



BIOLOGY

BOOKS - NEET PREVIOUS YEAR (YEARWISE + CHAPTERWISE)

BIOMOLECULES

Exercise

1. Which one of the following statements is correct, with reference to enzymes?

A. Apoenzyme = Holbenzyme + Coenzyme

B. Holoenzyme = Apoenzyme + Coenzyme

C. Coenzyme = Apoenzyme + Holoenzyme

D. Holoenzyme = Coenzyme + Cofactor

Answer: B



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2. Which of the following are not polymeric

A. Nucleic acid

B. Proteins

C. Polysaccharides

D. Lipids

Answer: D



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3. 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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4. Which one of the following statements is wrong ?

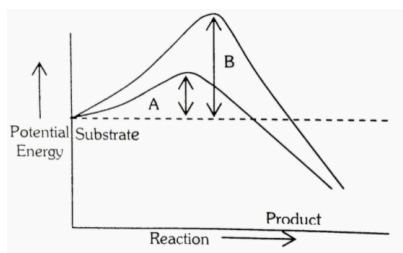
- A. Cellulose is a polysaccharide
- B. Uracil is a pyrimidine
- C. Glycine is a sulphur containing amino acid
- D. Sucrose is a disaccharide

Answer: C



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5. Which of the following describes the given graph correctly



- A. Endothermic reaction with energy A in the presence of enzyme and B in the absence of enzyme
- B. Exothermic reaction with energy A in the presence of enzyme and B in the absence of enzyme
- C. Endothermic reaction with energy A in the absence of enzyme and B in the presence of enzyme
- D. Exothermic reaction with energy A in the absence of enzyme and B in the presence of enzyme

Answer: B



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6. Which of the following is the least likely to be involved in stabilising the three-dimensional folding of most proteins?

- A. Hydrogen bonds
- B. Electrostatic-interaction
- C. Hydrophobic interaction
- D. Ester bonds

Answer: D



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7. A non-proteinaceous enzyme is

- A. lysozyme

B. ribozyme

C. ligase

D. dextranase

Answer: B



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8. The chitinous exoskeleton of arthropods is formed by the polymerisation of

A. keratin, sulphate and chondroitin sulphate

B. D-glucosamine

C. N-acetyl glucosamine

D. lipoglycans

Answer: C



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9. Which of the following biomolecules does have a phosphodiester bond?

- A. Fatty acids in a diglyceride
- B. Monosaccharides in a polysaccharide
- C. Amino acids in a polypeptide
- D. Nucleic acids in a nucleotide

Answer: D



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10. Which one of the following is a non-reducing carbohydrate?

A. Maltose

B. Sucrose

C. Lactose

D. Ribose 5-phosphate

Answer: B



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11. Select the option which is not correct with respect to enzyme action

- A. Substrate binds with enzyme as its active site
- B. Addition of lot of succinate does not reverse the inhibition of succinic dehydrogenase by malonate
- C. A non-competitive inhibitor binds the enzyme at a site distinct from that which binds the substrate
- D. Malonate is a competitive inhibitor of succinic dehydrogenase

Answer: B



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

- A. transient but stable
- B. permanent but unstable
- C. transient and unstable
- D. permanent and stable

Answer: C



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13. The essential chemical components of many coenzymes are

- A. proteins
- B. nucleic acids
- C. carbohydrates

D. vitamins

Answer: D



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14. A phosphoglyceride is always made up of

- A. only a saturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached
- B. only an unsaturated fatty acid esterified to a glycerol molecule to which a phosphate group is also attached
- C. a saturated or unsaturated fatty acid esterified to a glycerol molecule to which a phosphate group is also

attached

D. a saturated or unsaturated fatty acid esterified to a phosphate group, which is also attached to a glycerol molecule

Answer: C



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15. Macromolecule chitin is

- A. nitrogen containing polysaccharide
- B. phosphorus containing polysacchande
- C. sulphur containing polysaccharide

D. simple polysaccharide

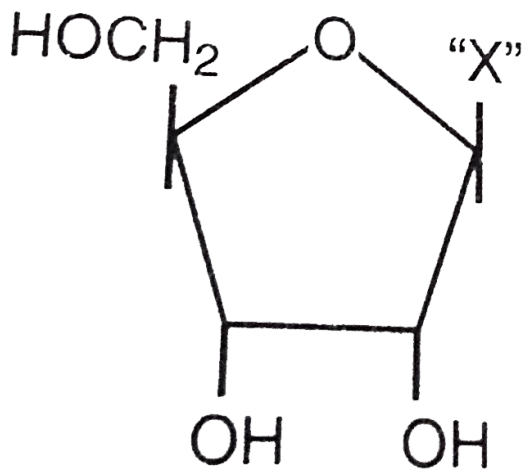
Answer: A



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16. The given diagrammatic representation shows one of the categories of small molecular weight organic compounds in the living tissues. Identify the category

shown and the one blank component "X" in it :



- | | | |
|----|-------------|-----------------|
| A. | Category | Component |
| | Cholesterol | — Guanine |
| B. | Category | Component |
| | Amino acid | — NH_2 |
| C. | Category | Component |
| | Nucleotide | — Adenine |
| D. | Category | Component |
| | Nucleoside | — Uracil |

Answer: D



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17. Which one is the most abundant protein in the animal world

A. Trypsin

B. Haemoglobin

C. Collagen

D. Insulin

Answer: C



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18. Which one out of A-D given below correctly represents the structural formula of a basic amino acid ?

A	B	C	D
$ \begin{array}{c} \text{NH}_2 \\ \\ \text{H} - \text{C} - \text{COOH} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{C} \\ // \quad \backslash \\ \text{O} \quad \text{OH} \end{array} $	$ \begin{array}{c} \text{NH}_2 \\ \\ \text{H} - \text{C} - \text{COOH} \\ \\ \text{CH}_2 \\ \\ \text{OH} \end{array} $	$ \begin{array}{c} \text{CH}_2\text{OH} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{NH}_2 \end{array} $	$ \begin{array}{c} \text{NH}_2 \\ \\ \text{H} - \text{C} - \text{COOH} \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{CH}_2 \\ \\ \text{NH}_2 \end{array} $

A. C

B. D

C. A

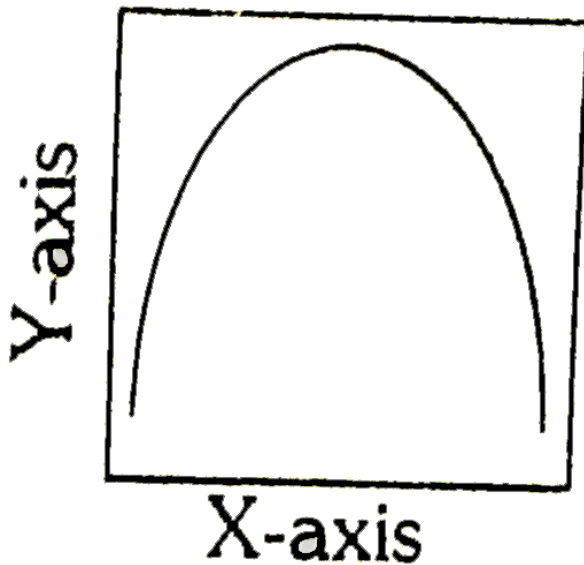
D. B

Answer: B



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19. The curve given below show enzymatic activity with relation to three conditions (pH, temperature and substrate concentration)



What do the two axes (x and y) represent

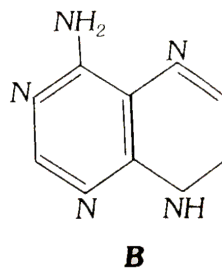
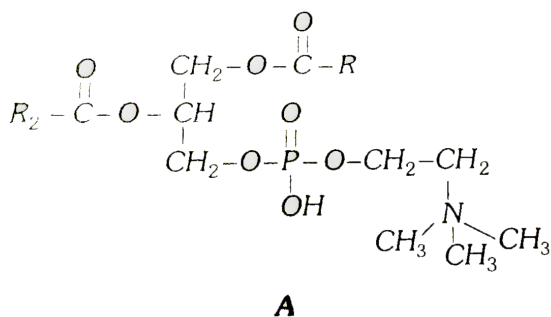
- | | | | |
|----|--------------------|---|--------------------|
| | X-axis | | Y-axis |
| A. | Temperature | — | Enzyme activity |
| | X-axis | | Y-axis |
| B. | Substrate | — | Enzymatic activity |
| | X-axis | | Y-axis |
| C. | Enzymatic activity | — | Temperature |

D. $\begin{matrix} \text{X-axis} & & \text{Y-axis} \\ \text{Enzymatic activity} & - & \text{pH} \end{matrix}$

Answer: A

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20. Which one of the following structural formulae of two organic compounds is correctly identified along with its related function



A. A-Triglyceride- Source of energy major

B. B-Uracil - A component of DNA

C. A- Lecithin - A component of cell membrane

D. B- Adenine - A nucleotide that makes up nucleic acids

Answer: C



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21. Which one is a correct match of three items and their grouping category ?

Item	Group
(A) Cytosine, uracil, thiamine	— Pyrimidines
(B) Malleus, incus, cochlea	— Ear ossicles
(C) Ilium, ischium, pubis	— Coxal bones of pelvic girdle
(D) Actin, myosin, rhodopsin	— Muscle proteins.

Items	Group
A. Malleus, incus, cochlea	— Ear ossicles

B.

Items

Ilium, ischium, pubis

Group

Coxal bones of peivic girdle

C.

Items

Actin, myosin, rhodopsin

Group

Muscle proteins

D.

Items

Cytosine uracil, thymine

Group

Pyrimidines

Answer: D



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22. Which one of the following pairs is wrongly matched

A. Detergents - Lipase

B. Alcohol - Nitrogenase

C. Fruit juice - Pectinase

D. Textile - Amylase

Answer: B



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23. In the DNA molecule

- A. the total amount of purine nucleotides and pyrimidine nucleotides is not always equal
- B. there are two strands which run parallel in the $5' \rightarrow 3'$ direction
- C. the proportion of adenine in relation to thymine varies with the organism

D. there are two strands which run antiparallel one in

$5' \rightarrow 3'$ direction and other in $3' \rightarrow 5'$

Answer: D



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24. Which one the following pairs of nitrogenous bases of nucleic acids, is wrongly matched with the category mentioned against it?

A. Thymine, Uracil - Pyrimidines

B. Uracil, Cytosine - Pyrimidines

C. Guanine, Adenine - Purines

D. Adenine, Thymine - Purines

Answer: D



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25. Modern detergents contain enzyme preparations of

- A. acidophiles
- B. alkaliphiles
- C. thermoacidophiles
- D. thermophiles

Answer: B



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26. A competitive inhibitor of succinic dehydrogenase is

- A. malonate
- B. oxaloacetate
- C. α -ketoglutarate
- D. malate

Answer: A



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27. Which one of the following is not a constituent of cell membrane

- A. Cholesterol

B. Glycolipids

C. Proline

D. Phospholipids

Answer: C



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28. The two polynucleotide chains in DNA are

A. parallel

B. discontinuous

C. antiparallel

D. semiconservative

Answer: C



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29. About 98 percent of the mass of every living organism is composed of just six elements including carbon, hydrogen, nitrogen, oxygen and

A. phosphorus and sulphur

B. sulphur and magnesium

C. magnesium and sodium

D. calcium and phosphorus

Answer: A



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30. One turn of the helix in a B- form DNA is approximately

A. 0.34 nm

B. 3.4 nm

C. 2 nm

D. 20 nm

Answer: B



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31. Antibodies in our body are complex

A. steroids

B. prostaglandins

C. glycoproteins

D. lipoproteins

Answer: C



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32. Antiparallel strands of a DNA molecule means that :

A. the phosphate group of two DNA strands, at their ends, share the same position

B. the phosphate group at the start of two DNA strands are in opposite position (pole)

C. one strands truns clockwise

D. one strand turns anti-clockwise

Answer: B



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33. An organic substance bound to an enzyme and essential for its activity is called

Or

Non-protein part of an enzyme is known as

A. holoenzyme

B. apoenzyme

C. isoenzyme

D. coenzyme

Answer: D



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34. An enzyme that can stimulate germination of barley seeds is

A. α -amylase

B. lipase

C. protease

D. invertase

Answer: A



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35. Nucleotides are building blocks of nucleic acids. Each nucleotide is a composite molecule formed by :

- A. base-sugar-phosphate
- B. base-sugar-OH
- C. (base-sugar-phosphate)_n
- D. sugar -phosphate

Answer: A



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36. Which of the following is the simplest amino acid

A. Alanine

B. Asparagine

C. Glycine

D. Tyrosine

Answer: C



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37. Which one of the following hydrolyses internal phosphodiester, bonds in a polynucleotide chain

A. Lipase

B. Protease

C. Endonuclease

D. Exonuclease

Answer: C



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38. Which one of the following statements regarding enzyme inhibition is correct

A. Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibitor protein

B. Competitive inhibition is seen when the substrate and the inhibitor compete for the active site on the enzyme

- C. Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate
- D. Non-competitive inhibitors often bind to the enzyme irreversibly

Answer: B



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39. Enzymes, vitamins and hormones can be classified into a single category of biological chemicals, because all of these

- A. help in regulating metabolism

- B. are exclusively synthesised in the body of a living organism as at present
- C. are conjugated proteins
- D. enhance oxidative metabolism

Answer: A



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40. The catalytic efficiency of two different enzymes can be compared by the

- A. formation of the product
- B. pH optimum value
- C. K_m value

D. molecular size of the enzyme

Answer: C



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41. The most abundant element present in the plants is

Or

Which of the following is not absorbed through soil

A. carbon

B. nitrogen

C. manganese

D. iron

Answer: A



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42. Which form of RNA has a structure resembling clover leaf?

A. rRNA

B. hnRNA

C. mRNA

D. tRNA

Answer: D



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43. The major portion of the dry weight of plants comprises of

Or

Frame work elements in plants are

- A. carbon, nitrogen and hydrogen
- B. carbon, hydrogen and oxygen
- C. nitrogen, phosphorus and potassium
- D. calcium, magnesium and sulphur

Answer: B



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44. Collagen is

- A. fibrous protein
- B. globular protein
- C. lipid
- D. carbohydrate

Answer: A



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45. Lipids are insoluble in water, because lipids molecules are

- A. hydrophilic
- B. hydrophobic
- C. neutral

D. Zwitter ions

Answer: B



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46. Which of the following is a reducing sugar

A. Galactose

B. Gluconic acid

C. β -methyl galactoside

D. Sucrose

Answer: A



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47. Which steroid is used for transformation?

- A. Cortisol
- B. Cholesterol
- C. Testosterone
- D. Progesterone

Answer: B



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48. Hydrolytic enzyme which acts at low pH is

- A. proteases

B. α -amylases

C. hydrolases

D. peroxidases

Answer: C



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49. Most abundant organic compound on earth is

A. protein

B. cellulose

C. lipids

D. steroids

Answer: B



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50. Spoilage of oil can be detected by which fatty acid ?

- A. Oleic acid
- B. Linolenic acid
- C. Linoleic acid
- D. Erucic acid

Answer: D



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51. Cytochrome is

- A. metallo flavoprotein
- B. Fe containing porphyrin pigment
- C. glycoprotein
- D. lipid

Answer: B



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52. Element necessary for the middle lamella

- A. Ca
- B. Zn

C. K

D. Cu

Answer: A



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53. In plants, inulin and pectin are

A. reserve materials

B. wastes

C. excretory material

D. insect-attracting material

Answer: A



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54. Conjugated proteins containing carbohydrates as prosthetic group are known as

A. chromoproteins

B. glycoproteins

C. lipoproteins

D. nucleoproteins

Answer: B



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55. The transfer RNA molecule in 3D appears

A. L-shaped

B. E-shaped

C. Y-shaped

D. S-shaped

Answer: A



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56. Enzymes enhance the rate of reaction by

A. forming a reactant-product complex

B. changing the equilibrium point of the reaction

C. combining with the product as soon as it is formed

D. lowering the activation energy of the reaction

Answer: D



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57. Feedback inhibition of an enzymatic reaction is caused by

A. end product

B. substrate

C. enzyme

D. rise in temperature

Answer: A



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58. Similarity between DNA and RNA, both :

- A. are polymers of nucleotides
- B. are capable of replicating
- C. have similar sugars
- D. have similar pyrimidine bases

Answer: A



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59. Which is an essential amino acid?

A. Serine

B. Aspartic acid

C. Glycine

D. Phenylalanine

Answer: D



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60. ATP is

A. nucleotide

B. nucleosome

C. nucleoside

D. purine

Answer: A



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61. Which one of the following statements about cytochrome P_{450} is wrong

- A. It contains iron
- B. It is a coloured cell
- C. It has an important role in metabolism
- D. It is an enzyme involved in oxidation reactions

Answer: B



62. Radioactive thymidine when added to the medium surrounding living mammalian cells gets incorporated into the newly synthesised DNA. Which of the following types of chromatin is expected to become radioactive if cells are exposed radioactive thymidine as soon as they enter the S-phase?

A. Heterochromatin

B. Euchromatin

C. Both (a) and (b)

D. Neither heterochromatin nor euchromatin but only the nucleolus

Answer: B



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63. Lactose is composed of

- A. glucose + glucose
- B. glucose + fructose
- C. fructose + galactose
- D. glucose + galactose

Answer: D



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64. Cellulose, the most important constituent of plant cell wall is made up of

- A. unbranched chain of glucose molecules linked by α 1, 4-glycosidic bond
- B. branched chain of glucose molecules linked by β 1, 4-glycosidic bond in straight chain and α 1, 6-glycosidic bond at the site of branching
- C. unbranched chain of glucose molecules linked by β 1, 4-glycosidic bond
- D. branched chain of glucose molecules linked by α 1, 6-glycosidic bond at the site of branching

Answer: C



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65. DNA synthesis can be specifically measured by estimating the incorporation of radio labelled

A. uracil

B. adenine

C. thymidine

D. deoxyribose sugar

Answer: C



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66. What is common among amylase, rennin and trypsin?

- A. These are all proteins
- B. They are proteolytic enzymes
- C. These are produced in stomach
- D. These act at a pH lower than 7

Answer: A



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67. Cofactor (coenzyme) is a part of holoenzyme it is

- A. loosely attached inorganic part
- B. accessory non-protein substance attached firmly

C. loosely attached organic part

D. None of the above

Answer: C



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68. In which one of the following groups, all the three are examples of polysaccharides?

A. Starch, glycogen, cellulose

B. Sucrose, maltose, glucose

C. Glucose, fructose, lactose

D. Galactose, starch, sucrose

Answer: A



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69. Most diverse macromolecules, found in the cell both physically and chemically are

- A. proteins
- B. carbohydrates
- C. nucleic acids
- D. lipids

Answer: A



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70. The nitrogenous organic base purine occurring in RNA is

A. cytosine

B. thymine

C. guanine

D. uracil

Answer: C



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71. Pyrenoids are made up of

A. proteinaceous centre and starchy sheath

- B. core of protein surrounded by fatty sheath
- C. core of starch surrounded by sheath of protein
- D. core of nucleic acid surrounded by protein sheath

Answer: A



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72. A polysaccharide, which is synthesised and stored in liver cells is

- A. lactose
- B. galactose
- C. arabinose
- D. glycogen

Answer: D



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73. Two free ribonucleotide units are interlinked with

- A. peptide bond
- B. covalent bond
- C. hydrogen bond
- D. phosphodiester bond

Answer: D



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74. The four elements that make up 99% of all elements found in a living system are

A. CHOS

B. CHOP

C. CHON

D. CNOP

Answer: C



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75. Which one contains four pyrimidine bases?

A. GATCAATGC

B. GCUAGACAA

C. UAGCGGUAA

D. TGCCTAACG

Answer: A



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76. 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 in B-DNA

D. One turn of Z-DNA has 12 bases

Answer: C



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77. AN enzyme brings about

- A. decrease in reaction time
- B. increase in reaction time
- C. increase in activation energy
- D. reduction in activation energy

Answer: D



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78. Adenine is

- A. purine
- B. pyrimidine
- C. nucleoside
- D. nucleotide

Answer: A



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79. Amino acids are produced from

- A. proteins
- B. fatty acids

C. essential oils

D. α -keto acids

Answer: D



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80. Glycogen is a polymer of

A. galactose

B. glucose

C. fructose

D. sucrose

Answer: B



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81. Living cell contains 60-75% water. Water present in human body is

A. 60-65%

B. 50-55%

C. 75-80%

D. 65-70%

Answer: D



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82. Which one of the following is widely distributed in a cell

A. DNA

B. RNA

C. Chloroplasts

D. Spherosomes

Answer: B



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83. Enzyme having different molecular arrangement but similar functions is

Or

Enzymes which are slightly different in molecular structure but can perform identical activity are called

A. homoenzymes

B. isoenzymes

C. apoenzymes

D. coenzymes

Answer: B



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84. The basic/structural unit of a nucleic acid is

A. pentose sugar

B. nucleoid

C. nucleoside

D. nucleotide

Answer: D



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85. DNA is composed of repeating units of

A. ribonucleosides

B. deoxyribonucleosides

C. ribonucleotides

D. deoxyribonucleotides

Answer: D



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86. Mineral associated with cytochrome is

- A. Cu
- B. Mg
- C. Fe and Mg
- D. Fe and Cu

Answer: D



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87. In RNA, thymine is replaced by

- A. adenine

B. guanine

C. cytosine

D. uracil

Answer: D



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88. A segment of DNA has 120 adenine and 120 cytosine bases. The total number of nucleotides present in the segment is

A. 120

B. 240

C. 60

D. 480

Answer: D



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89. Which is not consistent with double helical structure of DNA?

A. $A = T, C \equiv G$

B. Density of DNA decrease on heating

C. $A + T / C + G$ is not constant

D. Both (a) and (b)

Answer: C



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90. Which of the following is not a part of enzyme but it activates the enzyme ?

A. K

B. C

C. N

D. Si

Answer: A



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91. RNA does not possess

- A. uracil
- B. thymine
- C. adenine
- D. cytosine

Answer: B



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92. In double helix of DNA, the two DNA strands are

- A. coiled around a common axis
- B. coiled around each other
- C. coiled differently

D. coiled over protein sheath

Answer: A



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