



## BIOLOGY

### BOOKS - TRUEMAN BIOLOGY

#### BIOMOLECULES

#### Multiple Choice Questions

1. The four elements called "big-four" which make up 95% of all elements found in a living system are

A. C, H, O, N

B. C, H, O, P

C. C, H, O, S

D. C, N, O, P

**Answer: A**



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2. What is common between NAD and FAD ?

- A. Both are coenzymes.
- B. Both are derived from proteins
- C. Both act as oxygen carriers
- D. All of the above

**Answer: A**



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3. Macromolecules are

- A. nucleic acids, proteins and polysaccharides
- B. nucleic acids and monosaccharides
- C. amino acids and polysaccharides

D. amino acids, lipids and nucleotides

**Answer: A**



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4. In ATP, the high energy bond is the one which links

- A. adenine with ribose
- B. adenine with phosphate
- C. phosphate to phosphate
- D. ribose with phosphate

**Answer: C**



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5. Every carbohydrate is

- A. aldose or ketose
- B. ribose or deoxyribose
- C. hexose or pentose
- D. trioses or tetroses

**Answer: A**

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**6. Glucose is**

- A. aldose hexose sugar
- B. ketose hexose sugar
- C. pyranose pentose sugar
- D. furanose pentose sugar

**Answer: A**

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7. Oligosaccharides contain

- A. two monosaccharides
- B. 2-9 monosaccharides
- C. numerous monosaccharides
- D. no monosaccharides.

**Answer: B**



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8. Reducing sugars are

- A. glucose, fructose, galactose, maltose and lactose
- B. glucose, sucrose and cellulose
- C. lactose, starch, glycogen and trehalose

D. all of the above

**Answer: A**



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9. Reducing sugars like glucose in Fehling solution reduce

A.  $Fe^{++}$  to  $Fe^{+++}$

B.  $Cu^{++}$  to  $Cu^{+}$

C.  $Hg^{++}$  to  $Hg^{+}$

D.  $Cu^{+}$  to  $Cu^{++}$

**Answer: B**



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10. If deoxyribose sugar is supplemented with oxygen at second carbon atom, which one of these is formed ?

- A. Erythrose
- B. Heptose
- C. Ribulose
- D. Ribose

**Answer: D**



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11. Which of the following is the sweetest sugar?

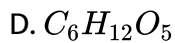
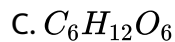
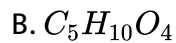
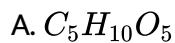
- A. fructose
- B. glucose
- C. sucrose
- D. monellin

**Answer: A**



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**12. Deoxyribose is**



**Answer: B**

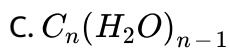
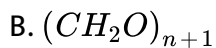


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**13. General formula of monosaccharides is**





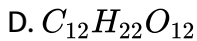
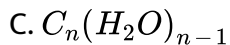
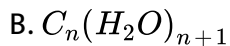
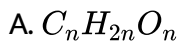


D. All of these

**Answer: D**

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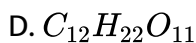
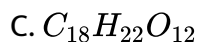
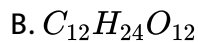
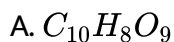
**14. General formula for disaccharide is**



**Answer: C**

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15. The commonest disaccharide has the molecular formula?



**Answer: D**

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16. The reagent used to detect sugar in the urine is

A. Ninhydrin solution

B. Benzene

C. Benedict's solution

D. All of the above

**Answer: C**

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**17. Lactose is a disaccharide of**

- A. glucose only
- B. glucose and fructose
- C. glucose and galactose
- D. all of the above

**Answer: C**

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**18. Maltose is hydrolysed in the presence of maltase to**

- A. glucose

B. glucose & fructose

C. fructose

D. glucose & galactose

**Answer: A**



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**19. Iodine test is used to detect**

A. fats

B. malaria

C. typhoid

D. carbohydrates

**Answer: D**



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20. Fructose is a ketose sugar and also called

- A. an aldose
- B. fruit sugar
- C. cane sugar
- D. corn sugar

**Answer: B**



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21. Before a carbohydrate is utilized as an energy source, it gets first converted into

- A. disaccharide
- B. oligosaccharide
- C. tirose sugars
- D. monosaccharide

**Answer: D**



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**22.** How many C atoms are there in pyranose ring ?

A. 5

B. 3

C. 6

D. 7

**Answer: C**



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**23.** Which of the following are all disaccharides ?

A. Maltose, Sucrose, Lactose

B. Maltose, Lactose, Glucose

C. Glycogen, Lactose, Sucrose

D. All of the above

**Answer: A**



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**24.** Invert sugar is mixture of

A. maltose and fructose

B. glucose and galactose

C. glucose and fructose

D. all of the above

**Answer: C**



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25. A solution of d-glucose in water rotates the plane polarised light

- A. towards right
- B. towards left
- C. towards either side
- D. none of the above

**Answer: A**

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26.  $\alpha$  – and  $\beta$  – Glucose differ in the orientation of the ( – OH) group around:

- A.  $C_3$
- B.  $C_1$
- C.  $C_5$
- D.  $C_2$



**Answer: 2**



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**27.** A sugar of animal origin is

A. fructose

B. lactose

C. DHAP

D. PGA

**Answer: B**



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**28.** Monosaccharide found in nucleolus is

A. pentose

B. tetrose

C. erythrose

D. hexose

**Answer: A**



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**29.** why sucrose and not glucose is used to preserve fruit products ?

A. Glucose is reactive as it has free CHO group

B. Sucrose is more common in nature

C. Sucrose is easily available and has both glucose and fructos

D. None of the above

**Answer: A**



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30. In ATP sugar is

- A. ribose
- B. deoxyribose
- C. glucose
- D. trioses

**Answer: A**



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31. Honey has three sugars. They are

- A. glucose, fructose and lactose
- B. glucose, galactors and inulin
- C. dextrose, laevulose and sucrose
- D. dextrose, lactose and ribose

**Answer: C**

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**32.** non-reducing sugars have

- A. free CHO group and free CO group
- B. neither free CO nor free CHO group
- C. free CHO and bound CO group
- D. free CO group and bound CHO group.

**Answer: B**

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**33.** Milk tastes sour when kept in the open for sometime due to formation of

A. carbonic acid

B. citric acid

C. lactic acid

D. malic acid

**Answer: C**



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**34. Which should be given to an athlete for instant energy ?**

A. Carbohydrates

B. Proteins

C. Fats

D. Vitamins

**Answer: A**



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35. Prior to absorption, grape sugar is hydrolyzed by the enzyme.

A. lactase

B. maltase

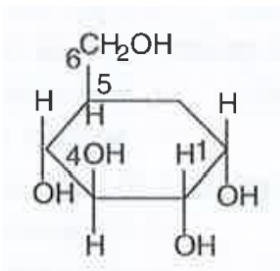
C. sucrose

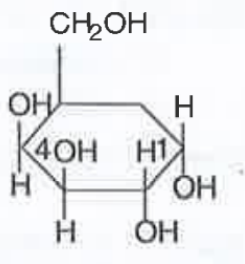
D. none of these

Answer: D

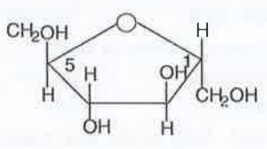
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36. Choose the correct molecule for glucose.

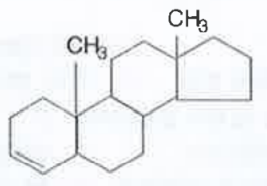




B.



C.



D.

**Answer: A**



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**37.** A fat molecule has

- A. 3 glycerol and one fatty acid molecule
- B. one glycerol and 3 fatty acid molecules
- C. one glycerol and one fatty acid molecule

D. 3 glycerol and 3 fatty acid molecule

**Answer: B**



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**38.** A Skeleton of four interlocking carbon rings is found in

A. steroids

B. waxes

C. fats

D. glycerol

**Answer: A**



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39. A fat molecule has three fatty acids. A Phospholipid molecule has how many fatty acids?

A. 3

B. 2

C. 1

D. 0

**Answer: B**



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40. Most abundant Lipid in cell membrane is

A. phospholipid

B. steroid

C. cholesterol

D. waxes

**Answer: A**



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**41. Amphipathy means**

- A. presence of polar and non polar end in same molecule
- B. water c'Ind land habitat
- C. presence of dipolar Zwitter ions
- D. all wrong.

**Answer: A**



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**42. Essential fatty acids are**

- A. not sythesized in plants

B. not synthesized in animals

C. five in number

D. both (2) and (3)

**Answer: B**



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43.  $C_nH_{2n}O_2$  is the general formula of

A. carbohydrate

B. fatty acid

C. fat

D. nucleic acid

**Answer: B**



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44. in Brain , most common types of lipids are

- A. glycolipids
- B. lipoproteins
- C. cholesterol
- D. steroids

**Answer: A**



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45. A saturated fatty acid is

- A. Oleic acid
- B. Linoleic acid
- C. Stearic acid
- D. All

**Answer: C**



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**46.** Which one is Tetraeonic (four double bond) fatty acid?

- A. Arachidonic acid
- B. Linoleic acid
- C. Oleic acid
- D. Palmitic acid.

**Answer: A**



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**47.** Which one is absent in wood ?

- A. Cellulose

B. Lignin

C. Pectin

D. Fat

**Answer: D**



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**48.** Essential fatty acids are present in large amount in

A. butter

B. hydrogenated fats

C. vegetable oils

D. desi ghee

**Answer: C**



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49. Cholesterol is the precursor of

- A. 1) progesterone
- B. 2) testosterone
- C. 3) estradiol & cortisol
- D. 4) all of these

**Answer: D**



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50. Waxes are esters of higher fatty acids with long chain of

- A. monohydric alcohols
- B. dihydric alcohols
- C. trihydric alcohols
- D. all of these

**Answer: A**



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**51. Lecthin and cephalins are**

- A. nucleic acid
- B. phospholipid
- C. carbohydrate
- D. sphingolipids

**Answer: B**



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**52. Bee wax mainly consists of**

- A. myricyl palmitate



B. myricyl cerotate

C. cetyl palmitate

D. none of these

**Answer: A**



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**53.** Which of the following gives maximum energy in metabolic process?

A. Proteins

B. Nucleic acids

C. Fats

D. Carbohydrates

**Answer: C**



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54. A fatty acid or amino acid is called essential when

- A. cell is unable to synthesize it on its own
- B. cell requires it badly and so make it on its own
- C. cell badly needs it but does not make it on its own.
- D. cell needs it and gets it from adjacent cells

**Answer: C**



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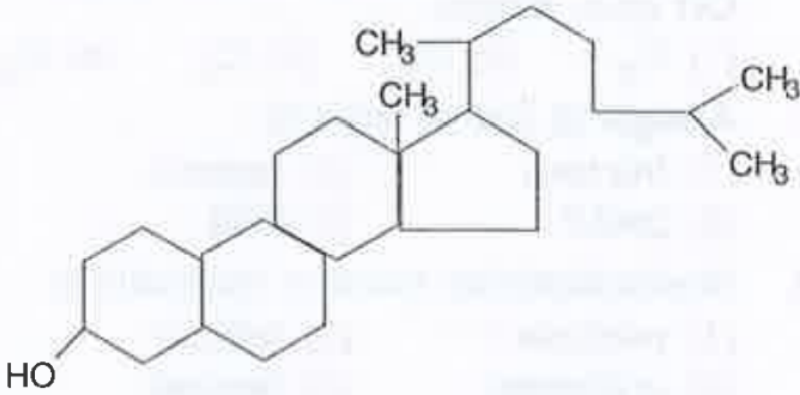
55. Cholesterol is a

- A. simple lipid
- B. phospholipid
- C. derived lipid
- D. glycolipid

Answer: C

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56. This molecule is related to



- A. cholestrol
- B. phospholipid
- C. lipoprotein
- D. mucoprotein

Answer: A

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57.  $CH_3(CH_2)_7CH = CH(CH_2)_7 \cdot COOH$  is

- A. oxalouslyccinate
- B. oleic acid
- C. linolenic acids
- D.  $\alpha$ -ketoglutarate

**Answer: B**



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58. Lipids are translocated through blood by

- A. glycolipids
- B. sulpholpids
- C. lipo proteins

D. phospholids

**Answer: C**



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59. Which of the following pick up excess cholesterol from plasma and transports it to the liver for disposal?

A. LDL

B. HDL

C. Both (1) & (2)

D. glycolipids

**Answer: B**



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60. Which amino acid has no asymmetric carbon atom ?

- A. Glycine
- B. Alanine
- C. Proline
- D. Threonine

**Answer: A**



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61. Which of the following sets have combination of an acidic, basic and neutral amino acids respectively?

- A. Glutamate- Lysine- Glycine
- B. Arg-Asp-Val
- C. Asp-Val-Phe
- D. Phe-Lys-Arg.

**Answer: A**



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**62.** The first amino acids taking part in protein synthesis is .

A. Met

B. Val

C. Arg

D. Tryp

**Answer: A**



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**63.** Sulphur containing amino acids are

A. valine, lysine and cystine

B. tryptophan, glutamic acid, aspartic acid

C. citrulline, methionine and glutamic acid

D. cysteine, homocysteine, methionine

**Answer: D**



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**64.** Essential amino acids are those which our body and, therefore, we taken them from diet . These are usually seven in number and are .

A. leucine, lysine, isoleucine ,valine , tryptophan, phenylalanine , methionine

B. leucine-lysine-isoleucine-valine-tryptophan-phenylalanine -glycine.

C. gly-ala-val-his-try-asp-met

D. none of the above

**Answer: A**



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65. An amino acid which is precursor of Indole 3-acetic acid (Auxin) is

- A. glycine
- B. valine
- C. glutamic
- D. tryptophan

**Answer: D**

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66. Living organism have

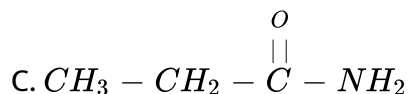
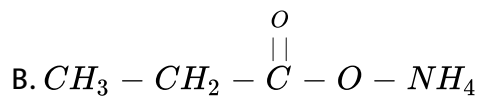
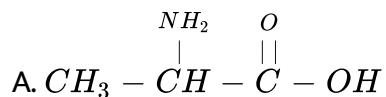
- A.  $\alpha$  -amino acids and L-sugars
- B. L-amino acids and D-sugar
- C. D-amino acids and L-sugar

D.  $\alpha$ - amino acids and  $\alpha$ -sugars.

Answer: B

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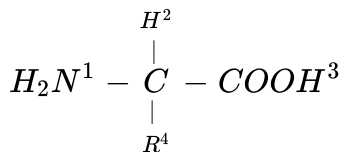
67. Which one is an amino acids?



Answer: A

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68. Which two groups of the following formula are involved in peptide linkage between different amino acids?



- A. 2 and 3
- B. 1 and 3
- C. 1 and 4
- D. 2 and 4

**Answer: B**

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69. Amino acids usually exist in the form of Zwitter ions. This means that they consist of

- A. the basic  $NH_2$  groups and acidic COOH group

B. the basic  $NH_3^+$  group and the acidic  $COO^-$  group

C. basic  $COO^-$  group & acidic  $NH_3^-$  group

D. None of the above

**Answer: B**



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**70. Peptide linkage is**

A.  $COHN_2$

B.  $-CO.NH$

C.  $-COONH_2$

D.  $-CH - NH$

**Answer: B**



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71. Precursor of niacin is

- A. lysine
- B. threonine
- C. tryptophan
- D. glycine

**Answer: C**



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72. The following one is smallest.

- A. maltose
- B. Cellulose
- C. Glycine
- D. Cellbiose

**Answer: C**



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**73.** Two of the following amino are needed for growth only and are not essential for adults.

- A. Cysteine and cystine
- B. Lecucine and Valine
- C. Tryptophan and isoleucine
- D. Arginine and histidine

**Answer: D**



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**74.** Glycosidic linkage at place of branching in starch and glycogen is

A.  $\alpha - 1 - 4$

B.  $\beta, 1 - 4$

C.  $\beta, 1 - 6$

D.  $\alpha, 1 - 6$

**Answer: D**



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75. In amylocoase units are linked by.

A.  $\alpha - 1 - 4$  linkages

B.  $\alpha - 1 - 6$  linkage

C. both  $\alpha - 1 - 4$  and  $\alpha, 1 - 4$  linkage

D. all of the above

**Answer: A**



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76. Which is an unbranched glucan

- A. Cellulose
- B. Starch
- C. Glycogen
- D. All the above

**Answer: A**



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77. The monomer units in starch are

- A. Pyranose fructose
- B. Furannose
- C.  $\beta$ -D-Glucose



D.  $\alpha$ - D-Glucose

**Answer: D**



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**78.** Chitin forming exoskeleton in arthropods is seconds most abundant carbohydrate on this earth. It is a

- A. Storage sulphur containing polysaccharide
- B. nitrogen containing structural homopolysaccharid
- C. mucopolysaccharide
- D. strutural oligosaccharide

**Answer: B**



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79. Which of the following carbohydrates gives a dark blue colour with iodine?

- A. Amylopectin
- B. Cellulose
- C. Starch
- D. none of these

**Answer: C**



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80. The starch and glycogen are two most suitable storage polysaccharides because

- A. they occupy less space
- B. they do not disturb ph of cell
- C. they cannot pass through cell

D. all of the above

**Answer: D**



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**81.** Hyaluronic acid is a heteropolysaccharide and has actyl glucosamine + gulcoronic acid. In is a cementing material and found in

A. ovum and synovial fluid

B. vitreous humour

C. skin

D. all of the above

**Answer: D**



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82. A polysaccharide used as solidifying agent is

- A. 1)pectin
- B. 2)silica gel
- C. 3)pepton
- D. 4)agar

**Answer: D**



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83. Which of incorrect regarding glycogen

- A. 1)Glycogen is analogous to starch
- B. 2)It is non reducing sugar
- C. 3)It is a structural polysaccharide
- D. 4)It given red colour with iodine solution

**Answer: C**



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**84.** Which is a wrong statement?

- A. Cellulose is the most abundant homopolysaccharide
- B. Waxes are simple lipids
- C. Glycogen is a common carbohydrates in animals.
- D. Steroid is a protein

**Answer: D**



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**85.** The polysaccharide used in evaluating the function of human nephron is attained from the \_\_\_\_\_ of Dahlia plant.

- A. 1)root
- B. 2)stem
- C. 3)seeds
- D. 4)fruit

**Answer: A**

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**86.** A polysaccharide of cartilage is

- A. chondrin
- B. ossein
- C. chondriotion sulphate
- D. cartilagin

**Answer: C**

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87. Nucleoprotein is

- A. structural portein
- B. simple portein
- C. conjugated protein
- D. fibrous protein

**Answer: C**



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88. P' protein refers to

- A. phloem protein
- B. plasma protien
- C. platelet protein

D. primary protein

**Answer: A**



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**89.** Primary structure of protein is due to

A. hydrogen bonds

B. peptide bonds

C.  $-s-s$  linkages

D. ionic bonds

**Answer: B**



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**90.** A storage protein is



- A. keratin
- B. collagen
- C. haemoglobin
- D. glutelin

**Answer: D**

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**91.** Which chemical characteristic is not common to all living beings?

- A. Types of protein present in the body
- B. Similar triplet code for amino acids
- C. Energy is stored in high phosphate bonds
- D. None of the above

**Answer: A**

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92. Most abundant protein found in plants is

- A. Rubisco
- B. Ribozyme
- C. Carboxylase
- D. Oxidase

**Answer: A**



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93. That proteins are made up of amino acids/sequence of amino acids in protein was determined by a two time Nobel laureate

- A. Sanger
- B. Summer
- C. Pauling

D. Wilkinds

**Answer: A**



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**94.** Immunglobulinds (antibodies) of the blood plasma are

A. glycoproteins

B. liporoteins

C. flavoproteins

D. all of these

**Answer: A**



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95. Which makes the protein active and globular /Which structure provides specific shape and function to the protein?

- A. Primary structure
- B. Secondary Structure
- C. Tertiary structure
- D. Supleide bonds and peptide bonds

**Answer: C**



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96. Most abundant protein on earth is

- A. kertain
- B. rubisco
- C. RuBP
- D. fibrinogen

**Answer: B**



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**97.** Two types of secondary structures of proteins are

- A. 1)  $\alpha$ - helix and  $\beta$  -helix
- B. 2)  $\alpha$  - helix and  $\beta$ -helix
- C. 3)  $\alpha$ -helix and  $\beta$ - pleated sheet
- D. 4) Helix and rod.

**Answer: C**



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**98.** The most diverse chemical is

- A. phosphopild

B. Cellulose

C. proteins

D. carbohydrates

**Answer: C**



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**99.** The enormous diversity of protein molecules is due to the diversity of

A. amino groups in amino acids

B. R group in amino acids

C. amino acids sequences

D. peptide bonds

**Answer: C**



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100. In  $\beta$ -pleated protein, polypeptide chains lie parallelly and held together by

- A. S-S bond
- B. CONH bond
- C. H-bond
- D. none of these

**Answer: C**



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101. The major fibrous proteins of connective tissue is

- A. myosin
- B. myoglobin
- C. collagen
- D. keratin

**Answer: C**



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**102.** The protien of red muscles to store oxygen is

- A. 1)haemoglobin
- B. 2)myoglobin
- C. 3)myosin
- D. 4)actin

**Answer: B**



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**103.** The helical structure of protein is stabilised by:

- A. glycosidic bonds



B. dipeptide bonds

C. hydrogen bonds

D. all of these

**Answer: C**



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**104.** The sequence in which amino acids are linked to one another in a protein molecule is called its:

A. Primary structure

B. Secondary Structure

C. tertiray structure

D. all of these

**Answer: A**



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**105.** Formation of proteins is a type of

- A. dehydration synthesis
- B. dehydrogenation
- C. hydration synthesis
- D. hydrogenation

**Answer: A**



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**106.** Point out the incorrect statement regarding proteins.

- A. Enzymes and hormones are proteins
- B. Proteins are structural components of membrane.
- C. Proteins are high energy yielding compounds.
- D. Immunglobulins are proteins.

**Answer: C**



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**107.** Denaturation of proteins changes its

- A. structure and properties
- B. structure and not property
- C. property but not structure
- D. neither structure nor property.

**Answer: A**



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**108.** Natural silk fibre is

- A. 1) polyester

B. 2)protein

C. 3)lipids

D. 4)polysaccharaide

**Answer: B**



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**109.** Keratin and chitin are chemically

A. carbohydrates& are functionally similar

B. carbohydrates but functionally different

C. proteins and functionally similar

D. different but functionally similar.

**Answer: D**



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110. Which of the following groups is present invariably at the two terminals of protein ?

- A. Methyl and ethyl
- B. Aldehyde and ketone
- C. Amino and carboxylic
- D. Acid and alcohol

**Answer: C**



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111. The spider webs are built of

- A. fat
- B. fibroin protein
- C. protamines
- D. proteoglycans

**Answer: B**



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**112.** Structural proteins are usually

- A. fibrous
- B. globular
- C. enzymatic
- D. soluble

**Answer: A**



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**113.** Biochemical reagents are widely used for detection of biomolecules. A reagent that specifically detects a carbonyl group (C=O) in a biomolecule will yield a positive test with

- A. protein
- B. carbohydrate
- C. Fats
- D. all of these

**Answer: B**

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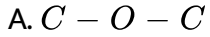
**114.** Sulphur in plants is needed for

- A. glucose formation
- B. ATP synthesis
- C. DNA duplication
- D. protein synthesis

**Answer: D**

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115. Glycosidic bond is



Answer: A



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116. Cellulose in plant cell wall is made up of

A. unbranched chain of glucoside molecules linked by  $\alpha$  1  $\rightarrow$  6 glucose bond



B. unbranched chain of glucose molecules linked by  $\beta$ ,  $1 \rightarrow 4$  glucose molecule

C. branched chain of glucose molecules linked by  $\alpha$ ,  $\rightarrow 6$  glycosidic bond in straight chain &  $\beta \rightarrow 1, 4$  at the site of branching.

D. branched chains have  $\alpha \rightarrow 1, 4$  bond and  $\beta \rightarrow 1, 6$  glycosidic bonds both

**Answer: B**



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**117.** A carbohydrate unique to arthropods is

A. chitin

B. hyaluronic acid

C. chondroitin sulphate

D. waxes

**Answer: A**



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**118.** Which one of the following has no free aldehyde or ketone group ?

A. Fructose

B. Maltose

C. Sucrose

D. Galactose

**Answer: C**



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**119.** EFA is

A. linolenic acid

B. oleic acid

C. palmitic acid

D. caproic acid

**Answer: A**



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120.  $^{18}C$  unsaturated fatty acid threedouble bonds is

A. oleic acid

B. linoleic acid

C. linolenic acid

D. arachidonic acid

**Answer: C**



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**121.** Arachidonic acid is

- A. non-essential fatty acid (NEFA)
- B. polyunsaturated fatty (PUEA)
- C. Both (1) & (2)
- D. saturated fatty acid

**Answer: B**



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**122.** Phospholipids are

- A. amphipathic
- B. amphibolic
- C. hydrophobic
- D. none of these

**Answer: A**



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**123.** Select the odd from the following

- A. Glutamic acid
- B. Stearic acid
- C. Butyric acid
- D. Oleic acid

**Answer: A**



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**124.** Excess of amino acids are stored in

- A. kidney

B. liver

C. spleen

D. none

**Answer: D**



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**125.** The difference between one amino acid and another is found on the

A. Carboxyl Group

B. Amino group

C. R group

D. peptide bonds

**Answer: C**



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126. Relationship between amino acid and protein is similar to one found between

- A. glucose and fructose
- B. nucleotides and nucleic acid
- C. nucleosides and nucleic acid
- D. purines and pyrimidines

**Answer: B**



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127. Non essential amino acid is

- A. not needed in the diet
- B. not essential for growth
- C. not synthesised in body
- D. not required for protein synthesis

**Answer: A**



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**128.** If the molecular mass of an amino acid is 150 daltons, the molecular mass of a tripeptide will be

A. 450

B. 486

C. 504

D. 414

**Answer: D**



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**129.**  $\alpha$ -helix is stabilized by H-bonds between the



- A. NH and CO group of side chain
- B. NH and CO group of main chain
- C. NH and NH group of same chain
- D. NH and COOH group of all chain

**Answer: B**

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**130.** Largest macromolecule in cell is

- A. DNA
- B. cellulose
- C. chitin
- D. glycogen

**Answer: A**

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**131.** Histones are

- A. basic proteins
- B. glycoproteins
- C. acid proteins mucoproteins
- D.

**Answer: A**



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**132.** All enzymes are

- A. proteins
- B. lipids
- C. fats

D. inorganic catalysts

**Answer: A**

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**133.** Quarternary structure of protein is

- A. arrangement of amino acids in polypeptide chain
- B. inter-relationship of amino in a polypeptide chain
- C. inter-relation between polypeptide chains of a protein having more than two polypeptide chains
- D. all of the above

**Answer: C**

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134. Which of the following is nutritionally essential amino acid for humans

- A. Arginine
- B. Aspartic acid
- C. Glycine
- D. Phenylalanine

**Answer: D**



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135. Enzymes (Biocatalysts) were discovered accidentally in yeast cell extract by a biochemist for which he was awarded Nobel Prize was

- A. Kuhne
- B. Pasteur
- C. Buchner

D. Sumner

**Answer: C**



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**136.** Most of the enzymes when secreted are in inactive form (called proenzymes or zymogens) otherwise they will mainly destroy

- A. cell proteins
- B. cell DNA
- C. cell mitochondriane
- D. cell wall and membrane

**Answer: A**



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**137.** Enzymes are required in traces because they

- A. have high turnover number
- B. remain unused at the end of reaction and are reused
- C. show cascade effect
- D. all correct

**Answer: D**



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**138.** An enzyme extract when subject to electric field, Separated into two fractions each catalysing the same reaction. These fractions are

- A. allosteric enzyme
- B. isoenzyme
- C. apoenzyme
- D. activator

**Answer: B**



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**139.** The inorganic part of enzyme is known as

- A. holoenzyme
- B. coenzyme
- C. apoenzyme
- D. activator

**Answer: D**



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**140.** All enzymes are not proteins. Which of the following enzyme is not a protein?

- A. Ribozyme discovered by Cech (1981)
- B. Ribonuclease discovered by Altman (1983)
- C. Both correct
- D. DNA/RNA polymerase.

**Answer: C**

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**141.** The digestive enzymes are

- A. 1)oxidoreductases
- B. 2)transferases
- C. 3) hydrolases
- D. 4)ligases

**Answer: C**

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**142.** Coenzyme is

- A. always a protein
- B. often a vitamin
- C. hydrolyses
- D. often a metal

**Answer: B**



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**143.** Why is heat used to sterilize nonliving objects in tissue culture ?

- A. Proteins are denatured at temperatures above  $55^{\circ}C$
- B. Proteins lose their primary structures due to break down of hydrogen bonds

C. Both correct

D. Only (1) is correct

**Answer: A**



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**144.** A high fever is dangerous to a human because

A. proteins are used up quickly

B. fats are oxidised

C. enzymes are denatured

D. BMR is lowered

**Answer: C**



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145. According to IUB system, isomerases belong to which class?

A. I

B. III

C. V

D. IV

**Answer: C**



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146. IUB has divided enzymes into classes

A. 6

B. 5

C. 8

D. 4

**Answer: A**



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**147.** Enzymes which breakdown compounds without using  $H_2O$  are called.

- A. lyases
- B. ligases
- C. hydrolases
- D. proteases

**Answer: A**



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**148.** Which part of enzyme in a holoenzyme (conjugated enzyme) determines specificity of enzyme ?

- A. Aponezyme
- B. Prosthetic group
- C. Metalo activator
- D. None of these

**Answer: A**

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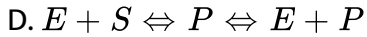
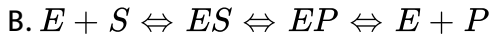
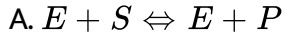
**149.** The function of an enzyme is to

- A. cause chemical reaction
- B. change the rate of chemical reaction
- C. change the equilibrium
- D. change the directions of reactions

**Answer: B**

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150. Which of the following is correct in an enzyme-controlled reaction ?



Answer: B



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151. Enzyme have

A. same  $pH$  and temperature optiam

B. same ph but different temperature optima

C. different ph but same temperature optima

D. all wrong.

**Answer: D**



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**152.** Feed back term refers to

- A. effect of substrate on rate of enzymatic reaction.
- B. effect of end product on rate of reaction
- C. effect of enzyme concentration on rate of reaction
- D. effect of external compound on rate of reaction.

**Answer: B**



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**153.** Enzymes get rate of chemical reaction by

- A. lowering energy of activation
- B. increasing energy of activation
- C. maintaining energy of activation
- D. without affecting activation energy but increasing reaction time.

**Answer: A**

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**154.** Enzymes get denatured (killed) due to

- A. sudden changes in pH
- B. decrease in temperature
- C. decrease in hydration
- D. all of the above

**Answer: A**

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155. Cyanide kills animals by inhibiting cytochrome oxidase (an enzyme of respiration) by binding irreversibly with copper. It does not bind with active site. This is an example of

- A. competitive inhibition
- B. non competitive inhibition
- C. feed back inhibition
- D. all of the above

**Answer: B**



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156. In competitive inhibition

- A. inhibitor resembles the substrate in molecular structure
- B. inhibitor binds to allosteric site and block it

C. inhibitor has no effect on active site

D. all correct

**Answer: A**



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157. prosthetic group is a part of holoenzyme it is

A. inorganic part loosely attached

B. accessory non protein organic substance attached firmly

C. organic part attached loosely

D. none of these

**Answer: B**



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**158.** Coenzyme is a part of enzyme

- A. inorganic metal activator
- B. nonprotein organic part attached firmly
- C. nonprotein organic part attached loosely
- D. vitamin A

**Answer: C**



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**159.** Which inactivates an enzyme by occupying its active site ?

- A. competitive inhibitor
- B. allosteric inhibitor
- C. non-competitive inhibitor
- D. all of these above

**Answer: A**



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**160.** Which one inactivates an enzyme by changing the enzyme shape ?

- A. Allosteric inhibitor
- B. Competitive inhibitor
- C. Cofactor
- D. Irreversible inhibitor

**Answer: A**



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**161.** Turn over number of an enzyme means

- A. number of substrate molecules acted upon by one molecule of an enzyme per second.
- B. number of enzyme molecules acting on one molecule of substrate per minute.
- C. number of molecules of end product produced by an enzyme in one minute.
- D. number of substrate molecules acted upon by an enzyme per second.

**Answer: A**

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**162.** The value of  $K_m$  (Michaelis-Menten constant) varies from  $10^6$  to  $10^{-6}$  M but for allosteric enzyme, there is no constant  $k_m$  value. This  $K_m$  is .

- A. substrate concentration at which the enzymatic reaction attains half its maximum velocity  $\left(\frac{1}{2}V_{\max}\right)$
- B. enzyme concentration at which the reaction attains  $\frac{1}{2}V_{\max}$ .
- C. end product concentration at which reaction attains  $\frac{1}{2}V_{\max}$ .
- D. none of the above statements is correct.

**Answer: A**

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**163.** The lower value of  $K_m$  means

- A. higher substrate affinity of enzyme
- B. higher enzyme activity
- C. no effect on reaction
- D. lower the affinity of enzyme with substrate.

**Answer: A**



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**164.** In a diluted starch solution,  $\alpha$ -salivary amylase is added at pH 1.6 and kept at  $35^{\circ}C$  for half an hour and then iodine solution is added, what would be the result?

- A. There will be a red colour
- B. There will be blue solution
- C. Solution will be clear and colourless
- D. The solution will be sweet

**Answer: B**



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**165.** Some enzyme when secreted are in inactive state. Such enzyme in inactive state are called.

A. isoenzymes

B. coenzymes

C. zymogens

D. apoenzyme

**Answer: C**



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**166.** Which is best evidence for Lock and key theory (Template theory)?

A. Competitive inhibition

B. Feed back inhibition

C. Allosteric competition

D. Non-competitive inhibition

**Answer: A**



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**167.** Which is an enzyme that joins two segments of replicated DNA?

- A. Ligases
- B. Lyase
- C. Endonuclease
- D. Topoisomerases

**Answer: A**



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**168.** Apoenzyme and coenzyme collectively produce

- A. holoenzyme
- B. enzyme-product complex
- C. cofactor

D. prosthetic group

**Answer: A**



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**169.** Which vitamins is incorporated into the structure of NAD/NADP?

A. Riboflavin

B. Vitamin PP

C. Nicotinic acid

D. All correct

**Answer: C**



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**170.** Mutases and epimerases are

A. isomerases

B. hydrolases

C. lyases

D. ligases

**Answer: A**



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**171.** The enzymatic function of a protein is due to

A. Primary structure

B. tertiary structure

C. secondary structure

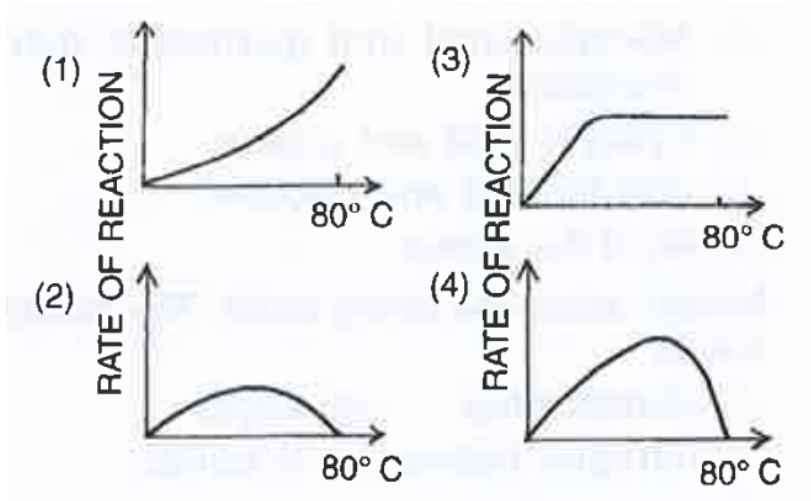
D. helix structure

**Answer: B**



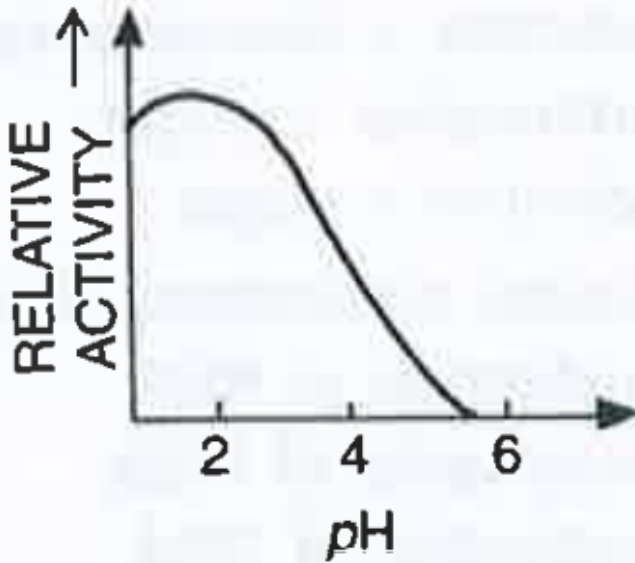
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172. Which one of the following diagrams represents the most common relationships between temperature and enzyme activity when the temperature is raised gradually from 0- 80° C?



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173. The enzyme depicted in the below graph is



- A. amylase
- B. pepsin
- C. trypsin
- D. alcohol dehydrogenase

**Answer: B**



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174. Lipase acting on fats breaks

- A. ester bond
- B. peptide bond
- C. hydrogen bonds
- D. glycosidic bond

**Answer: A**



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175. Earliest known enzyme was

- A. sucrase
- B. zymases
- C. diastase
- D. ureases

**Answer: B**



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**176.** No cell could live without

- A. enzymes
- B. cytochromes
- C. chloroplast
- D. phytochromes

**Answer: A**



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**177.** The protein part of a conjugated enzyme is

- A. holoenzyme

B. coenzymes

C. prosthetic group

D. apoenzyme

**Answer: D**



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**178.** Enzyme that catalyse endergonic synthesis coupled with exergonic hydrolysis of ATP are

A. Ligases

B. Lyases

C. Hydrolases

D. Oxidoreductase

**Answer: A**



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**179.** Cofactors are

- A. non-protein organic molecules
- B. vitamins
- C. metallic ions
- D. all of the above

**Answer: D**



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**180.** The region that contains the binding and catalytic sites is termed as

- A. active site
- B. apoenzyme
- C. holoenzyme
- D. allosteric site

**Answer: A**



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**181.** Enzyme/Proteins contain regulatory sites called

- A. allosteric sites
- B. active sites
- C. folding sites
- D. buttressing site

**Answer: A**



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**182.** Enzyme concerned with the transfer of electrons is

- A. oxidoreductases

B. cytochrome oxidase

C. dehydrogenase

D. all of these

**Answer: D**



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**183.** Substance which bring about changes in allosteric sites are called.

A. activators

B. inhibitors

C. promoters

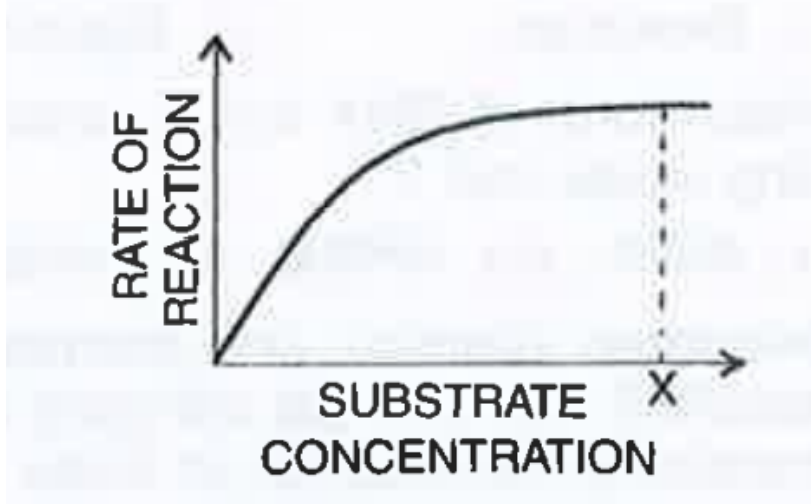
D. modulators

**Answer: D**



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184. The given graph is showing the relationship between the rate of enzyme reaction and concentration of substrate. At concentration of substrate greater than X, the



- A. rate of reaction is limited by the enzyme concentration
- B. substrate has an inhibitory effect
- C. rate of reaction tends towards zero
- D. product of the reaction has an inhibitory effect.

**Answer: A**



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**185.** In competitive inhibition

A.  $V_{\max}$  is increased

B.  $k_m$  increased

C. Extent of inhibition remains the same in high substrate concentrations

D. None of the above

**Answer: B**



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**186.** Which of the following remains unchanged in reversible competitive inhibition?

A.  $V_{\max}$

B.  $K_m$

C. Both

D. None of these

**Answer: A**



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**187.** Which is common among Amylase, rennin and trypsin?

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

**Answer: A**



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**188.** Sulpha drugs/sulphanilamide kill bacteria by inhibiting of which of the following ?

- A. Para-aminobenzoic acid
- B. Folic acid
- C. Phenylalanine
- D. Methionin

**Answer: B**



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**189.** One molecule of an enzyme is able to catalyse conversion of two molecules of substrate into products in 5 minutes. Ten molecules of enzyme and 25 molecules of substrate are mixed in a test tube. At the end of 10 minutes the test tube will have

- A. products only

B. products and 5 molecules of unreacted substrate

C. products, enzyme and 5 molecules of unreacted substrate

D. products and enzyme

**Answer: D**



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**190.** ATP was discovered by

A. Lipmann

B. Karl Lohman

C. Bowman

D. Blackman

**Answer: B**



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

- A. tRNA
- B. mRNA
- C. hnRNA
- D. rRNA

**Answer: A**



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

- A. are exclusively synthesized in the body of a living organism as at present
- B. help in regulating metabolism
- C. enhance oxidative metabolism

D. are conjugated proteins

**Answer: B**



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**193.** 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. Non-competitive inhibitors often bind to the enzyme irreversibly.
- C. Non-competitive inhibition of an enzyme can be overcome by adding large amount of substrate.
- D. Competitive inhibition is seen when the substrate and the inhibitor compete the active site on the enzyme

**Answer: D**

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

- A. the pH of optimum value
- B. formation of the product
- C. the  $K_m$  value
- D. molecular size of the enzyme

**Answer: C**

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195. Which one is nucleotide?

- A. Adenylic acid and guanosine mono-phosphate
- B. Cytidylic acid and uridine

C. Uridylic acid and cytosine

D. All of the above

**Answer: A**



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**196.** Nucleic acids are strong acids. The acidity is due to

A. 1)phosphates

B. 2)sugar

C. 3)nitrogen bases

D. 4) H-bonds

**Answer: A**



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**197.** Adenylic acid is

- A. Adenine + ribose + phosphate
- B. Adenine + deoxyribose + phosphate
- C. Adenosine + sugar
- D. Adenine + sugar

**Answer: A**



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**198.** Adenosine monophosphate is a

- A. nucleotide of RNA
- B. nucleoside of RNA
- C. nucleotide of DNA
- D. nucleoside of DNA

**Answer: A**



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**199.** In DNA model of Watson & Crick, the major grooves are site of

- A. binding of histone proteins
- B. binding of acidic proteins
- C. binding of RNA molecules
- D. binding of glycoproteins

**Answer: B**



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**200.** At  $82 - 92^{\circ}C$  the H-bonds between nitrogen bases of complementary strands of DNA break to uncoil and separate two strands.

This is called

- A. denaturation (melting)
- B. renaturation (reannealing)
- C. recombination DNA
- D. DNA finger printing

**Answer: A**

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**201.** On cooling the two separated strands of DNA again recoil. It is called

- A. Chain reaction
- B. annealing
- C. both (1)&(2)
- D. palindrome

**Answer: B**

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202. IF DNA has 10 spirals, the length of DNA will be

A.  $34\text{\AA}$

B.  $340\text{\AA}$

C.  $640\text{\AA}$

D.  $64\text{\AA}$

**Answer: B**



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203. What would be the length of DNA containing 10000 base pairs?

A.  $68000\text{\AA}$

B.  $34000\text{\AA}$

C.  $10000\text{\AA}$



D. Im

**Answer: B**



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**204.** How many nucleotides are found in one spiral of B-DNA?

A. 5

B. 10

C. 20

D. 25

**Answer: C**



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**205.** How many spirals (twins or helices) a DNA of 2000 base pairs will have?

- A. 2000
- B. 4000
- C. 200
- D. 45.5

**Answer: C**



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**206.** How many nucleotides will be present in a DNA of 20000 base pairs

- A. 4000
- B. 40000
- C. 20000
- D. 2000

**Answer: B**



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**207.** RNA differs from DNA in nature of

- A. sugar and purines
- B. sugar and pyrimidines
- C. purines and phosphate
- D. sugar and phosphate

**Answer: B**



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**208.** A condensation product of nitrogen base and pentose sugar is

- A. nucleotide

B. nucleic acid

C. nucleoside

D. None of these

**Answer: C**



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**209.** In nucleoside, nitrogen base is attached to pentose sugar at

A. 1

B. 2

C. 3

D. 5

**Answer: A**



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210. Basic unit (monomer) of DNA molecule is

- A. nitrogenous base
- B. deoxyribose nucleotide
- C. deoxyribose-nucleoside
- D. pentose sugar

**Answer: B**



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211. In DNA and RNA, pentose sugar has furanose ring. It is

- A. aldose type
- B. ketose type
- C. pyranose
- D. nonreducing type

**Answer: A**



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**212.** The bases of RNA are of

- A. 4 types
- B. 6 types
- C. 1 type
- D. 2 types

**Answer: A**



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**213.** Which one is covalent bond ?

- A. Peptide bond

B. Phosphodiester bond

C. Both correct

D. Both wrong

**Answer: C**



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**214.** DNA was first discovered by-

A. Miescher

B. Altman

C. Watson

D. Wilkins

**Answer: A**



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**215.** A molecule of ATP is structurally most similar to a molecule of

- A. 1) RNA nucleotide
- B. 2) DNA nucleotide
- C. 3) Amino acid
- D. 4) RNA nucleoside

**Answer: A**



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**216.** Adenosine is

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



**Answer: A**

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**217.** Thymine differs from uracil in having

- A.  $CH_3$  group
- B.  $C = O$  group
- C. CHO group
- D. COOH group

**Answer: A**

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**218.** The difference in deoxyribose and ribose sugar is in the

- A. 1) first carbon

B. 2)second carbon

C. 3) 4th carbon

D. 4) 5th carbon

**Answer: B**



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**219.** In purines, N is at position \_\_\_\_ in its two rings.

A. 1,3,7,9

B. 1,5

C. 7,9

D. 1&9

**Answer: A**



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220. In pyrimidines, N is at \_\_\_\_ position in its ring.

A. 1,3

B. 7,9

C. 1

D. 1&9

**Answer: A**



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221. The similarity between DNA and RNA is that both are

A. are double-stranded

B. have similar sugars

C. are polymers of nucleotides

D. have similar pyrimidines

**Answer: C**



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**222.** Two strands of a molecule of DNA are linked sidewise by

- A. ester bonds
- B. glycosidic bonds
- C. purine-pyrimidine hydrogen bonds
- D. all the above

**Answer: C**



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**223.** The smallest type of RNA is:-

- A. tRNA

B. mRNA

C. rRNA

D. genetic RNA

**Answer: A**



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**224.** In double helix of DNA, the two DNA strands are

A. coiled upon itself around a common axis

B. coiled around each other

C. coiled differently

D. coiled over protein sheath

**Answer: A**



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**225.** The type of RNA responsible for proper sequence of amino acids in protein synthesis is

- A. rRNA
- B. tRNA
- C. mRNA
- D. hnRNA

**Answer: C**



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**226.** Which of the following RNAs have clover leaf structure?

- A. transfer RNA
- B. messenger RNA
- C. ribosomal RNA
- D. heterogenous RNA

**Answer: A**



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**227.** DNA strands are termed antiparallel because of

- A. H-bonds
- B. phospho-diester bonds
- C. disulphide (S-S bonds)
- D. none of the above

**Answer: B**



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**228.** In the double helix model of DNA, how far is each base pair from the next base pair

A. 0.034nm

B. 3.4 nm

C. 0.34 nm

D. 34 nm

**Answer: C**



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**229.** The base sequence for a nucleic acid segment is given as GAG AGG GGA CCA. From this it can be concluded that it is a segment of a

A. DNA strand

B. mRNA strand

C. tRNA strand

D. data insufficient

**Answer: D**



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**230.** Which is correct sequence according to increasing molecular weight?

- A. tRNA- DNA- rRNA
- B. tRNA - rRNA - DNA
- C. rRNA- DNA- tRNA
- D. DNA- tRNA - rRNA

**Answer: B**

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**231.** The area of DNA rich in A - T base pairs is called

- A. 1)high melting area
- B. 2) low melting area
- C. 3) microsatellite

D. 4) pallindrome

**Answer: B**



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**232.** Purines of RNA are

A. guanine & adenine

B. uracil & thymine

C. adenine & cytosine

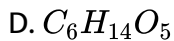
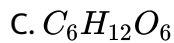
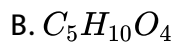
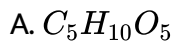
D. uracil & guanine

**Answer: A**



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**233.** Deoxyribose sugar in DNA is



**Answer: B**

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**234.** The double stranded helical structure of DNA is maintained by

A. amide bonds

B. H-bonds

C. covalent bonds

D. phosphodiester bonds

**Answer: B**

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235. if A=120 and C120, then a piece of DNA will have \_\_\_\_\_ nucleotides.

A. 240

B. 280

C. 480

D. data insufficient

**Answer: C**



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236. In E. coli DNA has 18% of bases of cytosine. What will be the fraction of adenine?

A. 0.18

B. 0.32

C. 0.36

D. data insufficient

**Answer: B**



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237. In 'B' model of DNA, the diameter is  $20\text{\AA}$ . It is \_\_\_\_\_ in Z DNA.

A.  $23\text{\AA}$

B.  $18\text{\AA}$

C.  $21\text{\AA}$

D.  $26\text{\AA}$

**Answer: B**



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238. Which statement is wrong about DNA?

A. Some viruses have SsDNA

B. Some viruses have dsRNA

C. Z' DNA has 12 base pairs per helix

D. Length of one helix in 'B' DNA is  $45\text{\AA}$  and 'Z' DNA is  $34\text{\AA}$

**Answer: D**

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**239.** The helical model for DNA given by Watson and Crick was

A. B type right handed

B. Z type left handed

C. B type left handed

D. Z type right handed

**Answer: A**

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240. Which one of the following ratios is variable but constant for a species?

A.  $\frac{[A + T]}{[G + C]}$

B.  $\frac{[A + G]}{[T + C]}$

C.  $\frac{[A + U]}{[G + C]}$

D. None of these

**Answer: A**



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241. if one chain of a DNA molecule has the base order 5'ATTGACGT3' . . . . .

Then the base order of its complementary chain will be

A. 3' ATTGACGT 5'

B. 5' TGCAGTTA 3'

C. 5' TUUCTGCU 3'

D. 3' TAACTGCA 5'

**Answer: D**



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**242.** The amino acid attaches to the tRNA at its

A. 5 end where OH is present

B. 3' end where OH is present

C. recognition site

D. loop I

**Answer: B**



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**243.** Which is recognition site of tRNA?

- A. Anticodon
- B. Loop I
- C. Loop IV
- D. 5'-OH end

**Answer: A**



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**244.** tRNA is attached to mRNA by its

- A. I loop
- B. II loop
- C. III loop
- D. IV loop

**Answer: B**



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**245.** The ribosomal binding loop of tRNA is

- A. DHU loop
- B. anticodon loop
- C. T  $\Psi$ C loop
- D. III loop

**Answer: C**



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**246.** RNA is synthesized on

- A. both strands of DNA

B. on sense strand of DNA

C. on anti sense strand of DNA

D. on cDNA

**Answer: C**



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**247.** Which one of the following has minimum life span?

A. mRNA

B. rRNA

C. tRNA

D. DNA

**Answer: A**



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**248.** Which one of the following is not given by Erwin Chargaff ?

- A. Base composition of DNA varies from one species to another
- B. The base composition of DNA does not change with age, nutrition or changes in the environment
- C. Molar amounts of adenine are equal to the molar amounts of thymine
- D. DNA can transcribe RNA

**Answer: D**



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**249.** Genetic information in a DNA molecule is coded in the

- A. sequence of nucleotides
- B. base pairing

C. turning pattern of helix

D. distance between base pairs

**Answer: A**



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**250.** The two polynucleotide chains of DNA are complementary, means

A. if one starts with 5' end the other must start with 3' end

B. if the sequence of bases of one chain is known, that of other can be determined

C. two chains are held up by hydrogen bonds

D. all of the above

**Answer: B**



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**251.** DNA is present in

- A. E.R. and ribosomes
- B. ribosomes and chloroplasts
- C. ribosomes and mitochondria
- D. mitochondria and chloroplasts

**Answer: D**



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**252.** Which of the following nitrogenous base is double ringed?

- A. Guanine
- B. Uracil
- C. Thymine
- D. Cytosine

**Answer: A**



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**253.** In a 3.2 Kbp long piece of DNA , 820 adenine bases were found. What would be number of cytosine bases

A. 1560

B. 1480

C. 780

D. 740

**Answer: C**



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**254.** Match the following

- (1) Abrin - (P) Anti-cancer drug  
(2) Vinblastin - (Q) Alkloid  
(3) Gums - (R) Toxin  
(4) Morphine - (S) Protein  
(5) GLUT - 4 - (T) Polymeric  
secondary metabolite

A. A)(1)-(R), (2)-(P), (3)-(T), (4)-(Q), (5)-(S)

B. B)(1)-(P), (2)-(R), (3)-(T), (4)-(Q), (5)-(S)

C. C)(1)-(R), (2)-(P), (3)-(Q), (4)-(T), (5)-(S)

D. D)(1)-(Q), (2)-(T), (3)-(P), (4)-(R), (5)-(S)

**Answer: A**



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**255.** Go through the following statements.

- (i) In proteins, right handed and left handed helices are observed  
(ii) In B-DNA, at each step of ascent, the strand turns  $36^\circ$ .



(iii) Living process is a steady - state in equilibrium.

(iv) The rate of reaction doubles or decreases by half for every  $10^{\circ}$  C change in either direction.

Find out the correct statement ?

A. (i), (iii) & (iv)

B. (ii) & (iv)

C. (i) & (iv)

D. All are correct

**Answer: B**



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**256.** Go through the following statements.

(i) Lipids are not strictly macromolecules.

(ii) In a polysaccharide , the left end is called the non-reducing chain, the right end called the reducing end.

(iii) Cellulose contains complex helices and hence cannot hold  $I_2$ .

(iv) Collagen is the most abundant protein most abundant protein in the whole of the biosphere.

Find out the correct statements .

A. (i), (ii) & (iii)

B. (i), (iii) & (iv)

C. (i) ,(ii) &(iv)

D. (i) & (iv)

**Answer: D**



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**257. Match the following .**

(1) Valine

(2) Tyrosine

(3) Arachidonic acids

(4) Lysine

(5) Palmitic  
acid

(A) Aromatic essential amino acid

(B) Fatty acid with 20 carbon atoms

(C) Neutral amino acids

(D) Fatty acid with 16 carbon atoms

(E) Aromatic amino acid

(F) Basic amino acid

A. (1) – (E), (2) – (A), (3) – (D), (4) – (F), (5) – (D)

B. (1) – (E), (2) – (A), (3) – (D), (4) – (F), (5) – (B)

C. (1) – (C), (2) – (A), (3) – (B), (4) – (F), (5) – (B)

D. (1) – (C), (2) – (E), (3) – (B), (4) – (F), (5) – (D)

**Answer: D**



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**258.** Given below is a comparison of elements present in non-living and living matter. Which of these is incorrect:

A.

Element	% weight of Earth's crust	% weight of Human body
(1) Silicon	27.7	Negligible

B.

Element	% weight of Earth's crust	% weight of Human body
(2) Carbon	0.03	18.5

C.

Element	% weight of Earth's crust	% weight of Human body
(3) Calcium	10	15

D.

Element	% weight of Earth's crust	% weight of Human body
(4) Nitrogen	Very little	3.3

**Answer: C**



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**259.** All the following statement describing lipids are true except:

- A. Oxygen content may be more than carbon and hydrogen
- B. They are poorly soluble in water
- C. They are structural components of membranes
- D. They are intracellular energy source

**Answer: A**



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**260.** The fastest enzyme is

- A. Zymase
- B. Carbonic anhydrase
- C. Amylase
- D. Hexokinase

**Answer: B**



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**261.** Select out the correct sequence according to increase in complexity.

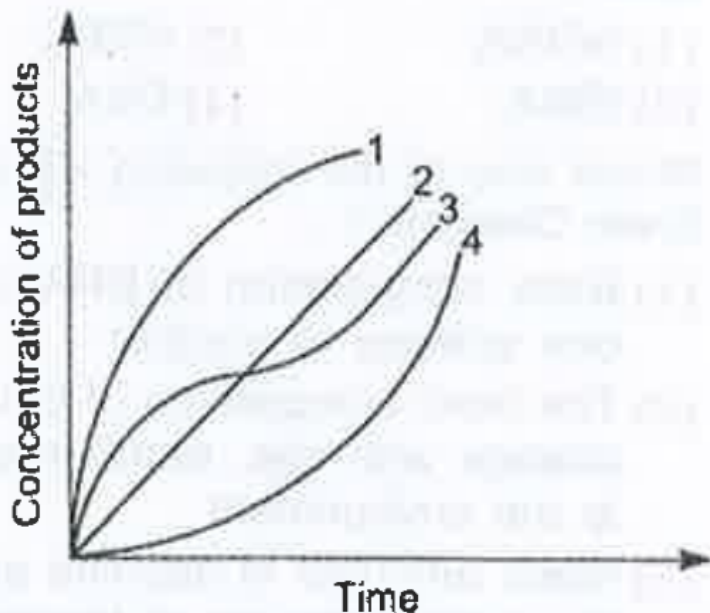
- A. Maltose, Fructose, Triose, Oligosaccharide, Strach
- B. Fructose, Maltose, Triose, Strach, Oilgosaccharide
- C. Fructose, Maltose, Triose, Oilgosaccharide, Strach

D. Fructose, Maltose , Oligosaccharide, starch

Answer: D

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262. If the rate of a reaction is given as  $K[A][B]$ , where  $[A]$  and  $[B]$  are the concentrations of reactions and if the temperature remains constant, which of the following curves represents the correct variation of reaction rate with time ?



A. 1

B. 2

C. 3

D. 4

**Answer: A**

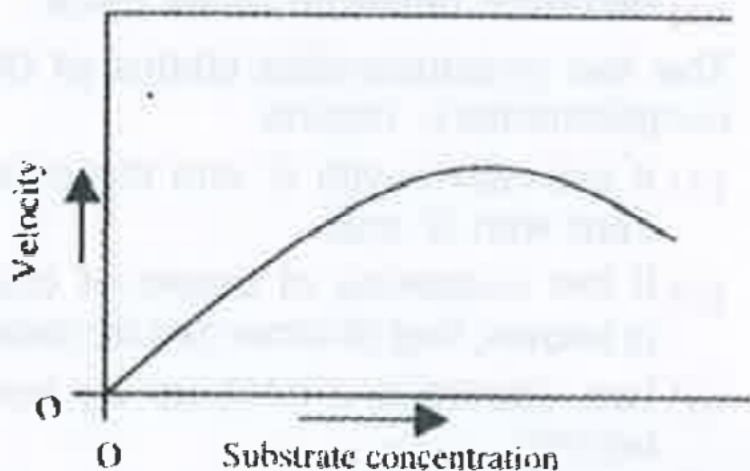


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**263.** What does the graph indicate ?

The graph given below shows the effect of substrate concentration on

the rate of reaction of the enzyme green-gram-phos-phatase.



- A. The rate of enzyme reaction is directly proportional to the substrate concentration.
- B. Presence of an enzyme inhibitor in the reaction mixture
- C. Formation of an enzyme-substrate complex
- D. At higher substrate concentration the ph increase

**Answer: B**



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**264.** The bonds between the enzyme and substrate must be

- A. Weak and long-lived
- B. Weak and short-lived
- C. Strong and long-lived
- D. Strong and short-lived

**Answer: B**



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**265.** Consider the following statements

1. Linolenic
2. Epimers
3. Aldohexoses
4. Monosaccharides.

which of the above are fatty acids?

- A. 1 only
- B. 1 and 2

C. 3 and 4

D. 2,3 and 4

**Answer: B**



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**266.** Consider the following statement.

D-glucose, D-galactose and D-fructose are all.

1. Isomers
2. Epimers
3. Aldohexoses
4. Monosaccharides .

which of the above statements are correct ?

A. 1 and 4

B. 2 and 4

C. 1,2and 4

D. 1,2 and 4

**Answer: A**



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**267.** Which one of the following statements is not correct?

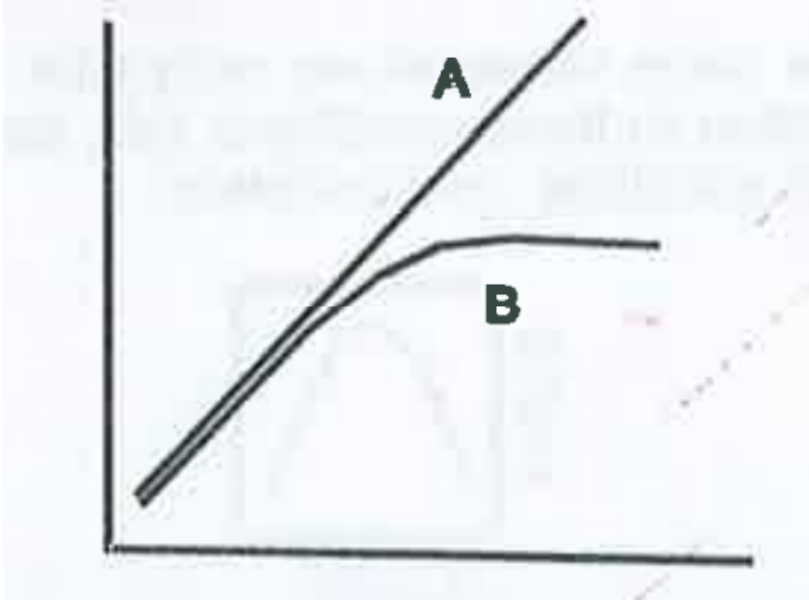
- A. All fatty acids have a carboxyl group at one end
- B. Like carbohydrates, fatty acids have more oxygen than hydrogen
- C. Saturated fatty acids are solids at room temperature
- D. Glycerol is a component of phospholipids

**Answer: B**



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268. The same enzyme catalyzed reaction showed two different kinetic patterns as shown in the graph. Y-axis indicates product formed and X-axis indicates time. Mark the correct interpretation.



- A. Reaction A is carried out at higher temperature than B
- B. Reaction B is carried out at a pH higher than that for reaction A.
- C. Substrate is replenished from time to time in reaction A and not in B
- D. Only reaction A is carried out at optimum concentration

**Answer: C**



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**269.** Listed below are certain proteins. Which of them are the only structural proteins ?

(i) Collagen (ii) Trypsin

(iii) Keratin (iv) Actin

(v) Albumin (vi) Tubulin

A. (i),(iii),(iv)

B. (ii),(iv),(v), (vi)

C. (i),(iii),(vi)

D. (i),(iii), (iv),(v),(vi)

**Answer: C**



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270. Which of the following amino acids have side chain that are negatively charged under physiological conditions ?

A. Aspartic acid

B. Histidine

C. Tyrosine

D. Serine

**Answer: A**



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271. When the following amino acids are separated by running them on Agraose gel at pH 7, which one then will migrate slowest to anode ends ?

A. 1)Aspartic acid

B. 2)Valine

C. 3)Glycine

D. 4)Lysine

**Answer: D**



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**272.** Atherogenic lipoproteins are all EXCEPT

A. LDL

B. HDL

C. VLDL

D. Chylomicrons

**Answer: B**



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**273.** An enzyme that stimulates germination of barley seeds is

A. protease

B. invertase

C.  $\alpha$ -amylase

D. lipase

**Answer: C**



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

A. apoenzyme

B. isoenzyme

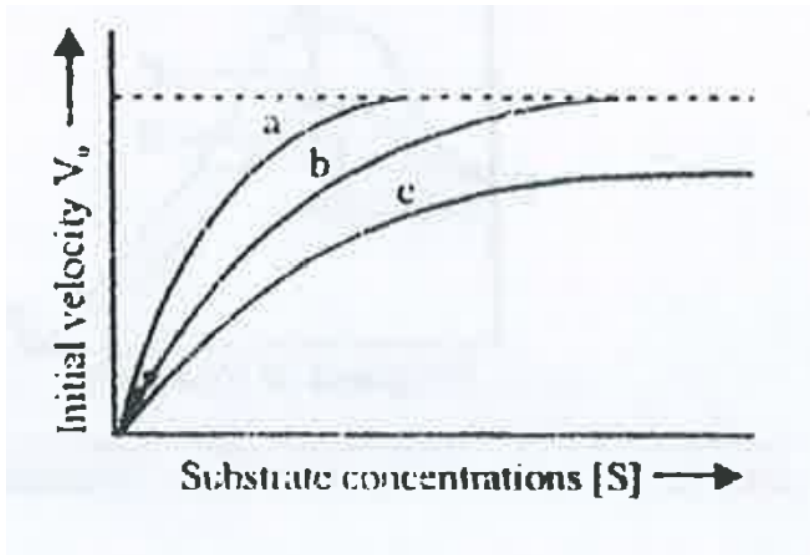
C. coenzyme

D. holoenzyme

**Answer: C**



275. The figure given below shows three velocity -substrate concentration curves for an enzyme reaction. What do the curves a,b and c depict respectively ?



- A. a-normal enzyme reaction, b-competitive inhibition, c-non-competitive inhibition .
- B. a-enzyme with an allosteric modulator added, b-normal enzyme activity, c-competitive inhibition .

C. a-enzyme with an allosteric stimulator, b-competitive inhibition

added, c-normal enzyme reaction

D. a-normal enzyme reaction, b-non-competitive inhibitor added, c-

allosteric inhibitor added

**Answer: A**

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**276.** Purines are generally abbreviated as

A. 1)R

B. 2)Y

C. 3)C

D. 4)U

**Answer: A**

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**277.** Quaternary structure is present in

- A. 1)Histone
- B. 2)Haemoglobin
- C. 3)Globulin
- D. 4)Potassium

**Answer: B**



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**278.** Inulin is a polymer of

- A. Amino acids
- B. Glucose
- C. Fructose

D. None of the above

**Answer: C**

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**279.** Three of the following statements about enzymes are correct and one is wrong. Which one is wrong

A. Enzymes required optimum pH for maximal activity.

B. Enzymes are denatured at high temperature but in certain exceptional organisms they are effective even at temperature  $80^{\circ} - 90^{\circ} \text{ C}$ .

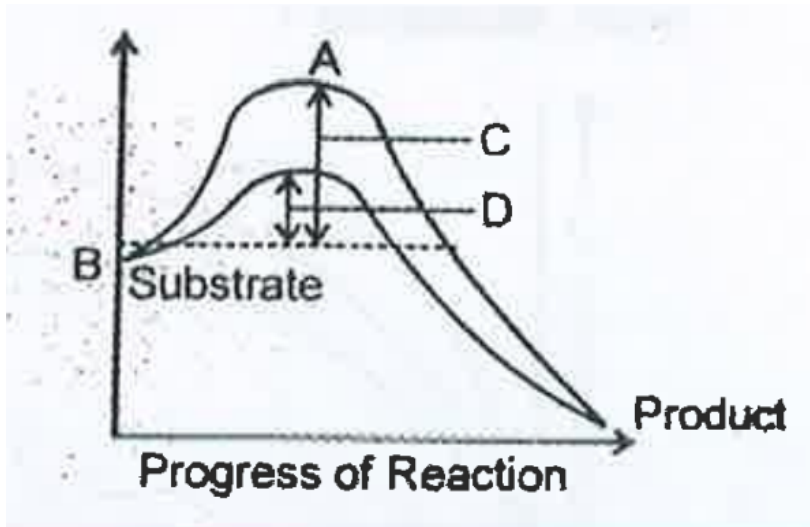
C. Enzyme are highly specific

D. Most enzyme are proteins but some are lipids .

**Answer: D**

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280. The figure given below shows the conversion of a substrate into product by an enzyme . In which one of the four options (a-d) the components of reaction labelled as A,B,C and D are identified correctly ?



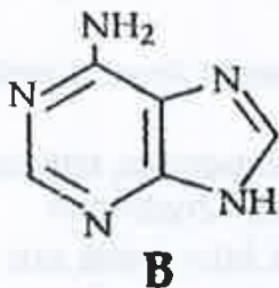
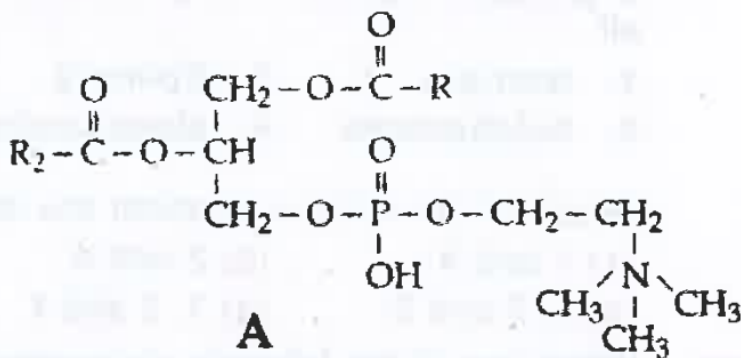
- A. A-Potential energy , B -Transition state, C- Activation energy without enzyme , D Activation energy without enzyme
- B. A- Transition state, B - Potential energy , C- Activation energy without enzyme D-Activation energy without enzyme .
- C. A-Potential energy, B- Transition state, C-Activation energy with enzyme, D-Activation energy without enzyme.

D. A- Activation energy with enzyme, B-Transition state, C- Activation energy without enzyme , D- Potential energy.

Answer: B

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



A. B: Adenine- a nucleotide that makes up nucleic acids

B. A : Triglyceride - major source of energy

C. B: Uracil - a component of DNA

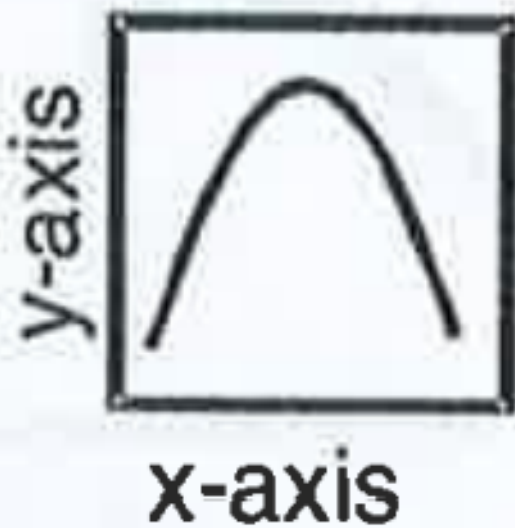
D. A: Lecithin - a component of cell membrane.

**Answer: D**



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**282.** The curve below shows enzymatic activity in relation to three conditions (pH, temperature and substrate concentration).



What do the axes (x and y) represent ?

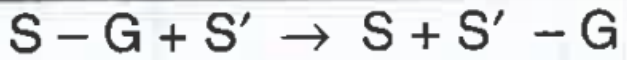
- A.            x-axis                                  y-axis  
(1)   enzymeatic activity      pH
- B.            x-axis                                  y-axis  
(2)   temperature      enzyme activity
- C.            x-axis                                  y-axis  
(3)   Substrate concentration      enzymatic activity
- D.            x-axis                                  y-axis  
(4)   enzymatic activity      tempertaure

**Answer: B**

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283. Select the types of enzyme involved in the following reaction:



- A. dehydrogenases
- B. transferases
- C. hydrolases
- D. lyase

**Answer: B**

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284. Most abundant RNA in a cell is :

- A. rRNA
- B. mRNA
- C. tRNA

D. snRNA

**Answer: A**



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**285.** For its activity, carboxypeptidase requires

- A. Niacin
- B. Copper
- C. Zinc
- D. Iron

**Answer: C**



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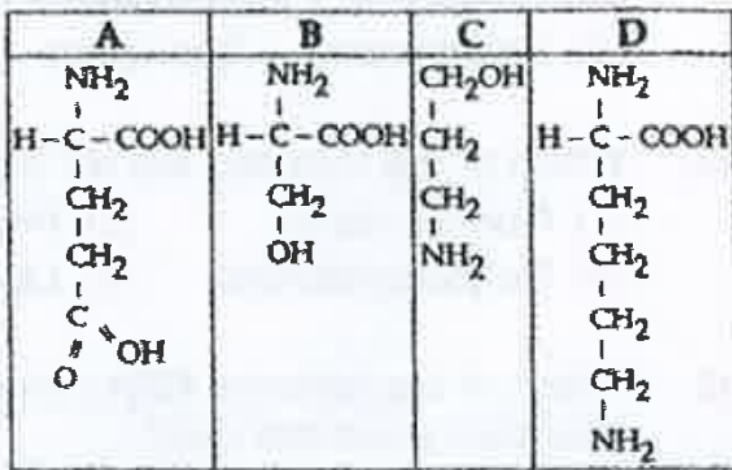
**286.** which one of the following biomolecules is correctly characterized ?

- A. Adenylic acid -adenosine with a glucose phosphate molecule
- B. Alanine amino acid- Contains an amino group and an acidic group and an amino group anywhere in the molecule
- C. Lecithin -a phosphorylated glyceride found in cell membrane.
- D. Palmitic acid- an unsaturated fatty acid with 18 carbon atoms

**Answer: C**

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**287.** Which one out of A- D given below correctly represents the structural formula of the basic amino acids ?



A. D

B. A

C. B

D. C

Answer: A



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

A. haemoglobin

B. Collagen

C. Insulin

D. Trypsin

**Answer: B**



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**289.** Macro molecule chitin is

A. Suluphur containing polysaccharide

B. simple polysaccdaride

C. nitrogen containing polysaccharide

D. phosphorus containg polysaccharide

**Answer: C**



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290. A phosphoglyceride is always made up of

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

**Answer: A**



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

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

**Answer: A**



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

- A. Ribose 5-phosphate
- B. Maltose
- C. Sucrose
- D. Lactose

**Answer: C**

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- 293.** Select the option which is not correct with respect to enzyme action
- A. Malonate is a competitive inhibitor of succinate dehydrogenase
  - B. Substrate binds with enzyme at its active site
  - C. Addition of lot of succinate does not regenerate by malonate
  - D. A non-competitive inhibitor binds the enzyme at a site distinct from that which binds the substrate.

**Answer: C**

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- 294.** Which one of the following statements is incorrect?



- A. In competitive inhibition, the inhibitor molecule is not chemically changed by the enzyme
- B. The competitive inhibitor does not affect the rate of breakdown of the enzyme substrate complex
- C. The presence of the competitive inhibitor decreases the  $K_m$  of the enzyme for the substrate
- D. A competitive inhibitor reacts reversibly with the enzyme to form an enzyme-inhibitor complex .

**Answer: C**



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**295.** The chitinous exoskeleton of arthropods is formed by the polymerisation of :

- A. Keratin sulphate and chondroitin sulphate

B. D-glucosamie

C. N-acetyly glucosamie

D. Lipoglycans

**Answer: C**



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**296.** Which of the following biomolecules does have a phosphodiester bond

A. Fatty acids

B. Monosaccharides

C. amino acids

D. Nucleic acids

**Answer: D**



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297. 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 the three fatty acid molecules
- D. Three glycerol molecules and one fatty acid molecule

**Answer: A**



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298. 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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**299.** Which of the following is the least likely to be involved in stabilizing the three-dimensional folding of most proteins

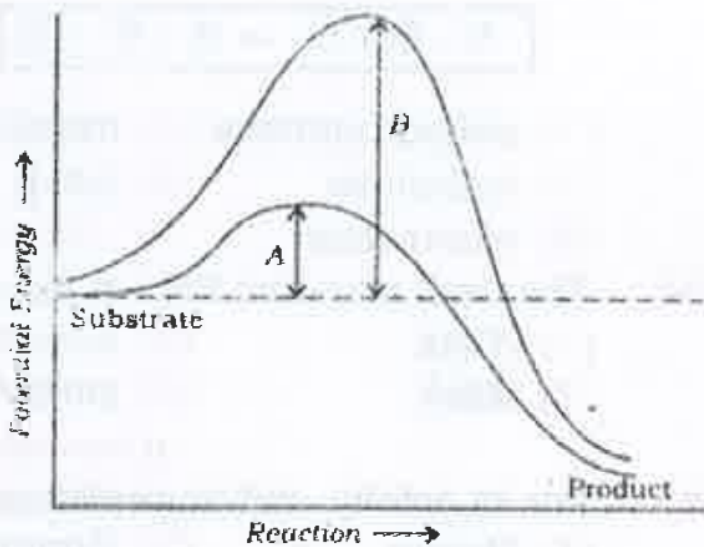
- A. Hydrogen bonds
- B. Electrostatic interaction
- C. Hydrophobic interaction
- D. Ester bonds

**Answer: D**



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300. Which of the following describes the given graph correctly ?



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

**Answer: B**



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**301.** Which one of the following statements is correct with reference to enzymes?

- A. Aponezyme = Holoenzyme + Conezyme
- B. Holoenzyme = Apoenzyme + Coenzyme
- C. Coenzyme = Apoenzyme + Holoenzyme
- D. Holoenzyme = Coenzyme + Co-factor.

**Answer: B**



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**302.** Which of the following are not polymeric ?

A. Nucleic acid

B. Proteins

C. Polysaccharides

D. Lipids

**Answer: D**



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**303.** Which of the following RNAs should be most abundant in animal cell

A. r-RNA

B. t-RNA

C. m-RNA

D. mi-RNA

**Answer: A**



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**304.** The two functional groups characteristic of sugars are

- A. carbonyl and hydroxyl
- B. carbonyl and phosphate
- C. carbonyl and methyl
- D. hydroxyl and methyl

**Answer: A**



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