



BIOLOGY

BOOKS - SANTRA BIOLOGY (BENGALI ENGLISH)

CHEMICAL CONSTITUENTS OF LIVING CELLS: BIOMOLECULES

**Exercise Objective Type Questions A Multiple
Choice Questions Mcq**

1. Who first proposed the name of enzyme among the following ?

A. Kuhne

B. Pasteur

C. Buchner

D. Frank

Answer: A



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2. Which one of the following chemical is associated with the classification of enzyme?

A. Galactose

B. Protease

C. Lipid

D. Manganese dioxide

Answer: B



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3. Optimum pH for pepsin action is

A. pH 7.00

B. pH 2.00

C. pH 8.5

D. pH 8.00

Answer: B



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4. Associated with enzyme action

- A. definite pH and favourable temperature
- B. definite pH and variable temperature
- C. variable pH and favourable temperature
- D. variable pH and variable temperature.

Answer: A



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5. Temperature at which most of the enzyme act?

A. $30^{\circ}C$

B. $50^{\circ}C$

C. $60^{\circ}C$

D. $65^{\circ}C$

Answer: A



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6. Coenzymes are -

A. always protein

B. sometime metallic

C. always inorganic compound

D. sometimes vitamin

Answer: D



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7. Suffix that is used for naming of enzyme

A. -in

B. -ose

C. -ase

D. -sin

Answer: C



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8. Apoenzymes are

A. protein

B. vitamin

C. carbohydrate

D. amino acid

Answer: A



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9. Coenzymes act

A. as an associate of apoenzyme

B. as an associate of vitamin

C. independently as apoenzyme

D. as an associate of non-protein

Answer: A



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10. Some inorganic ions are required for enzyme activity. These inorganic substances are

A. enzyme

B. Co - factor

C. prosthetic group

D. activator

Answer: B



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11. Part of the enzyme where substrate is changed into product is called

A. Allosteric site

B. Active site

C. Co - factor

D. Prosthetic group

Answer: B



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12. Most of the digestive enzymes belong to the class of

A. Lysases

B. Hydrolases

C. Isomerases

D. Transferases

Answer: B



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13. Noble prize for discovering enzymes was given to

A. Kuhne

B. Duclaux

C. Buchner

D. Fischer

Answer: C



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14. A non- proteinaceous enzyme is

A. Lysozyme

B. Ribozyme

C. Ribonuclease - P

D. Both (b) & (c)

Answer: D



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15. Non - protein part of holoenzyme is

A. Vitamin

B. Co - factor

C. Fatty acid

D. Zymogen

Answer: B



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16. Which one gives rise to coenzyme?

A. B_2

B. B_1

C. Nicotinamide

D. All of these

Answer: D



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17. Coenzymes FMN and FAD are derived from
vitamin

A. C

B. B_6

C. B_{11}

D. B_2

Answer: D



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18. Most abundant enzyme is

A. Catalase

B. Rubisco

C. Nitrogenase

D. Invertase

Answer: B



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19. Genetic engineering requires enzymes

A. DNA-ase

B. Amylase

C. Lipase

D. Restriction endonuclease

Answer: D



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20. The activity of succinate dehydrogenase is inhibited by

A. Malonate

B. Pyruvate

C. Glycolate

D. Phosphoglycerate

Answer: A



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21. Enzymes are absent in

A. Fungi

B. Bacteria

C. Viruses

D. Algae

Answer: C



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22. Modulators

- A. Inhibit enzyme activity
- B. Stimulate enzyme activity
- C. Function as co - enzyme
- D. Both a & b

Answer: D



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23. An enzyme that brings about structural changes of a compound without altering its molecular weight is

A. Diastase

B. Ligase

C. Lyase

D. Isomerase

Answer: D



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24. Enzyme amylase belongs to category

A. Oxidoreductases

B. Transferases

C. Hydrolases

D. Isomerases

Answer: C



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25. Enzyme involved in transfer of electrons belongs to

A. Hydrolase

B. Desmolase

C. Transaminase

D. Dehydrogenase

Answer: D



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26. Enzymes increase the rate of biochemical reaction through

- A. Changing equilibrium
- B. Lowering activation energy
- C. Forming reactant - product complex
- D. Forming enzyme - product complex

Answer: B



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27. Non protein part of enzyme is

A. Catalytic agent

B. Cofactor

C. Active site

D. Apoenzyme

Answer: B



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28. Enzymes exist in cell as

A. solid

B. Crystals

C. Solution

D. Colloid

Answer: D



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29. Competitive inhibition is due to

A. Protein poison

B. Substrate analogue

C. Non availability of activation energy

D. Short wave radiation

Answer: B



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30. Amino acids are produced from

A. Protein

B. Fatty acid

C. Essential oil

D. α - keto acids

Answer: D



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31. Membrane permeability is controlled by

A. Na^+

B. K^+

C. Both 'a' and 'b'

D. Ca^{++}

Answer: C



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32. Adenine is

A. Purine

B. Pyrimidine

C. Nucleoside

D. Nucleotide

Answer: A



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33. The four elements making 99 % of living system are

A. C, H, O, S

B. C, H, O, P

C. C, H, O, N

D. C, N, O, P

Answer: C



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34. Which is not a lipid?

A. Waxes

B. Sterol

C. Glycerol

D. Lecithin

Answer: B



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35. Maximum iron occurs in

A. RBC

B. WBC

C. Bone cells

D. Protein

Answer: C



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36. A nucleoside differs from nucleotide is not having

A. Sugar

B. Nitrogen base

C. Phosphate

D. Phosphate and sugar

Answer: C



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37. Immediate source of cellular energy is

A. Glucose

B. ATP

C. Pyruvic acid

D. NADH

Answer: A



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38. Lecithin is

A. Steroid

B. Glycoprotein

C. Carbohydrate

D. Phospholipid

Answer: D



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39. As amino acid without asymmetrical carbon atom is

A. Histidine

B. Threonine

C. Phenylalanine

D. Glycine

Answer: D



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40. A unit compound of sugar and nitrogen base linked by glycosidic bond is

A. Purine

B. Glycoside

C. Nucleoside

D. Nucleotide

Answer: C



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41. Lactose is made of

A. Glucose+Fructose

B. Glucose+Glucose

C. Glucose+Galactose

D. Fructose+Fructose

Answer: C



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42. Which is co - enzyme II?

A. FAD

B. FADP

C. NADP

D. NAD

Answer: C



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43. An element not of much important to plant is

A. *Ca*

B. *Zn*

C. *Cu*

D. *Na*

Answer: B



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44. High - energy bond in ATP molecule are between

A. $C - O$

B. $C - C$

C. $O - P$

D. $C - N$

Answer: C



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45. Of the following which one is micro nutrient?

A. *Ca*

B. *N*

C. *Mg*

D. *Mn*

Answer: D



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46. How many molecules of fatty acids occurs in a lipid (fat) molecule?

A. One

B. Two

C. Three

D. Five

Answer: C



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47. An isolated DNA molecules is heated to $82^{\circ} - 90^{\circ} C$. It

A. Changes into RNA

B. Breaks into fragments

C. Uncoils and separates into distincts strands

D. Beings replication

Answer: C



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48. Hydrogen bonds presents between cytosine and guanine are

A. 2

B. 3

C. 1

D. 4

Answer: B



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49. DNA is composed of repeating units of

A. Ribonucleosides

B. Deoxyribonucleosides

C. Ribonucleotides

D. Deoxyribonucleotides

Answer: D



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50. DNA does not occur in

- A. Nucleus
- B. Ribosomes
- C. Mitochondria
- D. Plastids

Answer: B



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51. Which is wrong about nucleic acids?

- A. DNA is single - stranded in some viruses
- B. RNA is double - stranded occasionally
- C. Length of one helix is 45\AA is B- DNA
- D. One turn of Z - DNA has 20 bases

Answer: D



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52. Nitrogen bases of DNA are

A. ATUC

B. UTGC

C. ATGC

D. AUGC

Answer: C



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53. Watson and Crick are known for their discovery that DNA is

A. Single stranded

B. Double stranded

C. Having deoxyribose only

D. Template for r RNA synthesis

Answer: B



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54. Casein present in milk is

A. Fat

B. Carbohydrate

C. Protein

D. Bacterium

Answer: C



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55. One of the following is not a carbohydrate

A. Maltose

B. Pepsin

C. Cellulose

D. Glucose

Answer: B



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56. Which one is not protein?

A. Myosin

B. Actin

C. Albumin

D. Haematin

Answer: D



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57. Nucleic acids are made of

A. Nucleotides

B. Nucleosides

C. Amino acids

D. Proteins

Answer: A



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58. Oval and eccentric starch grains occur in

A. Potato

B. Wheat

C. Rice

D. Maize

Answer: A



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59. Maximum amount of cellulose occurs is

A. Cotton

B. Coir

C. Hemp

D. Flax

Answer: A



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60. Which one yields protein on hydrolysis?

A. Fatty acids

B. Nucleic acid

C. Amino acid

D. None of the above

Answer: C



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61. Nucleotide base present in DNA but not in RNA is

A. Cytosine

B. Uracil

C. Thymine

D. Guanine

Answer: C



62. Which pyrimidine is found in RNA ?

A. Guanine

B. Cytosin

C. Thymine

D. Uracil

Answer: D



63. Ester linkage occur is

A. Nucleic acid

B. Lipids

C. Carbohydrates

D. Protein

Answer: B



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64. Polymer of α - d - glucose is

A. Glycogens

B. Cellulose

C. Insulin

D. Callose

Answer: A



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65. Joining of repeating units to form a macro molecule is called

A. Polymerisation

B. Aggregation

C. Polymorphism

D. Condensation

Answer: A



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66. Diameter of DNA is Wilkin's x-ray diffraction showed DNA diameter to be

A. 200\AA

B. 100\AA

C. 20\AA

D. 50\AA

Answer: C



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67. Correct base pairing in DNA is

A. T-U

B. A-T

C. T-G

D. C-U

Answer: B



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68. Number of base pairs present in one turn of DNA is

A. 9

B. 10

C. 11

D. 12

Answer: B



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69. Agar- agar is obtained from

A. Gelidiella

B. Ulothrix

C. Spirogyra

D. Chlorella

Answer: A



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70. Who first discovered ribozyme?

A. Kuhne

B. Cech Thomas

C. Northrop

D. Sumner

Answer: B



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71. Fehling's solution is used for the detection of

A. Glucose

B. Starch

C. All carbohydrates

D. Fats

Answer: A



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72. The term enzyme was coined by

A. Pasteur

B. Berzelius

C. Kuhne

D. Sumner

Answer: C



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73. The first enzyme to be crystallized

A. Lysozyme

B. Nuclease

C. Urease

D. Lipase

Answer: C



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74. All enzymes have

A. Prosthetic group

B. Catalytic property

C. Quaternary structure

D. Only negative charge

Answer: B



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75. Loosely bound non-protein part of the enzyme is

A. apoenzyme

B. Co - factor

C. holoenzyme

D. non essential

Answer: B



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76. Holoenzyme is

- A. a substrate
- B. a conjugated protein
- C. a denatured protein
- D. an inactive enzyme

Answer: B



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77. To which of the following are enzymes sensitive to

A. pH change

B. rainfall

C. wind

D. sun light

Answer: D



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78. Genetic engineering requires enzyme

A. lipase

B. protease

C. amylase

D. restriction endonuclease

Answer: D



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79. The enzyme involved in removing or adding electron are called

- A. Transferases
- B. Ligases
- C. Oxidoreductases
- D. Isomerase

Answer: C



80. The enzyme code of enzyme 2.7.1.1 refers to the main group

A. ligase

B. lyase

C. hydrolase

D. Tranferase

Answer: D



81. The enzyme code of enzyme 6.1.1.1 refers to the main group

A. Oxidoreducates

B. Synthetase

C. Hydrolase

D. Tranferase

Answer: B



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82. Ribozyme is

A. RNA with enzyme activity

B. Synthetase

C. Hydrolase

D. Tranferase

Answer: A



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83. Enzymes having slightly different molecular structure but performing identical activity are called

A. Holoenzyme

B. Isoenzyme

C. Apoenzyme

D. Co-enzyme

Answer: B



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84. According to Koshland

A. catalytic site of the enzyme is rigid

B. catalytic site of the enzyme can be influenced by the presence of substrate

C. enzyme is a rigid molecule

D. enzyme is never destroyed

Answer: B



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85. Which one of the following is a plant proteinase?

A. Urease

B. Trypsin

C. Papain

D. Pepsin

Answer: C



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86. Digestive enzymes mostly occur in which of the following

A. Ribosomes

B. Golgibody

C. Mitochondria

D. Lysosomes

Answer: D



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87. Which one of the following statements is not true for enzymes

A. Proteinaceous nature

B. Used up in reaction

C. Speeds up rate of biochemical reaction

D. Specific in nature

Answer: B



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88. Apoenzyme and coenzyme combine of form

A. Prosthetic group

B. Enzyme - Substrate - Complex

C. Enzyme - Product complex

D. Holoenzyme

Answer: D



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89. Which enzyme converts starch into maltose

A. Maltase

B. Sucrase

C. Lipase

D. Amylase

Answer: A



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90. Endoenzyme generally act at

A. Alkaline pH

B. Neutral pH

C. Acidic pH

D. Any pH

Answer: B



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91. Which one of the following is the cofactor of enzyme carbonic anhydrase?

A. *Mg*

B. *Cu*

C. *Fe*

D. *Zn*

Answer: D



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92. Blocking the enzymatic action by blocking its active site is

A. Non competitive inhibition

B. Allosteric inhibition

C. Competitive inhibition

D. Competitive inhibition

Answer: C



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93. Which of the following enzymes converts soluble calcium caseinogen into insoluble calcium caseinate?

A. Rennin

B. Phosphoglyceromutase

C. Cytochrome oxidase

D. Hexokinase

Answer: A



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94. Which of the following enzymes is used in fermentation of alcoholic drinks?

A. Endonuclease

B. Zymase

C. Rennin

D. Cytochrome oxidase

Answer: B



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95. Optimum pH for pepsin and trypsin are

- A. 3 and 5.5 respectively
- B. 2.0 and 8.5 respectively
- C. 1.5 and 9.5 respectively
- D. 3.5 and 5.5 respectively

Answer: B



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96. Expant ELISA

A. Enzyme linked immunosorbent assay

B. Enzyme linked inductive assay

C. Enzyme linked ion assay

D. None of them

Answer: A



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97. A metal ion required for normal function for an enzyme is

A. Cofactor

B. Coenzyme

C. Prosthetic group

D. Holoenzyme

Answer: A



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98. Lock & key - model of enzyme action
illustrate that a particular enzyme molecule

- A. Interacts with specific type of substrate molecule
- B. Forms a permanent enzyme-substrate complex
- C. Reacts at the same rate in all conditions
- D. Is destroyed & resynthesized several times

Answer: A



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99. Activity of an enzyme is affected least by

A. Concentration of Substrate

B. Concentration of enzyme

C. Original activation energy of the system

D. Temperature

Answer: C



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100. Enzyme catalyzing removal of group and formation of double bonds are

A. Ligase

B. Lyases

C. Transferase

D. Reductase

Answer: B



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101. Holoenzyme is a

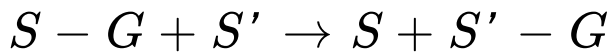
- A. Protein & apoenzyme
- B. Non protein & coenzyme
- C. Enzyme protein & coenzyme
- D. None of them

Answer: C



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102. Select the type of enzyme involved in the following reaction



A. transferase

B. hydrolase

C. lyase

D. isomerase

Answer: A



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103. Transition state structure of the substrate formed during an enzymatic reaction is

- A. Transient and unstable
- B. Permanent but unstable
- C. Transient but stable
- D. Permanent & stable

Answer: A



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104. The protein component of a holoenzyme is known as

- A. Coenzyme
- B. Cofactor
- C. prosthetic group
- D. Apoenzyme

Answer: D



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105. Which one of the following combination of all three fatty acids are essential for human beings?

A. oleic acid, linoleic acid and linolenic acid

B. palmitic acid, linoleic acid and arachidonic acid

C. oleic acid, linoleic acid and arachidonic acid

D. linoleic acid, linolenic acid and arachidonic acid

Answer: D



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106. An allosteric inhibitor of the enzyme acts by binding to the

A. substrate

B. product

C. catalytic site of the enzyme

D. non - catalytic site of the enzyme

Answer: D



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107. A typical fat molecule is made up of

A. One glycerol and three fatty acid molecules

B. One glycerol and one fatty acid molecule

C. Three glycerol and three fatty acid molecules

D. Three glycerol molecules and one fatty acid molecule

Answer: A



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108. Which one of the following statement is wrong?

A. Cellulose is polysaccharide

B. Uracil is a pyrimidine

C. Glycine is a sulphur containing amino acid

D. Sucrose is a disaccharide

Answer: C



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109. Which one of the following is the least likely, to be involved in stabilizing the three dimensional folding in most proteins?

A. Ester bonds

B. Hydrogen bonds

C. Electrostatic interaction

D. Hydrophobic interaction

Answer: A



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110. Which of the following rRNAs acts as structural RNA as well as ribozyme in bacteria?

A. 5.8 S rNA

B. 5 S rRNA

C. 18 S rRNA

D. 23 S rRNA

Answer: D



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111. Which one of the following statement is correct, with reference to enzymes?

A.

Holoenzyme = Apoenzyme + coenzyme

B.

Coenzyme = Apoenzyme + Holoenzyme

C. Holoenzyme = Coenzyme + Co-factor

D.

Apoenzyme = Holoenzyme + co-enzyme

Answer: A



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112. Which of the following are not polymeric?

A. Proteins

B. Polysaccharides

C. Lipids

D. Nucleic acid

Answer: C



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B Choose More Than One Options

1. Example of prosthetic group are

A. FMN

B. Biotin

C. NADP

D. FAD

Answer: A::B::D



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2. Proteolytic enzymes are

A. Pepsin

B. Renin

C. Trypsin

D. Sucrase

Answer: A::B::C



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3. Simple protein enzymes are

A. Pepsin

B. Trypsin

C. Amylase

D. None of these

Answer: A::B



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4. Which enzymes are hydrolase?

A. Sucrase

B. Maltase

C. Epimerase

D. Dehydrogenase

Answer: A::B



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5. In ATPase enzyme, ATP are

- A. Positive homotropic effector
- B. Allosteric modulator
- C. Positive modulator
- D. None of them

Answer: A::B



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6. Which is not component of coenzyme A?

A. Cysteine

B. Acetic acid

C. Pantothenic acid

D. Glutamic acid

Answer: B::D



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7. Which enzymes are lyase?

A. Aldolase

B. Fumerase

C. Kinase

D. Enolase

Answer: A::B



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8. Exozyme are

A. Trypsin

B. Medusin

C. Glycolate oxydase

D. Reductase Categoryl

Answer: A::B



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1. One gram molecule of carbohydrate yields _____ kcal.



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2. In maltose two molecules of glucose are held together by _____ bond.



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3. Pyranose ring structure of glucose on hydrolysis was given by _____ .



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4. Storage sugar are _____.



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5. Sucrose is an _____ which on hydrolysis produces one molecule each of glucose and

fructose.



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6. A protein molecule is a polymer of _____



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7. _____ are called amphoteric of zwitterions.



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8. The pyrimidines include thymine _____
and _____.



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9. The nucleotide molecule consist of 3 small
molecules of :



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10. The most common energy carrier in the cell is _____.



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11. Water molecule are held together by _____ hydrogen bonds.



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12. Cotton fibres contains maximum quantity of _____.



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13. Chitin is a polysaccharide found in the _____ of carbs and prawn.



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14. Egg albumin is a type of _____ protein.



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15. When amino acid chain is arranged like a coil it is called is α _____.



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16. Keratin is a _____ protein.



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17. rRNA is associated with _____.



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18. Nucleic acid are polymers of _____.



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19. DNA is circular and naked in _____ and _____.



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20. A protein molecule has atleast 200 to 300 _____ linkages.



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21. The enzymes which break proteins into amino acid molecules are called _____ .



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22. A vitamin is often associated as a _____ enzyme.



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23. When the production of the cell is inhibited by its own metabolites, this control is termed as _____.



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24. The substances which stops or slows down the reaction after the formation of substrate are called _____.



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25. The kind of protein which can enhance the efficiency of a biochemical reaction is called _____.



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26. A compound with almost similar structure to the substrate can act as a _____.



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27. The enzymatic activity stops due to _____ of enzyme at very high temperature.



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28. The RNA was first detected by _____
and _____ in 1961.



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29. DNA is important constituent material of
_____.



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30. The eukaryotic mRNA is _____.



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D True Or False Statement Questions

1. Globular proteins are present in snake venom.



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2. The purines of DNA are-Guanine & Thymine.



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3. Peptide bonds are responsible for formation of primary structure of protein.



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4. Uracil is a purine base found in RNA.



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5. In a plant cell, starch acts as a functional unit, while the structural unit is the cellulose.



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6. All enzymes do not incorporate in active site.



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7. RNA may act as an enzyme.



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8. Two strands of DNA molecules are identical.



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9. Nitrogen is present in all carbohydrate, lipid & proteins.



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10. Human beings digest cellulose.



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Very Short Answer Type Questions

1. Expand NAD, FMN and GTP.



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2. Name the nucleotide which acts on co-enzyme.



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3. Deficiency of which element causes anaemia?



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4. How many types of amino acids are found in living beings?



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5. Which carbohydrate is used by cells as energy source?



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6. Which carbohydrate is called animal starch?



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7. Which amino acid forms a part of hormone?



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8. Which amino acid takes part in the formations of vitamin nicotinamide?



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9. List the constituent units of ATP.



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10. Give one difference between purine and pyrimidine nitrogenous bases.



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11. Which mineral element is found in nucleic acid?



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12. Give an example of metalloproteins.



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13. Name the sugar present in RNA.



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14. In which category of organisms, chitin is present in cell wall?



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15. Name two common homopolysaccharides.



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16. Name one fibrous and one globular protein.



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17. What do DNA and RNA stand for?



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18. Name three kinds of RNA.



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19. Who discovered enzyme and when?



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20. Name the scientist associated with lock and key theory of enzyme actions.



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21. How are enzymes named?



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22. At what temperature enzymes act the best?



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23. What is the inactive form of trypsin?



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24. Name one vitamin which acts as co-enzyme.



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25. What is the term used for modified binding site ?



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26. Give one example of a co-factor.



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27. Why enzymes are called biocatalysts ?



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28. Which structural make up enables the protein to become functional enzymes?



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29. Name the class of enzyme which split larger molecules into smaller ones.



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30. Name the fastest acting enzymes.



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31. Name the enzyme which is associated with transfer of electrons of oxidation-reduction reaction.



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32. Give one example of isoenzyme.





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33. Who is the discoverer of RNA ?



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34. What is the important constituent of chromatin?



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35. What is the nature of eukaryotic mRNA?



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Short Answer Type Questions

1. What is allosteric enzyme ?



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2. What is allosterism?



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3. What is ribozyme?



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4. What is Zymogen?



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5. What is exoenzyme?



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6. What is endoenzyme?



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7. What is an activator?



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8. What is inhibitor ?



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9. What is coenzyme?



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10. What is cofactor?



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11. What is simple enzyme?



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12. What is allozyme?



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13. What is lysozyme?



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14. What is restriction endonuclease?



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15. What is proenzyme ?



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16. What is antienzyme?



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17. What is isoenzyme ?



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18. What is multienzyme ?



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19. What is active site of an enzyme?



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20. What is Michaelis-Menten constant (K_m)?



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21. What is turn over number ?



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22. What are abzymes ?



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23. What are allosteric regulators or modulators?



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24. What is activation energy ?



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25. What is competitive inhibition ?



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26. What is Zymase ?



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27. What are bioregulators ?



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28. What is noncompetitive inhibitor?



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29. What are irreversible inhibitors?



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30. What is inducible enzyme?



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31. What is Endorphin ?



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32. What do you understand by Magic 20 ?



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33. What is monellin ?



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34. What happen if lecithin is hydrolysed ?



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35. What do you mean by brain sugar?



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36. What is seborrhea ?



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37. State the sweetening index of Sucrose and Maltose?



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38. Name the metallic ion responsible for the formation of RBC ?



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39. What is the melting point of Palmitic and Linoleic acid?



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40. What is Thaumatin?



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41. What is C-value?



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42. Mention two methods to analyse the chemical composition of cellular pool.



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43. How many shapes do protein have?



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44. What is P-Protein?



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45. What is antisense therapy?



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46. What is the function of uricase?



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47. Name the smallest and largest enzyme?



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48. What are allozymes ?



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49. State the function of restriction endonuclease?



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50. What is the chief function of enterokinase?



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51. What is cofactor?





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52. What are coenzyme?



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53. Why fatty acids are insoluble in water ?



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54. Why saturated fatty acid have higher melting point.



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55. Why sucrose is not a reducing sugar.



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56. Glucose is known as reducing sugar-why?



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57. In aqueous phase a protein contains same number of cation and anion _____



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58. Salivary amylase get deactivated by HCl present in the gastric juice.



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59. Give the general composition of carbohydrate.



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60. Briefly describe the important features of biomolecules.



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61. What are homopolysaccharides and heteropolysaccharides with suitable examples.



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62. What is hyaluronic acid with proper structural illustration.



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63. Give the functions of amino acids.



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64. Mention the roles of polypeptides.



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65. Briefly give the functions of proteins.



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66. Difference between Kwashiorkor and Marasmus.



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67. Difference between DNA and RNA.



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68. Difference between Enzyme and Inorganic Catalyst.



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69. What are SnRNA, Telomeres RNA and gRNA.



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70. Give the similarities between DNA and RNA.



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71. What are mixed and allosteric inhibition.



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72. Difference between prosthetic group and co-enzyme.



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73. Difference between competitive and allosteric inhibition.



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Long Answer Type Questions

1. What is an enzyme ? Describe its main properties.



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2. Describe the mechanism of action of enzyme.



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3. What are the different types of enzymes ?



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4. Explain the lock and key hypothesis of enzyme action.



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5. Explain allosteric regulation of enzyme action.



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6. What are coenzymes and cofactors ? Give example.



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7. Distinguish enzyme from vitamin.



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8. Write briefly about activator and inhibitor of enzymes with example.



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9. Mention few procedures of naming of enzymes with example.



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10. Mention characteristic features and chemical nature of enzymes.



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11. What are lipids ? Mention their importance to the living beings ?



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12. What are fatty acids? State their functions.



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13. Discuss the importance of calcium and magnesium in the organism.



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14. Explain the various role of nucleotide in living being.



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15. What are nucleic acids? Describe the structure and function of DNA.



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16. Distinguish between primary, secondary and tertiary structure of protein?



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17. What are conjugated proteins ? How do they differ from simple proteins ? Classify various types of conjugated proteins ?



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18. Explain the structures of various types of RNAs.



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19. Give the classification of enzymes.



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20. Discuss various factors that influences enzyme action.



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21. What is feed back inhibition ? How does it differ from genetic repression.



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22. Explain with suitable example the phenomena of competitive inhibition of enzyme action?



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23. Explain lock and key hypothesis. Give one experiment to support your answer.



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24. Briefly explain the factors which effect enzyme activity.



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25. What is Michaelis constant and with the help of a graph show that its reaction attains half of its maximum velocity.



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26. Briefly explain Induced fit hypothesis.



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27. Describe the Clover-leaf model of tRNA with diagrammatic representation.



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28. Describe the different properties of enzyme.



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29. Describe the induced fit theory of enzyme with dia- grammatic illustration.



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30. State about the economically important enzymes.



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1. What are macromolecules ? Give examples.



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2. Illustrate a glycosidic, peptide and a phosphodiester bond.



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3. What is meant by tertiary structure of proteins ?



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4. Find and write down structures of 10 interesting small molecular weight biomolecules. Find if there is any industry which manufactures the compounds by isolatin. Find out who are the buyers.



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5. Proteins have primary structure. If you are given a method to know which amino acid at either of the two termini (ends) of a protein, can you connect this information to purity or homogeneity of a protein?



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6. Find out and make a list of proteins used as therapeutic agents. Find other applications of proteins (e.g., cosmetics etc.)



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7. Explain the composition of triglyceride.



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8. Can you describe what happens when milk is converted into curd or youghurt, from your understanding of proteins.



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9. Can you attempt building models of biomolecules using commercially available atomic models (Ball and Stick models).



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10. Attempt titrating an amino acid against a weak base and discover the number of dissociating (ionizable) functional groups in the amino acid.



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11. Draw the structure of the amino acid, alanine.



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12. What are gums made of ? Is Fevicol different?



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13. Find out a qualitative test for proteins, fats or oils and amino acids and test any fruit juice, saliva, sweat and urine for them.



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14. Find out how much cellulose is made by all the plants in the biosphere and compare it with how much of paper is manufactured by man and hence what is the consumption of

plant material by man annually. What a loss of vegetation!



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15. Describe the important properties of enzymes.



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