

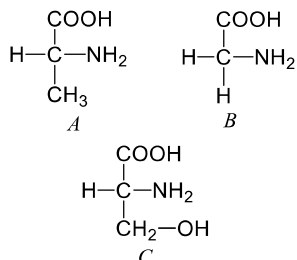
- c) A-Endergonic; B-Endergonic
d) A-Exergonic; B-Exergonic
19. The pyrimidine base, which confers additional stability to DNA over RNA, is
a) Adenine b) Guanine c) Cytosine d) Thymine
20. If the total amount of adenine and thymine in a double-stranded DNA is 60%, then the amount of guanine in this DNA will be
a) 15% b) 20% c) 30% d) 40%
21. An enzyme extract when subjected to electric field, separates into two fractions each catalyzing the same reaction. These fractions are
a) Allosteric enzymes b) Isoenzymes c) Inducible enzymes d) Coenzymes
22. Amino acids the substituted methanes. Name the four substituent groups occupying the four valency positions
a) Hydrogen, carboxyl group, amino group and a variable group (R) b) Two carboxyl groups amino group and OH
c) Two hydrogen, one carboxyl group, amino group and a variable group (R) d) Two amino groups, one hydrogen and one carboxyl group
23. The 'lock' and 'key' theory of enzyme structure and function was proposed by
a) Morgan b) Robertson c) Brown d) Fischer
24. Histone octamer contains
a) Eight types of histones b) Eight histones of four different types
c) Five histones d) Six types of histones
25. What is grape sugar?
a) Glucose b) Fructose c) Sucrose d) Galactose
26. Pepsin is anenzyme
a) Intracellular b) Extracellular c) Both (a) and (b) d) None of these
27. Which one is a polymer?
a) Sucrose b) Glycogen c) Fructose d) Lactose
28. Which of the following statements are correct?
I. Acetic acid can form cholesterol
II. Flow of metabolites through metabolic pathway has a definite rate and direction. It is called dynamic state of body constituents
III. Anabolic pathway is endergonic while catabolic pathway is exergonic
IV. All biomolecules have a term over, *i. e.*, they are constantly being changed into some other biomolecules and also made from other biomolecules
The correct options is
a) All are correct b) I and II are correct
c) Only IV is correct d) All are wrong
29. An α -helix is the example of protein structure
a) Primary b) Secondary c) Tertiary d) Quaternary
30. Which is a reducing sugar?
a) Galactose b) Gluconic acid
c) β - methyl galactoside d) Sucrose
31. Formation of glycogen from glucose is called
a) Glycogenolysis b) Glycogenesis c) Glycolysis d) Gluconeogenesis
32. Which of the following statements are correct for polysaccharides?
I. The polysaccharides are found as a part of the acid insoluble pellet
II. These are long chains of sugars
III. They are threads containing different monosaccharides as building blocks

- II. flavonoids
- III. rubber
- IV. essential oils
- V. antibiotics
- VI. coloured pigments
- VII. scents
- VIII. gums
- IX. spices

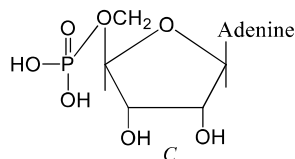
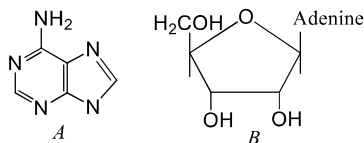
Choose the correct option

- a) I to IX b) All except II and IX c) I, III, IV and VI d) All except I and VII
47. What is the starting point in the production of food?
 a) Catabolism b) Metabolism c) Anabolism d) Photosynthesis

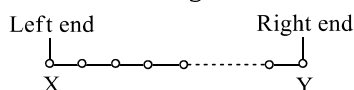
48. Name the amino acids A – C correctly



- a) A-Glycine, B-Serine, C-Alanine b) A-Alanine, B-Glycine, C-Serine
 c) A-Serine, B-Glycine, C-Alanine d) A-Serine, B-Alanine, C-Glycine
49. Name the heterocyclic compounds which are known as nitrogenous bases
 Choose the most appropriate options
 a) Adenine, guanine, uracil, cytosine and thymine
 b) Adenine, guanine, uracil and thymine
 c) Adenine, guanine, cytosine, uracil
 d) None of these
50. In which one of the following enzymes copper is necessarily associated as an activator?
 a) Carbonic anhydrase b) Tryptophanase
 c) Lactic dehydrogenase d) Tyrosinase
51. Identify the structural formulae and select the correct option

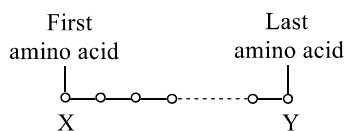


- a) A-Adenine, B-Adenosine, C-Adenylic acid b) A-Guanine, B-Adenosine, C-Adenylic acid
 c) A-Adenosine, B-Adenylic acid, C-Adenine d) A-Uracil, B-Adenosine, C-Adenylic acid
52. The regulation of the chemical composition of blood and body fluids and other aspects of its internal environment by an organism to maintain the physiological process is called
 a) Entropy b) Enthalpy c) Homeostasis d) Metabolism
53. Name the term given to the left and right ends of a polysaccharide



- a) Left end—N —terminal end, Right end—C —terminal end
 b) Left end—reducing end, Right end—non-reducing end
 c) Left end— non-reducing end, Right end—reducing end
 d) Left end—C —terminal end, Right end—N —terminal end
54. 'G' in DNA strand base pairs with 'C' by 3... bonds
 a) Hydrogen b) Von der Waal c) Covalent d) Ionic
55. The inhibitor which inhibits the enzyme activity by binding to the active site of the enzyme, due to the close resemblance to the substrate in its molecular structure is called
 a) Non-competitive inhibitor b) Competitive inhibitor
 c) Allosteric modulator d) Feedback inhibitor
56. Select the correct pair of substituted purines
 a) Cytosine and thymine b) Adenine and guanine
 c) Uracil and cytosine d) Guanine and uracil
57. Which one of the following is wrongly matched?
 a) Fungi – Chitin b) Phospholipid – Plasma membrane
 c) Enzyme – Lipopolysaccharide d) ATP – Nucleotide derivative
58. Amino acids are organic compounds and are called α -amino acids. Why?
 a) Amino acids are organic compounds containing an amino group and acidic group as substituents on two different carbons
 b) Amino acids are organic compounds containing an amino group and an acidic group as substituents on the same carbon
 c) Amino acids are inorganic compounds containing an amino group and acidic group as substituents on two different carbons
 d) Amino acids are inorganic compounds containing an amino group and acidic group as substituents on the same carbon
59. Enzymes that catalyze inter-conversion of optical, geometrical or positional isomers, are
 a) Ligases b) Lyases c) Hydrolases d) Isomerases
60. All the carbon compounds obtained from living tissues are named as
 a) Biomolecules b) Inorganic compounds
 c) Organic compounds d) Only DNA
61. A fatty acid has a carboxyl group attached to R group. The R group could be a
 a) Methyl b) Ethyl
 c) Higher number of $-\text{CH}_2$ groups (1 to 19 carbons) d) All of the above
62. With reference to enzymes, which one of following statements is true?
 a) Apoenzyme=Holoenzyme+Coenzyme b) Holoenzyme=Apoenzyme+Coenzyme
 c) Coenzyme=Apoenzyme+Holoenzyme d) Holoenzyme=Coenzyme+Apoenzyme
63. Benedict's reagent test is conducted to confirm the presence of
 a) Polysaccharides like starch b) Lipids
 c) Reducing sugars d) proteins
64. When a metabolic disequilibrium is in effect, then only cells continue to function
 How do cells avoid reaching metabolic equilibrium?
 a) Use feedback inhibition to turn off pathways
 b) The products of one reaction become the reactant of another reaction and are unable to accumulate
 c) Cellular metabolism utilises only those reactions that are irreversible
 d) Providing constant supply of enzymes
65. Which of the following radioisotope is not suitable for DNA labeling based studies?
 a) H^3 b) P^{32} c) N^{15} d) S^{35}
66. Jacob and Monod named some enzymes as allosteric, whose activity is regulated by
 a) End product b) Substrate c) A by-product d) Coenzyme

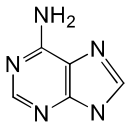
- a) Palmitic acid b) Stearic acid c) Glycerol d) Galactose
76. Which enzyme is useful as colour brightening agent in detergent industry?
a) Amylase b) Lipase c) Protease d) Cellulase
77. Locations or sites in the human DNA where single base DNA differences occur, are called
a) Repetitive DNA b) VNTR
c) SNP d) SSCP
78. An organic substance bound to an enzyme and essential for its activity, is called
a) Coenzyme b) Holoenzyme c) Apoenzyme d) Isoenzyme
79. Choose the correct statements
I. Bond energy (ATP) is utilised for biosynthesis, osmotic and mechanical work that we perform
II. When glucose is degraded into lactic acid in our muscles, energy of liberated
III. Assembly of a proteins from amino acids requires energy
IV. Majority of metabolic reactions can occur in isolation
V. There are many examples of uncatalysed metabolic reactions
a) Except IV and V b) I and III c) All of these d) None of these
80. Maltose consists of which one of the following?
a) β – glucose and α – galactose b) α – glucose and α – fructose
c) α – sucrose and β – glucose d) Glucose and glucose
81. Mannitol is
a) Amino acid b) Amino alcohol c) Sugar alcohol d) Sugar acid
82. Almost all enzymes are ... in nature
a) Lipids b) Proteins c) Carbohydrates d) Nucleic Acid
83. One of the secondary structures exhibited by DNA is....
a) Stehenson’s model b) Watson-Crick model c) Bohr’s model d) Wilkenson model
84. Feedback inhibition of enzymes is affected by which of the following?
a) Enzyme b) Substrate
c) End products d) Intermediate end products
85. All the chemical reactions occurring in living organisms are called
a) Metabolism b) Anabolism c) Catabolism d) Enzymatic
86. Given below are two statements A and B. Choose the correct answer related to the statements.
Statement A Amino acids are amphoteric in their function.
Statement B All amino acids are necessary for our body.
a) Statement A is correct but statement B is wrong b) Both the statements A and B are correct
c) Statement A is wrong but statement B is correct d) Both the statements A and B are wrong
87. The tertiary structure of the proteins containing amino acid cysteine is achieved through
a) Hydrogen bonds b) Disulphide bonds
c) Van der Waal’s force d) Ionic bonds
88. Maltose gives rise to two molecules of
a) Fructose b) Lactose c) Glucose d) Sucrose
89. One of the following is a simple protein.
a) Nucleoprotein b) Glycoprotein c) Lipoprotein d) Albumin
90. Identify X and Y in the given protein structure



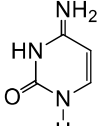
- a) X-N-terminal amino acid, Y-C-terminal amino acid
 b) X-N-terminal amino acid, Y-N-terminal amino acid
 c) X-C-terminal amino acid, Y-N-terminal amino acid
 d) X-C-terminal amino acid, Y-C-terminal amino acid
91. Which of the following statements are correct?
 I. Relative abundance of carbon and hydrogen with respect to other elements is higher in any living organisms
 II. Living organisms have more nitrogen and oxygen per unit mass than inanimate objects (*e. g.*, earth crust)
 III. All the elements present in a sample of earth's crust are also present in a sample of living tissue
 IV. Living organisms have more Ca, Mg, Na in them than inanimate object
 a) All of these b) All except IV c) Only IV d) None of these
92. Which one is diaminodicarboxylic amino acid?
 a) Cystine b) Lysine c) Cysteine d) Aspartic acid
93. Which of the following statements about enzymes are correct?
 I. Enzymes do not alter the overall change in free energy for a reaction
 II. Enzymes are highly specific for reactions
 III. The energy input needed to start a chemical reaction is called activation energy
 IV. Enzymes are proteins whose three dimensional shape is key to their functions
 a) I and V b) I, II and V c) II and V d) All of these
94. Which amino acid is denoted by symbol 'F'?
 a) Phenylalanine b) Proline
 c) Tryptophan d) Methionine
95. Which enzyme catalyse the break down of hydrogen peroxide to water and oxygen?
 a) A carbonic anhydrase and catalase b) Hydrolyase and oxidase
 c) Peroxidase and catalase d) Hydrolase and oxidase
96. Sugar and amino acids are
 a) Primary metabolites b) Secondary metabolites
 c) Feedback d) Inoculum
97. Which of the following statements regarding enzyme inhibition is correct?
 a) Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate
 b) Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibition protein
 c) Competitive inhibition is seen when the substrate and the inhibitor compete
 d) Non-competitive inhibitors often bind to the enzyme irreversibly
98. Enzymes are functional at
 a) 10-15°C b) 15-25°C c) 25-30°C d) 30-50°C
99. Cellulose is made up of
 a) Branched chain of glucose molecule linked by $\alpha - 1, 4$ glycosidic bond in straight chain and $\beta - 1, 6$ glycosidic bond at the site of branching
 b) Branched chain of glucose molecule linked by $\alpha - 1, 6$ glycosidic bond in straight chain and $\beta - 1, 4$ glycosidic bond at the site of branching
 c) Unbranched chain of glucose molecule linked by $\beta - 1, 4$ glycosidic bond
 d) Unbranched chain of glucose molecule linked by $\alpha - 1, 6$ glycosidic bond
100. Which of the following statements is wrong?
 a) Sucrose is a disaccharide b) Cellulose is a polysaccharide
 c) Glycine is a sulphur containing amino acid d) Uracil is a pyrimidine
101. Name the four elements called 'Big-four' which make up 95% of all elements found in a living system

- a) C, H, O, P b) C, H, O, N c) C, N, O, K d) C, H, O, S
102. Proteins are heteropolymers which are made up of type of monomers of amino acids
a) 10 b) 4 c) 20 d) 3
103. Catabolic and anabolic pathways are often coupled in cell. Why?
a) Both the paths are the same energy b) The free energy released from one pathway is used to drive other
c) The intermediate of a catabolic pathway are used in the anabolic pathway d) Their enzymes are controlled by their activators and inhibitors
104. Molecular weight of protein is
a) >12000 b) >6000 c) <12000 d) 600-3000
105. Name the disaccharide which is the major sugar of insect haemolymph
a) Trehalose b) Chitin c) Cellulose d) All of these
106. One turn of DNA has nucleotide pairs
a) 8 b) 100 c) 6 d) 10
107. Phospholipids are
a) Amphipathic b) Amphibolic c) Hydrophobic d) None of these
108. The following reaction is catalysed by which of the enzyme?

$$\text{NADH} + \text{H}^+ + \frac{1}{2}\text{O}_2 \rightarrow \text{NAD}^+ + \text{H}_2\text{O}$$
a) Hydrolases
b) Cytochrome oxidases
c) Transferases
d) Lyases
109. Why metabolic pathways are comparable to automobile traffic in a city?
a) Because they have definite direction b) Because they result in clumsiness
c) Because they result in massive production of toxic compounds d) None of the above
110. A bond formed between carboxyl group of one amino acid and amino group of adjacent amino acid, is called
a) Peptide bond b) Hydrogen bond c) Covalent bond d) All of these
111. In animal tissues, the categories of compounds present are called
a) Molecules b) Primary metabolites c) Secondary metabolites d) Biomolecules
112. Cellulose is a polymer of
a) α - glucose b) α - fructose c) β - glucose d) β - fructose
113. Proteins with catalytic power are called
a) Reactants b) Substrate c) Co-factors d) Enzymes
114. The enzyme which converts corn starch into fructose rich corn syrup is
a) Amylase b) Glucoamylase c) Glucoisomerase d) All of these
115. The globular proteins undergo structural changes, in response to extremes of pH or temperature, the process called
a) Renaturation b) Denaturation c) Combination d) Both (a) and (b)
116. Which of the following is a disaccharide?
a) Glucose b) Fructose c) Sucrose d) Galactose
117. During Meselson and Stahl's experiments, heavy DNA was distinguished from normal DNA by centrifugation in
a) CsOH gradient b) $^{14}\text{NH}_4\text{Cl}$ c) $^{15}\text{NH}_4\text{Cl}$ d) CsCl gradient
118. Protein in silk thread is
a) Fibroin b) Keratin c) Albumin d) Globulin

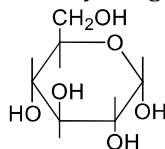
119. What are proenzymes?
 a) Inactive form of enzymes
 b) Active form of enzymes
 c) Neutral form of enzymes
 d) None of these
120. Which of the following is the simplest amino acid?
 a) Tyrosine
 b) Asparagine
 c) Glycine
 d) Alanine
121. Hydrolysis of a glycosidic bond in a disaccharide is an example of
 a) Cleavage of biomolecules
 b) Hydrolysis of biomolecules
 c) Transformation of biomolecules
 d) Formation of biomolecules
122. Which of the following is non-reducing sugar?
 a) Starch
 b) Sucrose
 c) Maltose
 d) Galactose
123. Phospholipids are
 a) Conjugated lipids
 b) Derived lipids
 c) Simple lipids
 d) None of these
124. Richest source of protein is
 a) Rice
 b) Gram
 c) Wheat
 d) *Glycine max*
125. Which of the following polysaccharide is present as a store house of energy in plant tissues?
 a) Glycogen
 b) Cellulose
 c) Insulin
 d) Starch
126. Which form of keratin is present in human hair?
 a) Parallel β -sheet
 b) α -helix
 c) Antiparallel β -sheet
 d) None of these
127. The most abundant chemical in living organisms is
 a) Protein
 b) Water
 c) Lipids
 d) Nucleic acids
128. Basic structure of proteins was given by
 a) W M Stanley
 b) Nicholson
 c) Waston
 d) F Sanger
129. Name the structural formulae of the given structures correctly
- 

A



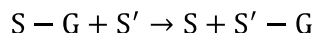
B
- a) A-Adenine; B-Uracil
 b) A-Guanine; B-Thymine
 c) A-Adenine; B-Guanine
 d) A-Cytosine; B-Thymine
130. Name the most abundant protein in animal world
 a) RUBISCO
 b) Carboxylase-oxygenase
 c) Collagen
 d) Cellulose
131. Proteins with catalytic power are known as
 a) Metabolites
 b) Essential proteins
 c) Enzymes
 d) Receptors
132. In a polypeptide chain, a β -pleated sheet is an example of
 a) 2° structure
 b) 1° structure
 c) 4° structure
 d) 3° structure
133. Which of the following is the example of structural protein?
 a) Myosin
 b) Collagen
 c) Keratin
 d) All of these
134. Which of the following statements are incorrect?
 I. Left end of a polysaccharide is called non-reducing end while right end is called reducing end
 II. Starch and glycogen are branched molecules
 III. Starch and glycogen are the reserve food materials of plants and animals, respectively
 IV. Starch can hold iodine molecules in its helical secondary structure but cellulose being non-helical, cannot hold iodine
 a) Statements I and II are incorrect
 b) All statement are incorrect

- c) Only statement IV is incorrect
 135. Enzymes catalyses the biochemical reactions by the activation energy
 a) Increasing b) Lowering c) Unaltering d) Either (a) or (b)
136. Identify the given structure and name the compound

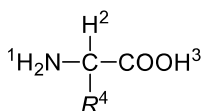


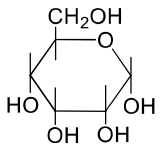
- a) Ribose b) Sucrose c) Glucose d) Ribulose
137. Answer briefly
 I. Which colour glycogen gives on its reaction with iodine solution?
 II. What is satellite DNA?
 III. Name three components of a nucleotide molecule
 Correct option will all answers is
- a) I-Blue b) I-Red
 II-Long sequences II-Repetitive base pairs
 III-Phosphoric acid, pentose sugar and nitrogenous base III-Phosphoric acid, pentose sugar and nitrogenous organic base
- c) I-Blue d) I-Red
 II-Non-repetitive base pairs II-Non-repetitive base pairs
 III-Glucose phosphoric acid, nucleic acids III-Phosphoric acid, fructose, nucleotides

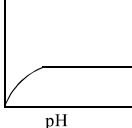
138. The acid soluble pool, roughly represents
 a) Chemical composition of cell b) Cytoplasmic composition of cell
 c) Both (a) and (b) d) None of the above
139. Choose the type of enzyme involved in the following reaction

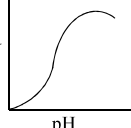


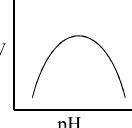
- a) Dehydrogenase b) Transferase c) Hydrolase d) Lyase
140. Which of the following is an isozyme?
 a) α -amylase b) Glucokinase
 c) Lactic dehydrogenase d) All of these
141. Primary metabolites play known roles in
 a) Ecology b) Chemical process
 c) Human welfare d) Physiological process
142. Sucrose, a common table sugar is composed of
 a) Glucose and fructose b) Glucose and galactose
 c) Fructose and galactose d) None of the above
143. Double sugar is
 a) Table sugar b) Milk sugar
 c) Sugar in germinating seeds d) All of the above
144. Variety of amino acids are formed on the basis of
 a) Position of hydroxyl group b) Position of carboxyl group
 c) Position of hydrogen d) Nature of R group
145. Carbohydrates, the most abundant biomolecules earth, are produced by
 a) All bacteria, fungi and algae b) Fungi, algae and green plant cells
 c) Some bacteria, algae and green plant cells d) Viruses, fungi and bacteria
146. Which of the two groups of following formula is involved in peptide bond formation between different amino acids?

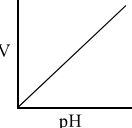


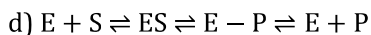
- a) 1 and 3 b) 2 and 3 c) 2 and 4 d) 1 and 4
147. Where the starch is stored in the plant cell?
 a) Golgi bodies b) Amyloplasts c) Chromoplast d) None of these
148. The form of DNA with 34Å pitch with a rise per base pair of 3.4Å is called
 a) A-DNA b) B-DNA c) Z-DNA d) C-DNA
149. The catalytic efficiency of two different enzymes can be compared by the
 a) The Km value b) The pH optimum value
 c) Formation of the product d) Molecular size of the enzyme
150. A competitive inhibitor, competes with the substrate, for the substrate binding site of enzymes due to its
 a) Structural similarity with substrate
 b) Molecular weight similarity with substrate
 c) Both (a) and (b)
 d) Larger size than that of substrate
151. The most abundant molecule in cell, is
 a) Water b) Carbohydrate c) Lipid d) Protein
152. The left handed DNA is called
 a) A-DNA b) B-DNA c) Z-DNA d) C-DNA
153. Adult human haemoglobin consists of
 a) 2 subunits b) 2 subunits (β, β) c) 4 subunits ($2\alpha, 2\beta$) d) 3 subunits ($2\alpha, 1\beta$)
154. The below structural formula belongs to

 a) Ribose b) Glucose c) Sucrose d) Deoxyribose
155. Which enzyme is most specific?
 a) Trypsin b) Pepsin c) Sucrase d) Nuclease
156. Chemical compounds which are found in the acid insoluble fraction are called
 a) Biomolecules b) Macromolecules c) Micromolecules d) Both (a) and (b)
157. Lipids are generally
 I. water soluble
 II. water insoluble
 III. soluble in non-polar organic solvents
 IV. not soluble in non-polar organic solvents
 Choose the correct options
 a) Only I b) II and III c) II and IV d) Only IV
158. Nucleotides are formed by
 a) Purine, sugar and phosphate b) Purine, pyrimidine and phosphate
 c) Purine or pyrimidine, sugar and phosphate d) Pyrimidine, sugar and phosphate
159. The substance, which is metal ion essential for the normal functioning of enzyme is called
 a) Cofactor b) Coenzyme c) Holoenzyme d) None of these
160. Water molecules are connected by
 a) Van der Waal's force b) Covalent bond
 c) H-bond d) Amide linkage
161. The physical and the chemical compositions of amino acids are essentially of the
 a) Only the carboxyl group b) Only the R-functional group

174. Which one of the following amino acids was not found to be synthesized in Miller's experiment?
 a) Glycine b) Aspartic acid c) Glutamic acid d) Alanine
175. Which of the following amino acids is not optically active?
 a) Glycine b) Valine c) Leucine d) Isoleucine
176. What provides roughage (fibre) in our diet?
 a) Cellulose b) Sucrose c) Maltose d) Collagen
177. Starch can be used as an indicator for the detection of traces of
 a) Glucose in aqueous solution b) Proteins in blood
 c) Iodine in aqueous solution d) All of the above
178. Pick the odd statement out
 a) Removal of CO₂ from amino acids converts an amino acid into an amine
 b) All the biomolecules have a turnover
 c) Metabolic pathway are termed as transformation reactions
 d) Metabolic pathways always follows a linear route
179. Which one is the sweetest sugar?
 a) Glucose b) Fructose c) Sucrose d) Maltose
180. Choose the correct graph showing, the effect of pH on the velocity of a typical enzymatic reaction (V)?
- a) 

b) 

c) 

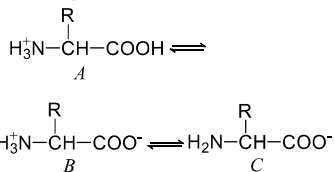
d) 
181. In which one of the following sets of three items each belong to the category mentioned against them?
 a) Lysine, glycine, thiamine - Amino acids
 b) Myosin, oxytocin and gastric - Hormones
 c) Rennin, helicase and hyaluronidase - Enzymes
 d) Optic nerve, oculomotor, vagus - Sensory nerves
182. The inhibitor which binds to the enzyme at site other than the active site and do not resemble the substrate in structure is called
 a) Activator b) Substrate analogue
 c) Competitive inhibitor d) Non-competitive inhibitor
183. Biomolecules are constantly being changed into some other biomolecules and are made from
 a) Amino acids b) Biomolecules only c) Monosaccharides d) Enzymes
184. A physical change, during a chemical reaction refers to
 a) Change in shape without breaking of bonds
 b) Change in state of matter
 c) Change in the bond energy during the chemical reaction
 d) Both (a) and (b)
185. Identify, in which of the following carbon compounds, heterocyclic rings can be found?
 a) Proteins b) Amino acids c) Nitrogen bases d) Lipids
186. Hydrolysis of lipid yields?
 a) Fats b) Fatty acids and glycerol
 c) Mannose and glycerol d) Maltose and fatty acids
187. If all the peptide bonds of protein are broken, then the remaining part is
 a) Amide b) Oligosaccharide c) Polypeptide d) Amino acid
188. In a polysaccharide, the individual monosaccharides are linked by a
 a) Glycosidic bond b) Peptide bond
 c) Ester bond d) Phosphodiester bond



200. Which of the following statement(s) are/is correct?
 I. In the process of metabolism, all organic biomolecules are constantly being broken down but not being built up through chemical reactions
 II. A product of metabolism is called a metabolite, but not always
 III. Metabolism is always known to built up new products
 IV. Metabolism is the characteristic feature of non-living things
 a) All are incorrect
 b) All are correct
 c) Only IV is correct
 d) II and IV are correct
201. The 'Repeating unit' of glycogen is
 a) Fructose
 b) Mannose
 c) Glucose
 d) galactose
202. Every chemical (metabolic) reaction is a ... reaction
 a) Induced
 b) Reversible
 c) Catalysed
 d) Spontaneous
203. Which of the following secondary metabolites are used as drugs?
 a) Vinblastin and curcumin
 b) Anthocyanin
 c) Gums and cellulose
 d) Abrin and ricin
204. Enzymes are most functional at the temperature range of
 a) $15^{\circ} - 25^{\circ}\text{C}$
 b) $20^{\circ} - 30^{\circ}\text{C}$
 c) $30^{\circ} - 50^{\circ}\text{C}$
 d) $50^{\circ} - 60^{\circ}\text{C}$
205. One of the major feature of metabolic reaction is that they are...
 a) Elementary reactions
 b) Non-linked reactions
 c) Heat evolving reactions
 d) Catalysed reactions
206. Which of these is not a ketone body?
 a) Acetoacetic acid
 b) Acetone
 c) Succinic acid
 d) Betahydroxy butyric acid
207. Which of the following is not a cell inclusion?
 a) Protein
 b) Carbohydrate
 c) Pigment
 d) Vacuole
208. Which of the following is incorrect?
 a) In cellular organisms, DNA is genetic material
 b) Adenylic acid is nucleoside
 c) Cytidine is nucleoside
 d) N-bases (A, G, C, T, U) have heterocyclic rings
209. Identify wheather the given conditions are anabolic or catabolic
 I. Glucose \rightarrow Lectic acid
 II. Amino acids \rightarrow Proteins
 a) I-catabolic; II-catablic
 b) I-anabolic; II-catabolic
 c) I-catabolic; II-anabolic
 d) I-catabolic; II-catabolic
210. Choose the correct statement
 a) The living state is a non-equilibrium steady state to be able to perform work
 b) The constant flow of material for energy in and out of cell prevent the cell from reaching equilibrium
 c) Living state and metabolism are synonyms
 d) All are correct
211. Pick out the wrong statement
 a) Amino acids are substituted methanes
 b) Glycerol is a trihydroxy propone
 c) Lysine is a neutral amino acid
 d) Lecithin is a phospholipid
212. Each active sites in enzyme is bounded by how many amino acids?
 a) 20
 b) Infinite
 c) 3
 d) None of these
213. Select the wrong statement
 a) Proteins are heteropolymers made of amino acids
 b) Ribozymes are nucleic acids with catalytic power

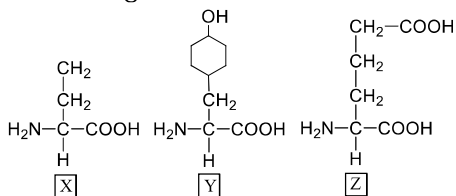
- c) Nucleic acids serve as genetic material
 d) Collagen is the most abundant protein in the whole of the biosphere and Rubisco is the most abundant proteins in animal world

214. The simple polyhydroxy ketone molecule containing 3-7 carbons is a
 a) Disaccharide b) Monosaccharide c) Polysaccharide d) dipeptide
215. Primary structure of proteins is due to the presence of
 a) Peptide bond b) Covalent bond c) Disulphide bond d) Ionic bonds
216. Identify the zwitterionic form in the given reversible reaction



Choose the correct option

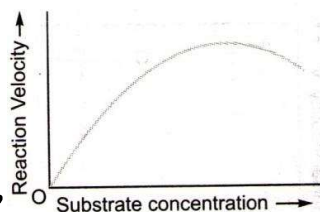
- a) A is the zwitterionic form
 b) C is the zwitterionic form
 c) B is the zwitterionic form
 d) None of the above
217. Removal of amino group from an amino acid is known as
 a) Deamination b) Excretion c) Amination d) Egestion
218. The tightly bound non-proteinaceous organic compound in enzyme, is
 a) Coenzyme b) Prosthetic group c) Cofactor d) Apoenzyme
219. Why living state cannot afford to reach equilibrium?
 a) Due to insufficiency of biomolecules b) To remain active all the time
 c) To save the energy d) None of the above
220. Chemical compounds that have molecular weights less than one thousand dalton are usually referred to as
 a) Biomolecules b) Micromolecules c) Macromolecules d) Both (a) and (b)
221. Find out the wrongly matched pair.
 a) Primary metabolite – Ribose b) Secondary metabolic – Anthocyanin
 c) Protein – Insulin d) Cellulose – Heteropolymer
222. The bond present between two carbohydrate molecules is
 a) Amide b) Hydrogen c) Glycosidic d) phosphodiester
223. Name the given amino acids



- a) Glutamic acid, tyrosine and cysteine, respectively
 b) Tyrocine, cysteine and glutamic acid, respectively
 c) Cysteine, tyrosine and glutamic acid, respectively
 d) Cysteine, glutamic acid and tyrosine, respectively
224. Enzyme having different molecular arrangement but similar functions is
 a) Isoenzyme b) Holoenzyme c) Apoenzyme d) Coenzyme
225. The chemical reactions which liberate energy by enzymatic oxidation of food stuffs to CO₂ and H₂O, in the tissues are referred to as the
 a) Energy metabolism
 b) Respiratory metabolism
 c) None of these

d) Both (a) and (b)

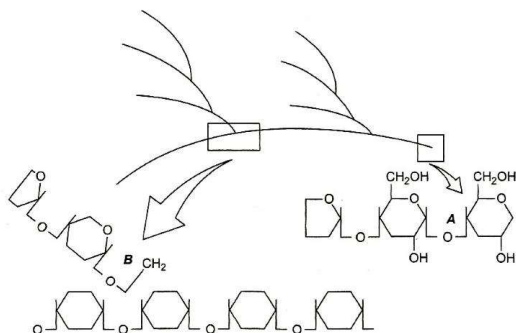
226. The given graph shows the effect of substrate concentration on the rate of reaction of the enzyme



green gram-phosphatase. What does the graph indicate?

- a) The rate of enzyme reaction is directly proportional to the substrate concentration
- b) Presence of an enzyme inhibitor in the reaction mixture
- c) Formation of an enzyme-substrate complex
- d) At higher substrate concentration, the pH increase

227. Identify A and B bonds in the following diagrammatic representation of a portion of glycogen



Choose the correct option

- a) A = 1 – 6 α -glycosidic bonds, B = 1 – 4 α -glycosidic bonds
- b) A = 1 – 1 α -glycosidic bonds, B = 1 – 1 α -glycosidic bonds
- c) A = 1 – 4 α -glycosidic bonds, B = 1 – 4 α -glycosidic bonds
- d) A = 1 – 4 α -glycosidic bonds, B = 1 – 6, α -glycosidic bonds

228. Which is an organic compound found in most cells?

- a) Glucose
- b) Water
- c) Sodium chloride
- d) Oxygen

229. Select the correct which represents the homopolysaccharides made up of glucose monomers

- a) Sucrose, lactose, maltose
- b) Chitin, glycogen, starch
- c) Starch, inulin, peptidoglycan
- d) Starch, glycogen, cellulose

230. A high fever is dangerous to humans because

- a) Proteins are used up quickly
- b) Fats are oxidised
- c) Enzymes are denatured
- d) BMR is lowered

231. All enzymes are basically

- a) Carbohydrates
- b) Steroids
- c) Proteins
- d) Lipoproteins

232. In a DNA, 'A' base pairs with ...by... H bonds.

Chooses the correct option for the blanks A and B

- a) T, three
- b) C, four
- c) T, two
- d) G, two

233. is a heteropolymer

- a) Starch
- b) Glycogen
- c) Chitin
- d) Cellulose

234. Those nucleic acids which behave like enzymes are known as

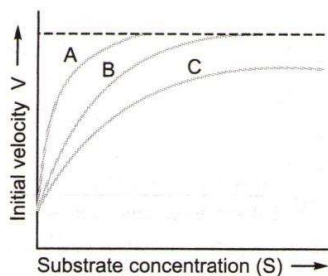
- a) Ribozymes
- b) Pepszymes
- c) Both (a) and (b)
- d) Ribose

235. How many of the twenty two amino acids are essential for children?

- a) 6
- b) 8
- c) 10
- d) 7

236. The figure given below shows three velocity substrate concentration curves for an enzyme

reaction. What do the curves A, B and C depict respectively?



- a) A-normal enzyme reaction, B-competitive inhibition, C-non-competitive inhibition
- b) A-enzyme with an allosteric modulator added, B-normal enzyme activity, C-competitive inhibition
- c) A-enzyme with an allosteric stimulator, B-competitive inhibitor added, C- normal enzyme reaction
- d) A- normal enzyme reaction, B-non-competitive inhibitor added, C- allosteric inhibitor added

237. Raffinose is a

- a) Monosaccharides b) Disaccharides c) Trisaccharides d) Polysaccharides

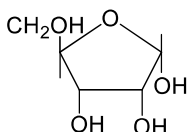
238. Example of a typical homopolysaccharide is

- a) Lignin b) Suberin c) Inulin d) Starch

239. The aleurone layer in maize grain is specially rich in

- a) Lipids b) Auxins c) Proteins d) Starch

240. Given below is the structural formula of



- a) Sucrose b) Ribose c) Glucose d) Deoxyribose

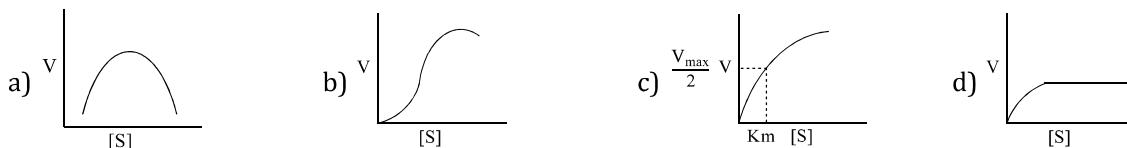
241. Ribozymes are molecules that function as biocatalysts in modern cells

- a) DNA b) RNA
- c) Both DNA and RNA d) None of these

242. Types of amino acids found in proteins are

- a) 21 b) 19 c) 20 d) 23

243. Select the correct graph which shows the relationship between the rate of an enzymatic activity and substrate concentration



244. The effectiveness of an enzyme is affected least by

- a) Temperature b) Concentration of the substrate
- c) Original activation energy of the system d) Concentration of the enzyme

245. Fluidity of bio-membranes can be shown by

- a) Electron microscope b) Tissue culture
- c) Phase-contrast microscope d) Fluorescence microscope

246. A mathematical explanation for enzyme action on substrate was formulated by

- a) Leonor Michaelis and Maud Menten b) Hans Gaffron
- c) Melvin Calvin d) Vant Krebs

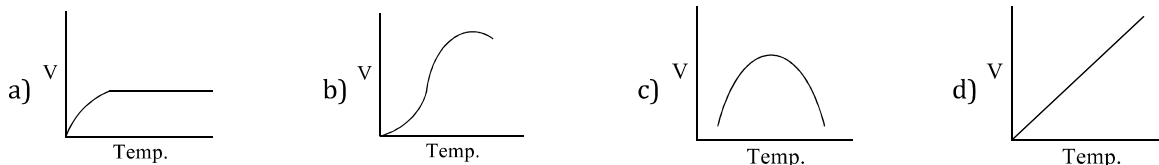
247. Insulin is a polymer of

- a) Fructose b) Glucose c) Sucrose d) Xylose

248. What is the approximate percentage of proteins in the cell contents?
 a) 12% b) 10% c) 15% d) 20%
249. How does radiations inactivates enzymes?
 a) By destroying tertiary structure b) By destroying primary structure
 c) Both (a) and (b) d) None of the above
250. The fastest acting enzyme, in the biological kingdom, is
 a) Lipase b) Amylase
 c) Peptidase d) Carbonic anhydrase
251. The most important form of energy currency in living organisms is the bond energy in the chemical called

 a) Adenosine Triphosphate (ATP)
 b) Adenosine Diphosphate (ADP)
 c) Phosphate (P)
 d) None of the above
252. An example of competitive inhibition of an enzyme is the inhibition of
 a) Succinic dehydrogenase by malonic acid b) Cytochrome oxidase by cyanide
 c) Hexokinase by glucose-6-phosphate d) Carbonic anhydrase by carbon dioxide
253. The amino acids are acidic, basic and neutral based on the number of
 a) Amino groups and hydrogen
 b) Amino and carboxyl groups
 c) Hydrogen and carboxyl group
 d) Carboxyl groups
254. The type of bond involved in the formation of sodium chloride, is
 a) Ester bond b) Peptide bond c) Ionic bond d) Covalent bond
255. Allosteric modulation is due to inhibition action of enzyme by
 a) Competitive inhibition b) Substrate concentration
 c) Products of reaction d) Enzyme concentration
256. Cholesterol is considered as a crucial molecule in animals because it is
 a) Necessary for survival
 b) Energy source
 c) Helps in hydrolysis of glycogen
 d) Source of many vertebrate hormones and other steroids
257. Select the correct option that identifies the nature of apoenzyme and co-factor correctly
- | Apoenzyme | Co-factor | | |
|------------------|------------------|----------------|-------------|
| a) Protein | Non-protein | b) Non-protein | Protein |
| c) Protein | Protein | d) Non-protein | Non-protein |
258. The double helical model of the DNA was proposed by Watson and Crick based on what data produced by Wilkins and Franklin?
 a) Hybridization b) DNA sequencing
 c) Southern blotting d) X-ray diffraction
259. Arrange the steps of catalytic action of an enzyme in order and choose the correct option.
 I. The enzyme releases the products of the reaction and the enzyme is free for another substrate.
 II. The active site of enzyme is in close proximity of the substrate and breaks of chemical bonds of the substrate.
 III. The binding of substrate induces the enzyme to alter its shape fitting more tightly around the substrate.
 IV. The substrate binds to the active site of the enzyme fitting into the active site.

- a) IV, III, II, I b) III, II, I, IV c) IV, II, I, III d) II, I, IV, III
260. How many carbon atoms generally take part in the formulation of monosaccharides?
a) 5 to 10 b) 1 to 5 c) 5 to 15 d) 3 to 7
261. Enzymes catalysts differ from inorganic catalysts in which way?
a) Enzyme catalysts are smaller in size and lesser in weight in comparison to that of inorganic catalysts
b) Inorganic catalysts can work efficiently at temperature but enzymes catalyst cannot (except few enzymes)
c) Inorganic catalysts can work efficiently at high pressure but enzyme catalyst cannot
d) Both (b) and (c)
262. Select the correct graph, which shows the effect of temperature on the velocity of a typical enzymatic reaction



263. Malonate inhibits succinate dehydrogenase, is an example of
a) Allosteric inhibition b) Negative feedback
c) Competitive inhibition d) Non-competitive inhibition
264. Which disaccharide has different linkage?
a) Maltose b) Starch c) Sucrose d) Lactose
265. Which one of the following is not a fibrillar protein?
a) Elastin b) Collagen c) Myosin d) Albumin
266. The rate of physical or chemical process can be defined as
a) The amount of reactant consumed per unit time
b) The amount of product formed per unit time
c) The bond energy released during bond formation per unit time
d) All of the above
267. Enzymes that catalyses the removal of groups from substrates by mechanism other than hydrolysis, addition of groups to double bonds are called
a) Lyases b) Ligases c) Hydrolases d) Dehydrogenases
268. Which of the following is not a coenzyme?
a) NAD b) NADP c) FAD d) ATP
269. The DNA in which the base sequence of one strand is opposite to that of other strand when read from opposite direction is called
a) Satellite DNA b) Palindromic DNA c) Repetitious DNA d) Non-coding DNA
270. The enzyme part, which combines with non-protein part to form a functional enzyme, is known as
a) Coenzyme b) Holoenzyme c) Apoenzyme d) Prosthetic group
271. Which of the following statements are true?
I. Genetic RNA occurs in certain viruses called ribovirus
II. RNA of riboviruses may be single stranded
III. Double stranded RNA may also be present in riboviruses
a) All are correct b) Only I c) All are incorrect d) Only II
272. Lactose is composed of following components
a) Glucose and fructose b) Glucose and glucose
c) Glucose, fructose and galactose d) Glucose and galactose
273. Holoenzyme is a/an
a) Non-protein and apoenzyme b) Protein and apoenzyme

- c) Enzyme protein and coenzyme d) Enzyme, non-protein and coenzyme
274. One feature common to all the compounds found in the acid soluble pool is
- a) They have molecular weights ranging from 18 to around 800 daltons (Da) approx
 - b) They have molecular weights ranging from 18 to around 80 daltons (Da) approx
 - c) They have molecular weights ranging from 18 to around 800 approx
 - d) None of the above
275. Which of the following statements are correct?
- a) Living steady state has a self regulatory mechanism called homeostasis
 - b) Energy flow and energy transformation of living system follows law of thermodynamics
 - c) Metabolism is the release and gain of energy
 - d) All of the above

