

ADDIS ABABA CITY GOVERNMENT EDUCATION BEAURO
ETEGE MENEN GIRLS' BOARDING SECONDARY SCHOOL

CHOOSE THE BEST ANSWER (SCIENCE OF BIOLOGY)

1. Which tools of biologist is more suitable for culturing bacteria in the laboratory?
A. Test tubes B. microscopes C. Petri dishes D. Beakers

2. Which of the following corresponds to the beginning steps of scientific work?
A. Testing Hypothesis C. Conducting experiment
B. Drawing conclusion D. Making observation

3. In an experiment that is testing the effect of temperature on the germination rate of certain seeds, in which one of the following should the experimental and control group differ?
A. The amount of water they recessive C. The number of seed assigned to them
B. The temperature at which they are kept D. The age of the seed assigned to them

4. What is the reason that Louis Pasteur used a swan-necked flask instead of straight necked one in his experiment designed to disprove the theory of spontaneous generation?
A. To trap particles from the air that might enter the flask before reaching broth
B. To allow the passage of air to the broth inside the flask
C. To prevent the escape of any microorganism from the flask
D. To keep the broth in the flask hot to kill microorganisms

5. A biologist applied the scientific method repeatedly, gathered a large amount of supporting experimental data and finally described a pattern or relationship between different factors. What is the best term that refers to facts established in this way?
A. Prediction B. Hypothesis C. Theory D. Law

6. Which of the following is true about antiretroviral drugs currently used to treat AIDS patients?
A. To cure AIDS C. They serve as HIV vaccines
B. They stop HIV transmission D. They slow down HIV multiplication

7. Which of the following steps in the scientific method comes following observation?
A. Prediction B. Hypothesis C. Experiment D. Theory

8. What is the specialist in biology called if he/she studies fossils to generate new knowledge on the origin and evolution of living things of past geologic periods?
A. Paleontologist B. Geneticist C. Ecologist D. Comparative biochemist

9. Which of the following field equipment is used to determine an exact location of a place?
A. Theodolite B. Field microscope C. Global position system D. pH kit

10. For which of the following is a theodolite used in biology education?
A. Measuring the height of the tree C. Measuring the rate of flow of water
B. Recording position where a species is found D. Measuring the pH of water or soil

11. Suppose an experiment conducted to test a new drug, 20 people were given the drug and 2 people placebo. What is the control of the experiment?
A. People who received the new drugs C. The new drug itself
B. People who received the placebo D. The new drug and the placebo

12. Which field studies the way in which individual traits of organisms transmitted from one generation to the next?
A. Genetics B. Ecology C. Evolution D. Morphology

13. While conducting a research, which of the following does a biologist do first?

A. Generate hypothesis C. Identify research question
B. Communicate the result D. Conduct experiment

14. D Choose the step that comes at last steps in scientific method?

A. Proposing research hypothesis C. Conducting experiment
B. Formulating of a scientific theory D. Making prediction

15. What do we call reasoning technique in science where general principles are used to analyse specific cases?

A. Induction B. Deduction C. Pseudo- Induction D. Pseudo- Deduction

16. What did Franceo Redi prove through his scientific experiment?

A. Maggot do not appear foods kept in jar that are protected with the cover
B. Maggot appear Spontaneously on food place any ware
C. Maggot do not appear in food kept in open jar
D. Flies appear spontaneously on rotting meat kept in closed or open jar alike

17. What is the ultimate source all scientific Knowledge?

A. Observation B. Trial and error C. Observation and experiment D. Guessing

18. Which of the following is formulated as the possible outcomes of an experiment?

A. Hypothesis B. prediction C. recording the data D. Data analysis

19. In scientific method, what is the importance of a background of research for a given problem?

A. To make a prediction C. To formulate hypothesis
B. To prepare report of the result D. To make a conclusion

20. In an experiment, what do we call the group that does not receive the variable that being tested?

A. Control group B. observational group C. experimental group

21. In scientific methods, which one of the following is used to test hypothesis?

A. Observation B. Theory C. Experiment D. prediction

22. A straight line across an expanse of ground along with ecological measurements are taken continuously at a regular intervals is called

A. Quadrant B. string C. Pitfall traps D. Transect

23. For which of the following purpose is global position system (GPS) Used?

A. Microwave B. Theodolite C. Map of an area D. Satellite signal

24. The set in which scientist usually conduct two or more sets of the same experiment at the same time?

A. Experimental group B. Experimental design C. Control group D. Replication

25. Which one of the following is used to find out more about the way in which life began on the earth and how it has evolved from simple life form into more complexes?

A. Paleontology B. physiology C. Oncology D. Entomology

26. It is an educated guess about what a biologist think the explanation of an observation will be?

A. Observation B. Hypothesis C. Conclusion D. Experiment

CHOOSE THE BEST ANSWER (INORGANIC SUBSTANCE)

27. Which if the following properties of water important of enzyme in living cell?

A. High surface tension C. Low density when frozen
B. High specific heat D. High heat of vaporization

28. Which of the following properties of water makes sweat an effective an effective body cooler?

A. High surface tension
B. High specific heat
C. Low density when frozen
D. High heat of vaporization

29. Which of the following group of substance are all organic?

A. water, sugar and calcium carbonate
B. Sugar, fatty acid and amino acid
C. Water, calcium carbonates and carbon dioxide
D. Carbon dioxide, fatty acid and amino acid

30. Organic molecule always contain;

A. Oxygen and Hydrogen
B. Carbon and Oxygen
C. Hydrogen and Carbon
D. Nitrogen and Carbon

31. Which properties of water makes organism maintain a constant body temperature?

A. High surface tension
B. High specific heat
C. Low density when frozen
D. Solvent property

32. Water have high specific heat capacity .this means that it;

A. Heat up slowly but cools down quickly
B. Heat up slowly but cools down slowly
C. Heat up but cools down quickly
D. Heat up but cools down slowly

33. Which property of water keeps the bottoms of lakes and the life there being frozen top to down during cold winters in the temperate region?

A. its highest density at 4^0C
B. Its high heat of vaporization
C. its high boiling point
D. its high surface tension

34. Which of the following is an inorganic molecule?

A. $CaCO_3$ B. CH_4 C. $C_6H_{12}O_6$ D. $C_{18}H_{36}O_2$

35. Describes the following properties of water and its significance for life

a) High Transmission
b) HIGH specific heat
c) High latent heat of vaporization
d) Low density when frozen
e) High surface tension
f. Solvent property
g. Ideal viscosity
h. high latent heat of fusion

CHOOSE THE BEST ANSWER (CARBOHYDRATES)

36. The main component of plant cell wall?

A. Starch B. cellulose C. Protein D. chitin

37. What can one conclude about the content of food staff if a mixture of Benedict's solution and a food staff remain blue?

A. it lack reducing sugar
B. it lack starch
C. It contain fat
D. it contain protein

38. In which of the following compound are both members of the pair are polymers of carbohydrates that are naturally occurring in plant?

A. Starch and chitin
B. Glycogen and cellulose
C. Starch and cellulose
D. Glycogen and chitin

39. How many carbon and oxygen atoms are there in a molecule of maltose?
A. 6 carbons and 6 oxygen C. 11 carbon and 12 oxygen
B. 12 carbons and 11 oxygen D. 24 carbon and 12 oxygen

40. Which of the following is a distinguishing feature of amino acid that is not found in carbohydrates?
A. Carbon B. Oxygen C. Hydrogen D. Nitrogen

41. Which of the following molecules in living things not an organic molecule?
A. Sugar B. Nucleotides C. Amino acids D. Water

42. Which of the following carbohydrates has structural function?
A. Cellulose B. Glycogen C. Starch D. Sucrose

43. Both plant and animal keep in their bodies the stored form of carbohydrates. What are these stored form called, respectively?
A. Starch and Glycogen C. Glycogen and starch
B. Starch and cellulose D. Glucose and starch

44. Which molecule s carries the instruction for protein synthesis?
A. Carbohydrates and lipids B. Amino acids C. DNA and RNA D. Enzymes

45. If certain food staff gave a positive result with Benedict's test was hydrolysed with HCl, which of the following substance could it be?
A. Non reducing sugar B. Nucleic acid C. Lipid D. Protein

46. What is the name of sugar found in milk?
A. Glucose B. Lactose C. Maltose D. Sucrose

47. Which of the following group is a functional group of fatty acids?
A. A keton group B. An aldehyde group C. An amino group D. A carboxyl group

48. Which one of the following is disaccharide found in cells and consisting of the same sub unit?
A. Sucrose B. Galactose C. Glucose D. Maltose

49. Which of the following is formed by condensation of monosaccharaides or hydrolysis of polysaccharides?
A. Glucose B. Starch C. Glycogen D. disaccharides

50. Which of the following are the most abundant polysaccharides found in plant?
A. Glycogen B. Sucrose C. Cellulose D. starch

51. Which one of the following sugars do babies get from milk of their mothers?
A. Maltose B. Lactose C. Sucrose D. Fructose

52. In the process of hydrolysing of maltose, which one of the following happens?
A. Water is released as byproduct C. Water is used up
B. Carbon dioxide is released D. Two oxygen molecules is released

53. Component of starch having a liner back bone and side branch is:
A. Amylopectin B. Glycogen C. Amylose D. Glucose

54. Which one of the following linkage makes glycogen and amylopectin?
A. α 1,6 in straight chain and α 1,4 for branched part
B. β 1,4 in straight chain and β 1,6 for branched part
C. α 1,4 in straight chain and α 1,6 for branched part
D. β 1,4 in straight chain and β1,4 for branched part

55. In the formation of macromolecules, what type of reaction would join two sub units together?

A. Hydrolysis reaction C. Denaturation reaction
B. Dehydration reaction D. Hydrophobic reaction

56. What is the bond which links glucose and fructose in making sucrose?

A. α 1,4 glycosidic bond C. β 1,2 glycosidic bond
B. β 1. 4 glycosidic bond D. α 1,2 glycosidic bond

57. What is the bond which links straight and unbranched chains of cellulose?

A. α 1,4 glycosidic bond C. Hydrogen bond
B. β 1.4 glycosidic bond D. α 1.6 glycosidic bond

58. If one mixture a sample of a fruit juice and some drops of Benedict's solution and obtain a break-red precipitate upon warming the mixture, what does the juice contain?

A. Starch B. Reducing sugar C. Sucrose D. Protein

59. Explain the way of classification of monosaccharaides and give example for each?
60. Show how α and β glucose and fructose is formed?
61. Explain the formation of disaccharides such as maltose, sucrose and lactose in diagram?
62. What makes maltose and lactose is reducing whereas sucrose is non-reducing in Benedict's test?
63. What is the significance of living organisms store their carbohydrates in the form of polysaccharides such as starch and glycogen?
64. Give example of aldose and ketose sugar in diagram?
65. Give example of triose, pentose and hexose sugar show each in diagram?
66. What is the difference and similarity between amylose, amylopectin and glycogen?
67. Why human do not hydrolysis cellulose?
68. Compare dehydration and hydrolysis reaction with examples?
69. Why glycogen hydrolysed quickly by amylase enzymes than amylose and amylopectin

CHOOSE THE BEST ANSWER (LIPIDS)

70. Which of the following is the main constituent of biological membrane?

A. Phospholipids B. Glycoprotein C. Glycolipid D. Cholesterol

71. Which type of lipid is formed from fatty acid and long chain of alcohols?

A. Triglycerides B. Phospholipids C. Waxes D. Steroids

72. Choose the class of organic compounds in which steroids are classified?

A. Carbohydrates B. Proteins C. Lipids D. Nucleic acids

73. To which of organic compounds do the triglycerides and waxes belong?

A. Carbohydrates B. Proteins C. Lipids D. Vitamins

74. What make unsaturated fatty acid differ from saturated fatty acid?

A. The presence of long chain of carbon
B. The presence of one or more double bond
C. The presence of large number of Hydrogen atom
D. There occurrence as solid at room temperature

75. What makes phospholipids molecules arrange themselves into bilayer in a water molecule?

A. The double bond of fatty acid C. The high solubility of water
B. The length of fatty acid chain D. The amphipathic nature of lipids

76. Which of the following molecule is not a polymer?

A. protein B. Lipid C. RNA D. Starch

77. Which one of the following lipids used as a source of energy storage for the body?

A. Triglycerides B. Waxes C. Phospholipids D. Steroids

78. Which of the following is generally accepted to give better health benefits when present in human diet?

A. Animal fat C. Monounsaturated fatty acid
B. Saturated fatty acid D. Polyunsaturated fatty acid

79. To prevent cholesterol being laid down in the lining of arteries, our cooking oils, margarines and other spreads are chosen to be:

A. High mono in saccharides C. Low in mono saccharides
B. High in polysaccharides D. Low in polysaccharides

80. Which one of the following is the functional group of fatty acids?

A. Carbonyl group C. Carboxyl group
B. Hydroxyl group D. Amino group

81. Which component of the cell mainly composed of phospholipids?

A. Cell wall B. Cell membrane C. Chromosomes D. Nucleus

82. In which of the following is produced when a lipid molecule is hydrolysed?

A. Amino acid and water C. Fatty acid and Glycerol
B. Amino acid and glucose D. Glucose and Glycerol

83. Why phospholipid is called amphipathic lipids?

84. Why saturated fatty acid more energetic than unsaturated?

85. Compare and contrast saturated and unsaturated fatty acid?

86. Why lipids make animal more buoyant?

87. What are the criteria used to classify lipids into saturated and unsaturated?

CHOOSE THE BEST ANSWER (PROTEIN)

88. Which of the following is true about the substance represented by the chemical formula "$C_2H_5NO_2$"?

A. Simple sugar B. Inorganic substance C. Fatty acid D. Amino acid

89. All amino acid have central carbon atom attached with all of the following except;

A. Amino group B. Carbonyl group C. Carboxyl group D Hydrogen atom

90. Which of the following is would be used as a source of energy for the body at last resort?

A. Carbohydrate B. Glycogen C. Fatty acid D. protein

91. Which level of a protein structural organization is represented by its amino acid sequence?

A. Primary structure B. Secondary structure C. Tertiary structure D. Quaternary structure

92. Which of the following molecules requires template molecules for its synthesis?

A. Carbohydrate B. Lipids C. protein D. Nucleic acids

93. Which of the following molecules of life give more number of different kinds of monomers if completely hydrolysed?
A. Starch B. Lipids C. protein D. Nucleic acids

94. Which of the following organic compound is most abundant in animal tissue?
A. Protein B. Lipids C. Carbohydrates D. Nucleic acid

95. In which one of their structural parts do different molecules of amino acids differ from one another?
A. In their R- group C. In their amino group
B. in their carboxyl group D. In their alpha carbon

96. The primary structure of protein represents;
A. liner sequence of amino acid chain C. three dimensional structure of protein
B. helical structure of protein D. sub unit structure of protein

97. The bonding of two amino acid molecules to form large molecule requires;
A. The release of water molecules C. The addition of hydrogen atom
B. The release of carbon dioxide molecules D. The addition of water molecule

98. What stabilize secondary structure of protein?
A. Ionic bonding C. Disulphide Bridge
B. Hydrogen bonding D. Hydrophobic interaction

99. What hold and stabilizes the sub unit of quaternary structure of protein?
A. Hydrophilic interaction C. ionic bonding
B. Hydrogen bonding D. Hydrophobic interaction

100. In polypeptide chain α-helix and β-pleated sheet is stabilized by;
A. Sulphur linkage B. amide group C. Carboxyl group D. Hydrogen bond

101. In beta plated sheet, hydrogen bond is formed between:
A. Sulphur linkage C. inside a single sheet
B. polypeptide chain of folded sheet D. amide group

102. At which level of structural organization do proteins have an alpha helix shape?
A. Primary structure C. secondary structure
B. Tertiary structure D. Quaternary structure

PROTEIN, LIPIDS AND NUCLEIC ACIDS II

103. Which part of the structure gives acidic properties to amino acids?
A. Amino group B. side chain C. carboxyl group D. carbonyl group

104. What is the general type of biochemical reaction joins two of the amino acids units?
A. Hydrolysis B. Dehydration C. Hydrogenation D. Dehydrogenation

105. Lipids differ from carbohydrates in that they
A. Have high proportion oxygen C. Have high water solubility
B. Have low proportion of oxygen D. have high solubility in organic solvent

106. The type of bond formed between glycerol and fatty acid molecule during the synthesis of lipids
A. Glycosidic bond C. Easter bond
B. Peptide bond D. Ionic bond

107. The type of bond formed between nucleotides in making nucleic acids
A. Disulfide bond C. Hydrogen bond
B. Ionic bond D. Phosphodiester bond

108. Which of the following protein have quaternary structure?
A. Insulin B. Hemoglobin C. Antibody D. Keratin

109. Saturated fatty acid possess hydrocarbon tail containing
A. No double bond C. Proportionally very little hydrogen
B. Have one or more double bond D. Carboxyl functional group

110. Choose the class of organic compounds in which steroid are classified
A. Protein B . Nucleic Acids C. Lipids D. Carbohydrates

111. Which level of protein structural organization is represented by its amino acid sequence?
A. Secondary structure C. Tertiary structure
B. Primary structure D. Quaternary structure

112. The nucleic acid which copies the genetic code and act as a messenger as
A. RNA B. Protein C. DNA D. Lipids

113. If the carboxyl functional group is found at the end of carbon skeleton of an organic compound, than the compound the compound is called
A. Protein B. Nucleic acids C. Lipids D. Carbohydrates

114. One of the following is correct about Unsaturated fatty acids
A. More common in animals lipids C. Proportionally very little hydrogen
B. Solid at room temperature D. Joined by a single covalent bond.

115. Which of the following pair of nucleotides belong to the class purine?
A. Cytosine and Thymine C. Adenine and Guanine
B. Adenine and Uracil D. Guanine and Cytosine

116. What makes saturated fatty acids differ from unsaturated fatty acids
A. The presence of long chain of carbon
B. The presence of one or more double bond
C. The presence of large number of hydrogen atom
D. The occurrence as liquid at room temperature

117. Which one of the following is largely made up of phospholipids?
A. Cell wall B. Cell membrane C. Nucleus D. Chromosomes

118. Structurally lipids are very diverse group but they are all placed in one group because of what property?
A. They are compose of glycerol and fatty acids
B. They are important as energy storage
C. They are contain four interlocking ring
D. Insoluble in polar solvent like water

119. At which level of structural organization do proteins have three dimensional shapes?
A. Secondary structure C. Tertiary structure
B. Primary structure D. Quaternary structure

120. In the process of protein hydrolysis which one of the following happen
A. Oxygen is used up
B. Carbon dioxide is released
C. Water is release as a by product
D. Protein is broken down into amino acids

121. Which one of the following molecules used in making of immune systems and structure of chromosomes?
A. Protein B. Water C. Lipids D. Carbohydrates

122. To which level of protein structural organization a globular shape of protein include?
A. Secondary structure
B. Primary structure
C. Tertiary structure
D. Quaternary structure

123. Which alternative incorrectly matches the polymer with the monomer
A. Protein= amino acids
B. Polysaccharides=glucose
C. Lipids= Fatty acids
D. Nucleic acids= nucleotides

124. What makes DNA more stable than RNA in a living cells
A. The presence of thymine
B. Have a double helix
C. additional hydrogen and carbon bond
D. the presence of hydrogen bond

125. RNA differ from DNA in that RNA is
A. Larger and double stranded
B. Smaller and double stranded
C. Smaller and single stranded
D. larger and single stranded

126. Which of the following includes all others
A. Uracil B. Phosphate group C. Ribose D. Nucleotides

127. What is the unusual property of sphingolipids?

128. What is the similarity between triglycerides, phospholipids and waxes

129. Why doctors' advice to include our cooking oil, margarines contain a high proportion of polyunsaturated fatty acids.

130. How ester, peptide and Phosphodiester bond formed?

131. Show the general structure of an amino acid in diagram?

132. What is the difference between α-helix and a β-pleated sheet of amino acids?

133. What the bond used in the making of tertiary structure of protein, explain each?

134. Compare and contrast fibrous and globular protein?

135. What do we mean "Glycerol is a polyhydroxy alcohol"?

CHOOSE THE BEST ANSWER (NUCLEIC ACID)

136. Which element is found in nucleic acid?
A. Calcium B. Iron C. Magnesium D. Phosphorus

137. Which of the following classes of organic molecules is the least important source of energy for cellular respiration?
A. Nucleic acid B. Lipids C. Carbohydrates D. Proteins

138. Which of the following contain phosphate group in its molecule?
A. Protein B. Cellulose C. Nucleotides D. Simple sugar

139. Which molecule in a cell is the constituent of gene?
A. Nucleic acid B. Protein C. Lipids D. Carbohydrates

140. What is the base in RNA in place of thymine of DNA?
A. Cytosine B. Guanine C. Thymine D. Uracil

141. The repeating unit of both DNA and RNA is
A. Nucleoside B. Hydrogen bond C. Nucleic acid D. Nucleotide

142. The sugar in the backbone of RNA is
A. Deoxyribose B. Ribulose C. Ribose D. Glucose

143. Which of the following option are pyrimidine bases
A. Uracil and thymine C. Adenine and guanine
B. Thymine and cytosine D. Adenine and cytosine

144. In which of their constituents do the nucleotides of RNA differ from DNA?
A. In the purine bases C. In the phosphate group
B. In the pyrimidine bases D. In all of the above

145. In which of its contents RNA differs from DNA?
A. Deoxyribose and Guanine C. Ribose and Thymine
B. Ribose and Uracil D. Phosphate and Adenine

146. The group of compound to which DNA and RNA belongs
A. Lipids B. proteins C. Nucleic acids D. Carbohydrates

147. Which of the following found in RNA but not in DNA
A. Adenine B. Cytosine C. Thymine D. uracil

148. Which of the following combination would be found in nucleotides
A. Base, ACID and Salt C. DNA,RNA and protein
B. Adenine, Thymine and Guanine D. Base, Sugar and Phosphate

149. In DNA molecule the base one DNA strand are held together to the bases on the other strand by.
A. Disulfide bonds C. Hydrogen bonds
B. Ionic bonds D. phosphate group

150. What is the monomer of nucleic acids?

151. What are the components of nucleotides show in diagram?

152. What is the difference between purine and pyrimidine bases show in diagram?

153. What do you understand from the sentence "DNA made up of two antiparallel polynucleotides chain"?

154. What makes DNA more stable than RNA?

155. What is the difference between DNA and RNA

CHOOSE THE BEST ANSWER (ENZYMES)

156. If you heated a solution of an enzyme to 100 degree centigrade which one of the following protein structure least affected?
A. Primary structure C. tertiary structure
B. Secondary structure D. Quaternary structure

157. If a piece of boiled potato is placed in attest tube containing hydrogen peroxides the gas would evolve is
A. hydrogen B. water vapor C. oxygen D. carbon dioxides

158. Enzyme are able to lower the activation energy of a chemical reaction by:
- A. Increasing the kinetic energy of a substrate molecules
- B. Decreasing the kinetic energy of a substrate molecules
- C. Creating tension on the covalent bond of substrate molecules
- D. Increasing the temperature of the reaction medium

159. Which class of enzymes joins the molecules together

A. Lyases B. Hydrolase C. Transferase D. Ligase

160. If piece of boiled potato is placed in a test tube containing hydrogen peroxide solution, no reaction observed. This is because boiling
- A. Removes necessary enzymes
- B. Changes the PH inside cells
- C. Kills the cell
- D. Denatures enzymes

161. Only a small amount of enzymes is needed by a single cell because enzyme
- A. Are globular proteins
- B. Specific for substrate
- C. can be used over and over again
- D. Denatured by high temperature

162. In which area of enzyme application invertase injected to sucrose paste in order to produce liquid chocolate?
- A. Detergent making industry
- B. Pulp and paper industry
- C. Food processing industry
- D. pharmaceutical industry

163. The element zinc is an integral part of the structure of protein molecule carboxypeptidase. In this structure zinc is known as

A. Coenzymes B. An activator C. an inhibitor D. prosthetic group

164. The enzyme that has a wide industrial application in textile industries and in making of biological detergent

A. Invertase B. lipase C. Amylase D. Pectinase

165. Salivary amylase is starch hydrolyzing enzymes, when the pH is lowered below its optimum pH its activity strongly inhibited. What factor is most responsible for the decrease of this activity?
- A. An end product inhibition
- B. Altered primary structure
- C. Altered tertiary structure
- D. Altered secondary structure

166. In which of the following mixtures the enzyme catalase acts faster on hydrogen peroxides (H_2O_2)?
- A. H_2O_2+ HCl +fresh potato cube
- B. H_2O_2 + NaOH + fresh potato cube
- C. H_2O_2 + fresh potato cube
- D. H_2O_2 + boiled potato cube

167. Where do you classify the enzymes that catalysis the breaking down of carbohydrates and protein in digestive system

A. Lyases B. Hydrolase C. Transferase D. Ligase

168. Identify the statement that correctly explains why a small amount of enzyme can bring about a change in a large amount of its substrate. Enzymes
- A. consumed during chemical reaction
- B. reused over and over again
- C. specific to their substrate
- D. easily synthesized in the cell

169. Which type of enzyme inhibition its effect is reversed by increasing substrate concentration?
- A. Allosteric inhibition
- B. Competitive inhibition
- C. Non-competitive inhibition
- D. End product inhibition

170. In which of the following does the induced fit model of enzyme action differ from the lock and key model?
   A. Enzymes lower the energy of activation
   B. Substrate binds at the active site of the enzyme
   C. During the reaction an enzyme substrate complex is formed
   D. Active site moulded to a precise conformation

171. In which area of enzyme application invertase injected to sucrose paste in order to produce liquid chocolate?
   A. Detergent making industry
   B. Pulp and paper industry
   C. Food processing industry
   D. pharmaceutical industry

172. Which of the following mechanisms do cell use to regulate enzyme catalyse reactions in metabolic pathway
   A. Enzyme denaturation
   B. End product inhibition
   C. Irreversible inhibition
   D. Competitive inhibition

173. What are the enzymes used to remove hair in tanning industries and process fruit juice
   A. Protease and Pectinase
   B. Invertase and protease
   C. Amylase and invertase
   D. Lipase and amylase

174. In which of the following point does lock-and- key model of enzyme action differ from induce fit model
   A. Enzyme lower energy of activation
   B. Substrate bind at the active site of enzymes
   C. During the reaction, enzyme substrate complex ifs formed
   D. The substrate molecule and the active site are complementary

175. What is the cause of tomato fruits to ripen much more slowly when kept in a refrigerator then if kept on a table at room temperature?
   A. Enzyme produce by bacteria normally inhibit ripening
   B. Humidity accelerates enzyme activity and ripening process
   C. Room temperature arrest the action of ripening enzymes
   D. Low temperature slow the normal action of ripening enzymes

176. What does an enzyme do to a chemical reaction that allows proceeding optimally?
   A. Increase the amount of substrate
   B. Increase the required activation energy
   C. lower the required activation energy
   D. Modify both the pH and temperature

177. Enzyme A digests proteins in the stomach (environment with a pH of 2). Enzyme B digests proteins in the small intestine (environment with a pH of 8). Which of the following is NOT true:
   A. Enzyme A would be denatured in the small intestine.
   B. Enzyme A works best in acidic conditions.
   C. Enzyme A can also work in the small intestine.
   D. Enzyme A helps in the hydrolysis of proteins

178. Sucrase has an optimum temperature of 37 C and an optimum pH of 6.2. What would happen if the pH changed to 3?

A. Sucrase would continue to work the same
B. The reaction sucrase catalyzes would speed up
C. The reaction sucrase catalyzes would slow down
D. The activation energy of the reaction decrease

179. The main reason why rate of enzyme action increases with temperature initially is...

A. The kinetic energy of enzymes and substrates increases
B. Time passing, allowing more collisions to occur
C. The enzymes become denatured
D. More substrate is produced, therefore the enzymes become saturated

180. Which of the statements regarding enzymes is false?

A. Enzymes are proteins that function as catalysts.
B. Enzymes are specific in there action
C. Enzymes decrease the activation energy of a reaction.
D. Enzymes may be used many times for a specific reaction.

181. The relationship between an enzyme and a reactant molecule can best be described as:

A. a temporary association.
B. an association stabilized by a covalent bond.
C. one in which the enzyme is changed permanently.
D. a permanent mutual alteration of structure.
E. non complementary binding.

182. The transition state of a catalyzed reaction is

A. a highly-populated intermediate on the reaction pathway.
B. higher in energy than that of an uncatalyzed reaction.
C. lower in energy than that of an uncatalyzed reaction.
D. lower in energy than the reaction substrate.
E. bound very weakly to the catalyst.