWER: D

10. Which amino acid possesses the least extensive R group?
A. Proline
B. Serine
C. Tryptophan
D. Glycine
ANSWER: C

11. HDL is synthesized and secreted from
A. liver
B. kidney
C. brain
D. lungs
ANSWER: A

12. Which of the following is not an example of super secondary structure?
A. Domain
B. Helical bundle
C. Motif
D. Hairpin
ANSWER: A

13. Fats are abundantly found in
A. Vegetative tissue
B. Reproductive tissue
C. adipose tissue
D. none of the above
ANSWER: B

14. In beta-pleated sheet structures _____.
A. neighboring chains lie in a flat plane
B. neighboring residues are hydrogen bonded
C. neighboring residues have angles of about 90 degree
D. neighboring chains are hydrogen bonded
ANSWER: D

15. Beta sheets are stabilized by _____.
A. hydrophobic bonds
B. ionic bonds
C. hydrogen bonds

D. covalent bonds
ANSWER: A

16. Which of the following is true about Z-DNA?
A. Winds to the left
B. Is thicker than B-DNA
C. Has a flat major groove
D. Has a broad minor groove
ANSWER: B

17. The major form of DNA in cells is _____.
A. A-DNA
B. B-DNA
C. C-DNA
D. Z-DNA
ANSWER: B

18. DNA is synthesized in _____.
A. 5 prime to 3 prime direction
B. 3 prime to5 prime direction
C. in both directions
D. 3 prime to 3 prime direction
ANSWER: C

19. The DNA double helix is stabilized by _____.
A. ionic bonds
B. covalent bonds
C. hydrogen bonds
D. hydrophobic interactions
ANSWER: B

20. Components of DNA are _____.
A. phosphate, ribose, pyrimidines and purines
B. phosphate, ribulose and nucleotides
C. sulfate, ribose, pyrimidines and purines
D. phosphate and nucleotides
ANSWER: A

21. Which of the following phospholipids is localized to a greater extent in the outer leaflet of the membrane lipid bilayer?
A. Choline phosphoglyceride
B. Ethanolamine phosphoglycerides
C. Inositol phosphoglycerides
D. Serine phosphoglycerides
ANSWER: A

22. All the following processes occur rapidly in the membrane lipid bilayer except
A. Flexing of fatty acyl chains
B. Lateral diffusion of phospholipids
C. Transbilayer diffusion of phopholipids
D. Rotation of phospholipids around their long axes
ANSWER: C

23. Which of the following statement is correct about membrane cholesterol?
A. The hydroxyl group is located near the centre of the lipid layer
B. Most of the cholesterol is in the form of a cholesterol ester
C. The steroid nucleus form forms a rigid, planar Structure
D. none

ANSWER: A

24. Repeating units of hyaluronic acid are
A. N-acetyl glucosamine and D-glucuronic acid
B. N-acetyl galactosamine and D-glucuronic acid
C. N-acetyl glucosamine and galactose
D. N-acetyl galactosamine and L- iduronic acid
ANSWER: A

25. Which is a monomer of carbohydrates?
A. Glycogen
B. Nucleotide
C. Simple sugar
D. Monosaccharide
ANSWER: C

26. Which of the following is abundant in cells?
A. Carbohydrates
B. Salts and minerals
C. Proteins
D. Fats
ANSWER: A

27. A macromolecule is composed of smaller unit called _____.
A. polymers
B. isomers
C. monomers
D. isotopes
ANSWER: C

28. The approximate number of branches in amylopectin is
A. 10
B. 20
C. 40
D. 80
ANSWER: D

29. Monosaccharides are characterized by all except which of the following?
A. Carbon, hydrogen, and oxygen in a 1is to 2 is to 1 ratio
B. A molecule of three to seven carbon
C. Possession of one or more hydroxyl groups
D. The presence of glycerol and fatty acids
ANSWER: D

30. Fructose and glucose are _____.
A. isotopes
B. monosaccharides
C. disaccharides
D. five carbon sugars
ANSWER: B

31. Which of the following is/are unsaturated fatty acids _____.
A. Linoleic acid
B. oleic acid
C. palmitoleic acid
D. none of these
ANSWER: D

32. Which are the cholesterol esters that enter cells through the receptor-mediated endocytosis of lipoproteins hydrolyzed?
A. Endoplasmin reticulum
B. Lysosomes
C. Plasma membrane receptor
D. Mitochondria
ANSWER: B

33. Fructose and glucose are _____.
A. hexoses
B. polysaccharides
C. simple sugars
D. all of these
ANSWER: C

34. Glucose and ribose _____.
A. have the same number of carbon atoms
B. have the same structural formulae
C. are the two components of sucrose
D. are monosaccharides
ANSWER: D

35. Sucrose is composed of _____.
A. two molecules of fructose
B. two molecules of glucose
C. a molecule of fructose and a molecule of glucose
D. a molecule of fructose and a molecule of galactose
ANSWER: B

36. Fats can be stored in their cell without distributing their _____.
A. hydroxyl bond
B. aleurone layer
C. osmotic pressure
D. none of these
ANSWER: C

37. The synthesis of glucose from fat is _____.
A. Glycolysis
B. Krebs cycle
C. Saponification
D. Gluconeogenesis
ANSWER: D

38. Glycogen is a polysaccharide used for energy storage by_____.
A. animals
B. plants
C. protistans
D. monerans
ANSWER: A

39. Cellulose is _____.
A. a material found in cell walls
B. a component of cell membranes
C. a plant protein
D. formed by photosynthesis
ANSWER: A

40. High content of triglycerides are seen in _____.

A. HDL
B. LDL
C. VLDL
D. chylomicrons
ANSWER: D

41. Glucose on reduction with sodium amalgam forms
A. Dulcitol
B. Sorbitol
C. Mannitol
D. Mannitol and sorbitol
ANSWER: B

42. Which of the following cannot be used to describe some aspect of polysaccharides?
A. Energy storage
B. Straight or branched chain
C. Glucose subunits
D. Insoluble in water
ANSWER: D

43. Genetic information of nuclear DNA is transmitted to the site of protein synthesis by
A. rRNA
B. mRNA
C. tRNA
D. Polysomes
ANSWER: B

44. The following is not a phospholipid _____.
A. Sphingomyelin
B. lecithin
C. cephalin
D. cerebroside
ANSWER: D

45. Which of the following is not a lipid?
A. Chitin
B. Terpenes
C. Steroids
D. Prostaglandins
ANSWER: A

46. The unique property of aminoacid is their _____ nature.
A. non polar
B. non ionic
C. bipolar
D. polar
ANSWER: C

47. The globular shape of a protein is called the _____ structure.
A. primary
B. secondary
C. tertiary
D. quaternary
ANSWER: D

48. Which of the following is a unit molecule of hydrolysis?
A. ADP when it is being converted into ATP
B. Cellulose when it is being converted into glucose

C. Fatty acids when they are being converted to lipid
D. Amino acids when they are being converted into protein
ANSWER: B

49. Which of the following is an amino amine group?
A. NH2
B. OH-1
C. PO4
D. COOH
ANSWER: A

50. The level of protein structure represented by the alpha-helix shape is _____.
A. primary
B. secondary
C. tertiary
D. quaternary
ANSWER: B

51. Proteins may denature when _____.
A. pH is changed
B. oxygen is present
C. they form enzymes
D. substrate concentration is increased
ANSWER: A

52. A positive Seliwanoffs test is obtained with
A. Glucose
B. Fructose
C. Lactose
D. Maltose
ANSWER: B

53. The unit molecule of a protein is _____.
A. glucose
B. glycerol
C. a fatty acid
D. an amino acid
ANSWER: D

54. Glucose in cells is used primarily _____.
A. as an energy source
B. to produce membranes
C. to store genetic material
D. to produce enzymes that catalyze reactions
ANSWER: A

55. The breakdown of a disaccharide may produce _____.
A. glucose
B. glycerol
C. fatty acids
D. amino acids
ANSWER: A

56. The bending and folding of a protein molecule would produce a _____.
A. tertiary structure
B. primary structure
C. secondary structure
D. linear sequence of amino acids

ANSWER: A

57. Beta oxidation taxes place in _____.
A. mitochodria
B. cytoplasm
C. chloroplast
D. nucleus
ANSWER: A

58. The bonding of a glucose molecule and a maltose molecule would result in a _____.
A. triglyceride
B. disaccharide
C. phospholipid
D. polysaccharide
ANSWER: B

59. The major component of a plant cell wall is a product formed from the dehydration synthesis of _____.
A. fatty acids
B. nucleotides
C. amino acids
D. monosaccharides
ANSWER: D

60. The main difference between cellulose and starch molecule is _____.
A. the type of linkage between glucose subunits
B. that only cellulose contains ribose building blocks
C. that only starch is made from glucose building blocks
D. the type of monosaccharide used to form these polymers
ANSWER: A

61. The fats and oils are respectively rich in _____.
A. unsaturated fatty acids
B. saturated fatty acids
C. both a & b
D. none of the above
ANSWER: C

62. A characteristic feature of unsaturated fats is that they _____.
A. denature as they cool
B. are made up of glucose and fructose
C. are made up of amino acids and glycerol
D. have double bonds in their carbon chains
ANSWER: D

63. Which of the following are components of a phospholipid?
A. Cholesterol, glycerol, fatty acids
B. Fatty acids, phosphate group, glycerol
C. Glycerol, amino acids, phosphate group
D. Phosphate group, cholesterol, monosaccharides
ANSWER: D

64. A lipid molecule is produced when _____.
A. fatty acids bond to glycerol
B. amino acids bond to glycerol
C. monosaccharides bond to glycogen
D. dehydration occurs between fatty acids and glycogen
ANSWER: A

65. Which of the following types of bonding occurs during complementary base pairing in DNA?
A. Ionic
B. Peptide
C. Covalent
D. Hydrogen
ANSWER: D

66. In the human body, steroid molecules can act as _____.
A. buffers
B. vacuoles
C. hormones
D. coenzymes
ANSWER: C

67. Keratan sulphate is found in abundance in
A. Heart muscle
B. Liver
C. Adrenal cortex
D. Cornea
ANSWER: D

68. Which one among the following is an aldehyde and ketone derivative of polyhydroxy alcohols?
A. Proteins
B. Carbohydrates
C. Lipids
D. Minerals
ANSWER: C

69. Which of the following is an example of denaturation?
A. Water freezing
B. Sugar dissolving in water
C. Egg white forming a solid when heated
D. Butter changing from a solid to a liquid
ANSWER: C

70. What is the ratio of hydrogen to oxygen molecule in a carbohydrate?
A. 1:1
B. 2:1
C. 2:2
D. 3:1
ANSWER: B

71. Starches are glucose polymers in which glucopyranose units are bonded by _____ linkages.
A. alpha
B. beta
C. gamma
D. beta 1-4
ANSWER: A

72. The base thymine is always paired with _____.
A. adenine
B. guanine
C. cytosine
D. thymine
ANSWER: A

73. The angle between the long axis of base pair of DNA and plane perpendicular to the helical axis is

called as _____.
A. displacement
B. inclination
C. helical twist
D. helical tilt
ANSWER: B

74. Stabilization of proteins is increased by _____.
A. disulphide bonds
B. decrease of temperature
C. calcium
D. hydrogen bonds
ANSWER: A

75. The fundamental unit of tertiary structure is _____.
A. beta structures
B. domain
C. alpha structures
D. aminoacids
ANSWER: B

76. Interior core of protein is _____.
A. hydrophilic
B. hydrophobic
C. amphiphilic
D. neutral
ANSWER: B

77. The most abundant carbohydrate found in nature is
A. Starch
B. Glycogen
C. Cellulose
D. Chitin
ANSWER: C

78. Proteins are soluble in
A. Anhydrous acetone
B. Aqueous alcohol
C. Anhydrous alcohol
D. Benzene
ANSWER: D

79. What type of covalent bonds link the amino acids in a protein?
A. Peptide bonds
B. Hydrogen bonds
C. Ionic bonds
D. Glycosidic bonds
ANSWER: A

80. The structure of DNA described by Watson and Crick included _____.
A. a double helix
B. the sugar phosphate backbone aligned in the center of the helix
C. the base pairs that are stacked on the inside of the double helix
D. stacking of helix
ANSWER: C

81. The symptom of ammonia intoxication includes
A. Blurring of vision

B. Constipation
C. Mental confusion
D. Diarrhoea
ANSWER: A

82. The general formula for polysaccharide is _____.
A. (C6 H10 O5) n
B. (C6 H10 O6) n
C. (C6 H12 O5) n
D. (C6 H10 O6) n
ANSWER: A

83. Cellulose is made of a molecule of _____.
A. alpha glucose
B. beta glucose
C. fructose
D. galactose
ANSWER: B

84. Out of 200 different amino acids found in nature, the most common number of amino acids in protein is _____.
A. 25
B. 30
C. 35
D. 20
ANSWER: D

85. Z-DNA forms_____.
A. helical pattern
B. zinc fingers
C. minor and major grooves
D. zig zag pattern
ANSWER: D

86. Usually the helical molecule has narrow groove known as_____.
A. major groove
B. ridges
C. minor groove
D. furrows
ANSWER: C

87. NH3 is removed from brain mainly by
A. Creatinine formation
B. Uric acid production
C. Urea formation
D. Glutamine formation
ANSWER: D

88. Primer that acts as starting point for the complementary strand synthesis then the reaction is carried out by _____.
A. enzymes
B. M13 vectors
C. klenow fragment
D. dideoxy ATP
ANSWER: C

89. Which form of DNA is obtained when it is fully hydrated?
A. A-DNA

B. Z-DNA
C. C-DNA
D. B-DNA
ANSWER: D

90. The liver contains _____ enzyme.
A. phosphoglucomutase
B. fructokinase
C. hexokinase
D. glucokinase
ANSWER: D

91. Glucose 6 -phosphatase enzyme is present in _____.
A. kidney and heart
B. lung and heart
C. kidney and lung
D. liver and kidney
ANSWER: D

92. The breakdown of storage polysaccharides yields _____.
A. fructose 1-PO4
B. fructose 6-PO4
C. glucose 1-PO4
D. glucose 6-PO4
ANSWER: C

93. _____ is the gateway of the TCA cycle.
A. Aconitase
B. Citrate synthase
C. Isocitrate dehydrogenase
D. Malate dehydrogenase
ANSWER: B

94. _____ couples the conversion of succinyl CoA to succinate with the synthesis of GTP.
A. Alpha ketoglutarate synthase
B. Succinate thiokinase
C. Citrate synthase
D. Aconitase
ANSWER: B

95. Succinate dehydrogenase oxidises _____ to fumarate.
A. succinate
B. malate
C. alpha ketoglutarate
D. succinyl CoA
ANSWER: A

96. _____ catalyses the addition of water to fumarate to form malate.
A. Fumarase
B. Thiokinase
C. Dehydrogenase
D. Dehydratase
ANSWER: A

97. TCA cycle catabolizes pyruvate to _____.
A. O2
B. H2O2
C. H2O

D. CO2
ANSWER: D

98. _____ is negatively regulated by NADH and the energy change.
A. Dehydogenase
B. Thiokinase
C. Citrate synthase
D. Aconitase
ANSWER: C

99. The decarboxylation of pyruvate is catalyzed by a cluster of enzyme called _____.
A. citrate synthase
B. aconitase
C. pyruvate dehydrogenase
D. lactate dehydrogenase
ANSWER: C

100. The major constituent of the proteins of hair and keratin of skin:
A. Arginine
B. Cysteine
C. Glycine
D. Arginine
ANSWER: B

101. Glucokinase is inhibited by _____.
A. feedback inhibition
B. end product inhibition
C. glucose 6 -PO4
D. fructose 6- PO4
ANSWER: D

102. _____ enzyme is a tetramer of identical subunits
A. Phosphofructokinase
B. Pyruvate kinase
C. Glucokinase
D. Hexokinase
ANSWER: A

103. Muscle PFK dissociate into inactive dimer in the presence of _____.
A. ATP
B. ADP
C. citrate
D. NADH
ANSWER: C

104. Which one of the following is an activator of phosphofructokinase?
A. NADH
B. Citrate
C. ATP
D. Fructose 2,6-bis PO4
ANSWER: D

105. Type I hexokinase is present in _____.
A. skeletal muscle
B. brain
C. kidney
D. lungs
ANSWER: B

106. The activity of hexokinase is inhibited by _____.
A. citrate
B. fructose 6-PO4
C. ATP
D. glucose 6-PO4
ANSWER: D

107. Gluconeogenesis starts with_____.
A. citrate
B. lactate
C. oxaloacetate
D. pyruvate
ANSWER: C

108. An alternative pathway of glucose degradation is called as _____.
A. gluconeogenesis
B. HMP shunt
C. glucogenolysis
D. TCA cycle
ANSWER: B

109. _____ is an essential precursor in biosynthesis of nucleotides.
A. Ribulose 5-PO4
B. Xylulose 5- PO4
C. Fructose 5- PO4
D. Ribose 5-PO4
ANSWER: D

110. Gluconeogenesis utilizes enzymes mainly from_____.
A. glycolytic cycle
B. TCA cycle
C. HMP shunt
D. glycogen synthase
ANSWER: A

111. Liver is a major site for storage of _____.
A. glucose
B. glycogen
C. aminoacids
D. proteins
ANSWER: B

112. A deficiency of glucose 6-phosphate dehydrogenase leads to _____.
A. hemolytic anemia
B. hepatic anemia
C. obstructive anemia
D. hepatocytosis
ANSWER: A

113. _____ is strictly a consumer tissue and does not contribute to the stabilization of the blood glucose level.
A. Brain
B. Muscle
C. Liver
D. Adipose tissue
ANSWER: B

114. The first step in fatty acid synthesis is catalysed by _____.
A. acyl CoA dehydrogenase
B. fatty acid synthase
C. acetyl CoA carboxylase
D. reductase
ANSWER: C

115. A pathway that requires NADPH as a cofactor is
A. Extramitochondrial folic acid synthesis
B. Ketone body formation
C. Glycogenesis
D. Gluconeogenesis
ANSWER: A

116. Enzyme complexes involved in fatty acid biosynthesis occur in the _____ of animal cell.
A. endoplasmic reticulum
B. nucleus
C. mitochondria
D. cytosol
ANSWER: A

117. The _____ can penetrate the outer membrane of mitochondria through a pore.
A. acyl CoA
B. malonyl CoA
C. acetyl CoA
D. enoyl CoA
ANSWER: A

118. The mitochondrial membrane is impermeable to _____.
A. acyl coA.
B. malonyl CoA
C. enoyl CoA
D. acetyl CoA
ANSWER: D

119. _____ activates the liver acetyl CoA carboxylase.
A. Calcium
B. Oxaloacetate
C. Citrate
D. ATP
ANSWER: C

120. _____ is the important source of cytosolic acetyl CoA.
A. Calcium
B. Citrate
C. Oxaloacetate
D. ATP
ANSWER: B

121. The enzyme acetyl CoA carboxylase is inhibited by _____.
A. palmitoyl CoA
B. acetyl CoA
C. acyl CoA
D. enoyl CoA
ANSWER: A

122. _____ is regulated by a chain reactions promoted by the hormones glucagon and epinephrine.
A. Acetyl CoA carboxylase

B. Acetyl CoA synthase
C. Carnitine acyl transferase I
D. Carnitine transferase II
ANSWER: A

123. Dietary conditions can alter the levels of enzymes involved in _____ metabolism
A. carbohydrate
B. fatty acid
C. amino acid
D. nucleic acid
ANSWER: B

124. Fatty acids originate from _____ sources
A. 3
B. 4
C. 2
D. 5
ANSWER: A

125. The degradation of fatty acids occurs by an oxidation process in the _____.
A. nucleus
B. endoplasmic reticulum
C. cytosol
D. mitochondria
ANSWER: D

126. The main end product of fatty acid oxidation is _____.
A. acyl CoA
B. acetyl CoA
C. enoyl CoA
D. keto acyl CoA
ANSWER: B

127. Ketone bodies are formed in the _____.
A. kidney
B. liver
C. heart
D. adipose tissue
ANSWER: B

128. _____ and _____ hormones stimulate degradation and inhibit synthesis.
A. Epinephrine, thyroid
B. Insulin, epinephrine
C. Epinephrine, glucagon
D. Glucagon, insulin
ANSWER: C

129. Fatty acid biosynthesis takes place in the _____.
A. nucleus
B. mitochondria
C. endoplasmic reticulum
D. cytosol
ANSWER: D

130. _____ is the key intermediate in the biosynthesis of phosphatidyl choline and phosphatidyl ethanolamine.
A. Phosphatidyl glycerol
B. Phosphatidyl inositol

C. Diacyl glycerol
D. Sphingolipid
ANSWER: C

131. Eicosanoids are derived from _____.
A. arachidonic acid
B. linoleic acid
C. oleic acid
D. palmitic acid
ANSWER: A

132. E.coli contains _____ important classes of phospholipids.
A. 1
B. 4
C. 2
D. 3
ANSWER: D

133. _____ is an essential ingredient in the human diet.
A. Choline
B. Ethanolamine
C. Sphingomyelin
D. Diacyl glycerol
ANSWER: A

134. Enzymes that degrade phospholipids are called _____.
A. lipase
B. phospholipase
C. enolase
D. aldolase
ANSWER: B

135. Phospholipases A1 and A2 selectively remove fatty acids from _____ position.
A. SN-1
B. SN-3
C. SN-4
D. SN-5
ANSWER: A

136. _____ cleaves the substrates between glycerol and phosphate moieties.
A. Phospholipase A2
B. Phospholipase A1
C. Phospholipase D
D. Phospholipase C
ANSWER: D

137. _____ is a major component of snake venom.
A. Phospholipase A2
B. Phospholipase C
C. Phospholipase D
D. Phospholipase A1
ANSWER: A

138. Phospholipases A2 catalyzes the first step in the remodeling of _____.
A. phophatidyl inositol
B. phosphatidyl choline
C. phosphatidyl ethanolamine
D. phosphatidyl estercholine

ANSWER: B

139. Phospholipases A2 plays an important regulatory role in release of _____.
A. palmitic acid
B. arachidonic acid
C. oleic acid
D. linoleic acid
ANSWER: B

140. Phospholipase C plays an important regulatory role in the release of cellular second messenger _____.
A. nitric oxide
B. cAMP
C. diacyl glycerol
D. calcium
ANSWER: C

141. The biosynthesis of sphingosine occurs in _____.
A. endoplasmic reticulum
B. mitochondria
C. cytosol
D. nucleus
ANSWER: A

142. _____ are blood group antigens
A. Inositol
B. Ethanolamine
C. Glycosphingolipids
D. Diacyl glycerol
ANSWER: C

143. _____ is a key intermediate in cholesterol biosynthesis.
A. Lanosterol
B. Mevalonate
C. Squalene
D. HMG CoA
ANSWER: B

144. In oxidation of fatty acids which of the following are utilized as co-enzymes?
A. NAD+ and NADP+
B. FAD H2 and NADH + H+
C. FAD and FMN
D. FAD and NAD+
ANSWER: D

145. _____ may reduce cholesterol deposits.
A. Chylomicrons
B. VLDL
C. LDL
D. HDL
ANSWER: D

146. The sequence of cholesterol biosynthesis begins with a condensation in the _____.
A. mitochondria
B. cytosol
C. adipose tissue
D. endoplasmic reticulum
ANSWER: B

147. _____ is an important intermediate for the biosynthesis of ketone bodies.
A. HMG CoA
B. Mevalonate
C. Lanosterol
D. Squalene
ANSWER: A

148. Choline or ethanolamine enters into the cell via _____.
A. passive diffusion
B. facilitated diffusion
C. simple diffusion
D. active transport
ANSWER: D

149. _____ is the major component in lung surfactant.
A. Dipalmitoyl phosphatidyl choline
B. Phosphatidyl ethanolamine
C. Phosphatidyl choline
D. Phophatidyl inositol
ANSWER: A

150. The _____ of membranes also serves as a reservoir for cellular second messenger.
A. high density lipoprotein
B. phospholipids
C. chylomicron
D. diacyl glycerol
ANSWER: B

151. Defects in _____ catabolism are associated with metabolic disease.
A. sphingolipid
B. ethanolamine
C. inositol
D. diacyl glycerol
ANSWER: A

152. _____ is the primary control site for cholesterol biosynthesis.
A. Cis-prenyl transferase
B. Squalene synthase
C. HMG CoA reductase
D. Trans prenyl transferase
ANSWER: C

153. _____ is the precursor of steroid hormones and bile acids.
A. Amino acid
B. Cholesterol
C. Sphingomyelin
D. Lanosterol
ANSWER: B

154. Steroid hormones are grouped into _____ categories.
A. 2
B. 4
C. 3
D. 5
ANSWER: D

155. The pH of gastric juice of infants is

A. 2.0
B. 4.0
C. 4.5
D. 5.0
ANSWER: D

156. _____ is a common precursor of the aromatic amino acid family.
A. Alanine
B. Chorismate
C. Valine
D. Isoleucine
ANSWER: B

157. synthesis of glucose from fatty acids are called
A. trascription
B. gluconeogenisis
C. esterification
D. energy transferase
ANSWER: B

158. The alpha-amino groups of most amino acids are derived from _____.
A. urea
B. ammonia
C. carbon dioxide
D. oxygen
ANSWER: B

159. _____ serves as the starting material for the synthesis of proline.
A. Valine
B. Glutamate
C. Isoleucine
D. Glutamine
ANSWER: B

160. In fungi _____ is also included in glutamate family.
A. valine
B. alanine
C. cysteine
D. lysine
ANSWER: D

161. _____ is the main enzyme initiating the flow of ammonia and nitrogen into organic compounds.
A. Glutamine synthase
B. Glutamate synthase
C. Glutamate dehydrogenase
D. Glutamine dehydrogenase
ANSWER: A

162. The activity of glutamine synthase is negatively regulated by _____ nitrogenous compounds.
A. 4
B. 8
C. 5
D. 7
ANSWER: B

163. In glutamate family of amino acids, adenylation and deadenylation are regulated by _____

supply in the cell.
A. cofactor
B. oxygen
C. nitrogen
D. carbon dioxide
ANSWER: C

164. In glutamate family of amino acids, excess of nitrogen leads to inactivation of _____.
A. glutamate dehydrogenase
B. glutamine synthase
C. glutamine dehydrogenase
D. glutamate synthase
ANSWER: B

165. Nitrogenase enzyme contains _____ complex protein components.
A. 2
B. 4
C. 5
D. 3
ANSWER: A

166. The nitrogenase cycle takes place in _____ steps.
A. 6
B. 5
C. 7
D. 8
ANSWER: D

167. In nitrogenase cycle binding of component II to component I requires _____ ATP molecules.
A. 2
B. 4
C. 1
D. 6
ANSWER: A

168. Nitrogen fixation involves an enzyme called _____.
A. synthase
B. ammoniase
C. nitrogenase
D. decarboxylase
ANSWER: C

169. Serine family includes _____ amino acids.
A. 3
B. 4
C. 6
D. 5
ANSWER: A

170. Which one of the following does not belongs to serine family?
A. Glutamate
B. Serine
C. Glycine
D. Cysteine
ANSWER: A

171. _____ is a multiunit complex enzyme.
A. Transacetylase

B. Sulfhydrylase
C. Adenyl sulfate pyrophosphorylase
D. Sulfite reductase
ANSWER: D

172. The aspartate family of amino acid includes _____ amino acids.
A. 5
B. 3
C. 6
D. 4
ANSWER: C

173. fats are stored in the cell without disturbing their
A. size
B. charge
C. binding site
D. osmatic relations
ANSWER: D

174. Which one of the following does not belongs to aspartate family?
A. Methionine
B. Valine
C. Lysine
D. Threonine
ANSWER: B

175. Which one of the following amino acid belongs to pyruvate family?
A. Aspartate
B. Methionine
C. Alanine
D. Threonine
ANSWER: C

176. _____ is the precursor of isoleucine.
A. Threonine
B. Methionine
C. Alanine
D. Glutamine
ANSWER: A

177. _____ is technically not a member of urea cycle.
A. Carbonyl phosphate synthase
B. Amino acid oxidase
C. Alpha keto glutarate dehydrogenase
D. Citrate synthase
ANSWER: A

178. Urea is synthesized in the _____ by the enzymes of the urea cycle.
A. lung
B. heart
C. liver
D. kidney
ANSWER: C

179. Mitochondrial carbomoyl phosphate synthase I uses _____ as its nitrogen donor.
A. glutamine
B. glutamate
C. urea

D. ammonia
ANSWER: D

180. The enzymes of electron transport and oxidative phosphorylation are bound to the_____.
A. smooth endoplasmic reticulum
B. rough endoplasmic reticulum
C. c. inner mitochondrial membrane
D. d. outer mitochondrial membrane
ANSWER: C

181. _____ pathway also supplies carbon skeletons for cell's biosynthetic processes.
A. Gluconeogenesis
B. Glycolysis
C. HMP shunt
D. TCA cycle
ANSWER: C

182. _____ is a branch point metabolite.
A. Alpha ketoglutarate
B. Citrate
C. Malate
D. Fumarate
ANSWER: A

183. In TCA cycle, alpha ketoglutarate dehydrogenase is regulated by _____.
A. acetyl CoA
B. alpha ketoglutarate
C. succinate
D. succinyl CoA
ANSWER: D

184. In TCA cycle, _____ act as a competitive inhibitor of oxaloacetate for citrate synthase.
A. isocitrate
B. citrate
C. pyruvate
D. acetyl CoA
ANSWER: B

185. Citrate synthase is negatively regulated by _____.
A. NADPH
B. NADH
C. FAD
D. ATP
ANSWER: B

186. An enzyme isocitrate dehydrogenase is stimulated by _____.
A. AMP
B. ATP
C. NAD
D. FAD
ANSWER: A

187. In glycolysis, the source of the phosphate group is _____.
A. GTP
B. ATP
C. FAD
D. NAD
ANSWER: B

188. In carbohydrate metabolism, adenyl cyclase is stimulated by _____.
A. insulin
B. glucagon
C. nor epinephrine
D. dopamine
ANSWER: B

189. The process of breakdown of liver glycogen to glucose is known as _____.
A. glycogenesis
B. glycogenolysis
C. gluconeogenesis
D. glycolysis
ANSWER: B

190. Reduction of the double bond in the side chain of desmosterol gives rise to _____.
A. cholesterol
B. lanosterol
C. zymosterol
D. squalene
ANSWER: A

191. _____ catalyses the isomerisation of citrate to isocitrate.
A. Aconitase
B. Pyruvate dehydrogenase
C. Malate dehydrogenase
D. Citrate synthase
ANSWER: A

192. Non-standard amino acids are usually formed by _____.
A. post transcriptional modification
B. post translational modification
C. deamination process
D. mutation
ANSWER: B

193. Amino acids whose catabolism yields pyruvate or one of the intermediates of the citric acid cycle are termed as _____.
A. glucogenic
B. ketogenic
C. amidogenic
D. none of the above
ANSWER: A

194. Amino acids whose catabolism yields aceto acetate or one of its precursors cycle are termed as _____.
A. amidogenic
B. ketogenic
C. glucogenic
D. none of the above
ANSWER: B

195. Tyrosine is _____ amino acid.
A. ketogenic
B. glucogenic
C. both ketogenic and glucogenic
D. none of the above
ANSWER: C

196. Alanine loses its amino group by transamination to form _____.
A. pyruvate
B. lactate
C. glutamate
D. glycine
ANSWER: A

197. Hormones are
A. Act as coenzyme
B. Act as enzyme
C. Influence synthesis of enzymes
D. Belong to B-complex group
ANSWER: C

198. Synthesis of tyrosine depends on the essential amino acid _____.
A. lysine
B. phenyl alanine
C. methionine
D. valine
ANSWER: B

199. Synthesis of cysteine depends on the essential amino acid _____.
A. threonine
B. histidine
C. methionine
D. isoleucine
ANSWER: C

200. _____ is the chief end product of amino acid metabolism.
A. Urea
B. Uric acid
C. Ammonia
D. Pyruvate
ANSWER: A

201. The enzyme diastase is now known as _____.
A. hydrolase
B. maltase
C. amylase
D. catalase
ANSWER: C

202. Pepsin is a _____ juice.
A. gastric
B. pancreatic
C. intestinal
D. bile
ANSWER: A

203. The name enzyme was proposed by _____.
A. Kuhne
B. Emil Fischer
C. Koshland
D. Michaelis Menten
ANSWER: A

204. Natural lipids are readily soluble in

A. oil
B. mercury
C. water
D. nano of the above
ANSWER: D

205. The second digit 2 under the class of oxidoreductase designates _____ group.
A. aldehyde
B. alcohol
C. NADH
D. NADPH
ANSWER: A

206. Main class 5 is given to _____.
A. isomerase
B. hydrolase
C. lyase
D. ligase
ANSWER: A

207. The action of glucokinase exhibits _____.
A. group specificity
B. stereo specificity
C. absolute specificity
D. product specificity
ANSWER: C

208. Enzymes form strong linkages with _____.
A. irreversible inhibitor
B. substrate
C. competitive
D. product
ANSWER: A

209. Heavy metal ion has great affinity for _____.
A. aryl group
B. hydroxyl group
C. pyridazole
D. pyrimidine group
ANSWER: A

210. The residue in active site of carboxylase A is _____.
A. tyrosine
B. tryptophan
C. methionine
D. cysteine
ANSWER: A

211. Hydrolysis of glycine esters is an example for _____.
A. covalent catalysis
B. electrostatic
C. acid base
D. uncatalytic reaction
ANSWER: B

212. Chymotrypsin is a _____ protease.
A. serine
B. tyrosine

C. carboxy
D. leucine
ANSWER: A

213. First enzyme to have its complete amino acids sequenced is _____.
A. lysozyme
B. trypsin
C. ribonuclease
D. protease
ANSWER: C

214. The rigidity of bacterial cell wall is broken by _____.
A. ribonuclease
B. isomerase
C. carboxypeptidase
D. lysozyme
ANSWER: D

215. First enzyme whose 3-D structure is determined by X-ray crystallography is _____.
A. amylase
B. lactase
C. lysozyme
D. trypsin
ANSWER: C

216. The fastest enzymes is
A. Pepsin
B. Carbonic anhydrase
C. DNA gyrase
D. DNA polymerase
ANSWER: B

217. Metallo enzyme cannot form _____ complex
A. M-E-S
B. E-S-M
C. E-M-S
D. E-M
ANSWER: B

218. Zn has catalytic role in _____ activity
A. superoxide dismutase
B. carboxy peptidase A
C. catalase
D. amidase
ANSWER: B

219. TPP is derived from vitamin _____.
A. B1
B. B6
C. B5
D. B7
ANSWER: A

220. The number of amino acids in human growth hormone is
A. 91
B. 151
C. 191
D. 291

ANSWER: C

221. Both Km and Vmax are altered in _____ inhibition.
A. competitive
B. uncompetitive
C. non competitive
D. irreversible
ANSWER: C

222. The inhibitor that binds to site other than substrate binding site is _____.
A. competitive
B. uncompetitive
C. allosteric
D. mixed
ANSWER: C

223. The bond that is formed between inhibitor and enzyme is _____.
A. non covalent
B. hydrogen
C. covalent
D. phosphate
ANSWER: C

224. Which of the following is observed with regard to MM kinetics in case of competitive inhibition?
A. Km is increased
B. Vmax is increased
C. Km is unchanged
D. Both Km and Vmax remains constant
ANSWER: A

225. The enzyme which forms the peptide bond is known as
A. Carbonic unhydrase
B. Peptidase
C. Carbohydrase
D. Peptidyl transferase
ANSWER: D

226. Allosteric inhibition is an example of _____.
A. positive homotropic
B. negative homotropic
C. positive hetrotropic
D. negative hetrotropic
ANSWER: D

227. NADH absorbs light at _____.
A. 340 nm
B. 420 nm
C. 680 nm
D. 640 nm
ANSWER: A

228. The method that is used to remove pigments from enzyme preparation is _____.
A. electrophoresis
B. partition chromatography
C. ultracentrifugation
D. adsorbent gel
ANSWER: D

229. E.C 3.1.1 is given to _____.
A. carboxylic ester hydrolase
B. thiol ester hydrolase
C. phosphoric diester hydrolase
D. monoester hydrolase
ANSWER: A

230. Isomerase donot bring _____ reaction
A. racemization
B. cis-trans interconversion
C. transfer
D. lytic
ANSWER: D

231. E.C 6.3.1.2 is given to _____.
A. glutamate ammonia ligase
B. glutamate amino acid ligase
C. glutamate ammonia lyase
D. glutamate ammonia lyase
ANSWER: A

232. The enzyme, tyrosinase, is activated by
A. Iron
B. Copper
C. Zinc
D. Potassium
ANSWER: B

233. Enzyme-driven metabolic pathways can be made more efficient by
A. concentrating enzymes within specific cellular compartments
B. grouping enzymes into free-floating, multienzyme complexes
C. fixing enzymes into membranes so that they are adjacent to each other
D. All of the above
ANSWER: D

234. Second messenger for glucagons is
A. Cyclic AMP
B. Diacylglycerol
C. Cyclic GMP
D. Inositol triphosphate
ANSWER: A

235. All the structures remain fixed in enzyme throughout the binding process is stated in _____ hypothesis.
A. induced fit
B. proximity and orientation
C. substrate strain
D. lock and key
ANSWER: D

236. Which of the statements is not correct?
A. Enzyme binds with substrate
B. Enzyme binds with substrate analogue
C. Structure of free enzyme and substrate are complementary
D. Structure of enzyme and substrate are complementary in ES complex
ANSWER: C

237. Enzyme which operates by a strain mechanism is _____.

A. chymotrypsin
B. peptidase
C. lysozyme
D. amidase
ANSWER: C

238. Zymogen is a _____.
A. proenzyme
B. abzyme
C. synzyme
D. protein
ANSWER: A

239. Substrate binds to active site by _____.
A. strong covalent bond
B. non covalent bond
C. covalent coordinate bond
D. hydrogen bond
ANSWER: B

240. Stopped flow technology was developed by _____.
A. Hartridge and Roughton
B. Chance and Gibson
C. Fischer and Koshland
D. Morgan and Stanley
ANSWER: B

241. Oleic acids comes under the category
A. unsaturated fatty acids
B. saturated fatty acids
C. primary fatty acids
D. secondary fatty acids
ANSWER: A

242. Log Kn+nlog [S] = log (Y/1-Y) is _____.
A. LB equation
B. Hanes equation
C. Hill equation
D. MM equation
ANSWER: C

243. Coenzymes are _____.
A. organic molecules
B. enzymes
C. inhibitors
D. metal ions
ANSWER: A

244. Trypsin are active in
A. Acidic
B. Alkaline
C. neutral
D. None of these
ANSWER: B

245. Active site titration is a method to _____ enzyme.
A. separate
B. purify

C. synthesize
D. isolate
ANSWER: B

246. The method that separate enzymes based on polarity is _____.
A. centrifugation
B. gel filtration
C. dialysis
D. ion exchange chromatography
ANSWER: D

247. Gel filtration relies on _____ for enzyme separation.
A. size
B. charge
C. hydrophobic character
D. binding site
ANSWER: A

248. Double reciprocal plot is also called as _____.
A. MM plot
B. LB plot
C. Eadie Hoftsee plot
D. Hanes plot
ANSWER: B

249. _____ is used as a meat tenderizer.
A. Chymosin
B. Pectinase
C. Pepsin
D. Papain
ANSWER: D

250. The enzymes involved in feedback inhibition are called
A. Allosteric enzymes
B. Holoenzymes
C. Apoenzymes
D. Coenzymes
ANSWER: A

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