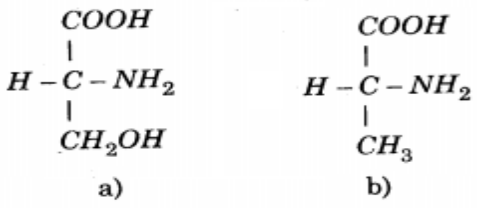
BIOMOLECULES

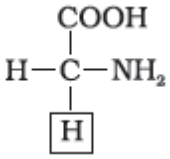
BIOMICRO AND BIOMACROMOLECULES

AMINOACID--------PROTEIN

1.The molecular structure of 2 amino acids are given below Name them



2.

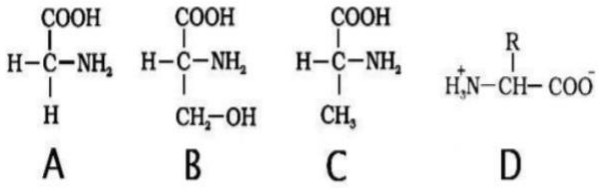


a. Identify this compound?

b. Name the bond produced when another compound of the same category combine with this?

c. If a number of such molecule bonded together , what will e the resultant molecule ?

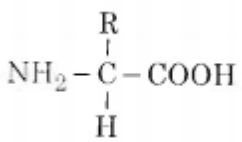
3.



a. Identify the given molecules A, B and C A, B & C

b. Identify the ion in the figure labelled as D

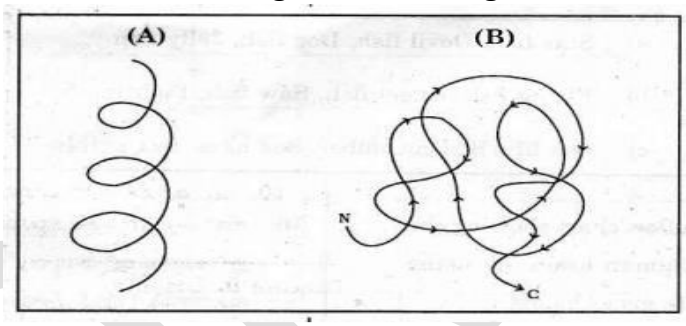
4.General formula of amino acid is given below



(a) Prepare the amino acid glycine and serine using this formula

(b) Proteins carry many functions in living organism, list any four.

6.Observe the diagram A and B given below



a)What is 'A' and 'B'?

b)Mention the other two levels of protein structure

7.a. ..... is the most abundant protein in the animal world.

b. .....The most abundant protein in the whole biosphere

8.**"** Proteins is a heteropolymer not a homopolymer " . Substantiate the statement

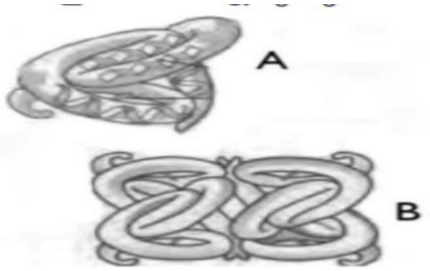
9. Which one of the following is a glucose transporter?

a. Collagen b. Trypsin c. GLUT-4 d. Cellulose

10. Find the odd one from the group. Give reason. (Glutamic acid , Lysine , Valine , Collagen)

11. Differentiate between essential and non-essential aminoacids.

12. Observe the figure and answer the following questions



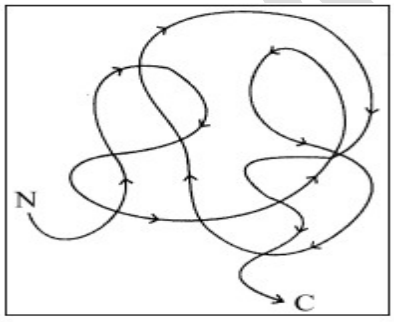
a. Identify the structure of A and B

b.Write the difference between A and B

13.Select the wrongly matched pair from the following ?

Collagen	Intercellular ground substance
Insulin	Hormone
Antiody	Sensory reception
Trypsin	Enzyme

14.(a) Identify the level of protein structure in the given diagram



(b) Name two levels of protein structure which
are not three dimensional.

(c) Give an example for protein having quaternary
structure and justify your answer.

NUCLEOTIDES------NUCLEIC ACIDS

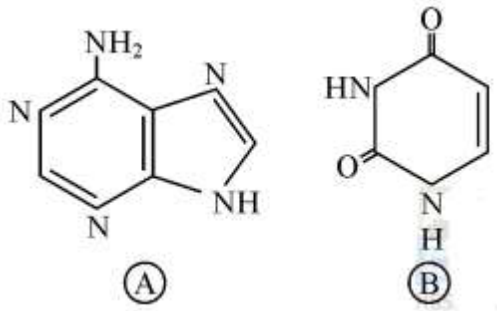
1.Compare a nucleotide with a nucleoside

2.Name the bond present between phosphate and hydroxy group of sugar in nucleic acid

3.Find out the differences between DNA and RNA and fill the table given below

DNA	RNA
…….	Ribonucleotides
Deoxyribose Sugar	…….
…….	Single Strand
Thymine	……..

4.(a) Identify the following nitrogen bases A and B.



(b) Write the nucleosides of these.

MONOSACCHARIDE…….POLYSACCHARIDE

1. Monosaccharides are linked by ……bond

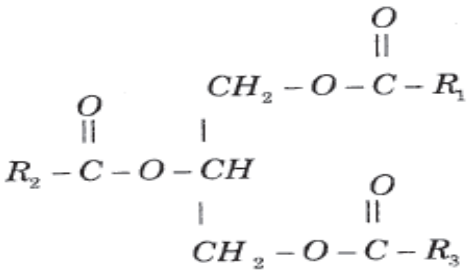
2. Find the monomers of

a) Inulin
b) Cellulose
c) Chitin
d) Starch

3. starch give blue colour to iodine test but cellulose not. Substantiate.

LIPIDS

1. Identify the given biomolecule that comes under fat



General questions

1.Fill in the blanks suitably

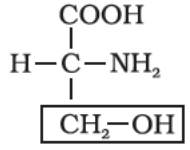
In a proteins aminoacids are linked by ….(a)…In a polysacharides individual monosacharides are linked by…….(b)…..

2.Identify the wrong statement from the following and correct it

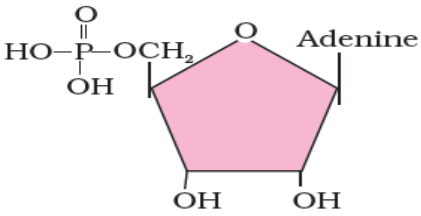
a)Lipds are not strictly macromolecule

b)Cellulose is not a polysaccharide

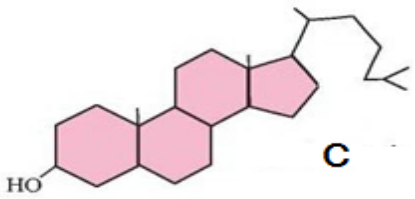
3.Identify the given biomolecule



A



B



C

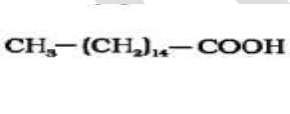
4.Compelete the following sequence with approprite words

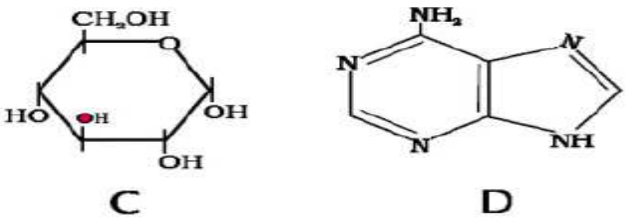
Amino acids:……(a)…….bond:protein …(b)……: glycosidic bond : polysaccharide

5.Match the column A with B and C

Monomer	**chemical bond**	**Polymer**
Glucose	phospho diester	Nucleic acid
Amino acids	Glycosidic	Carbohydrate
Nucleotide	Peptide	Protein

6.Observe the following diagrams and answer the questions





C D

a. Identify A, B, C and D
b. Name the compound obtained by the fusion of A and B

7. Identify the wrong statement from the following and correct it

a)Lipds are not strictly macromolecule

b)Cellulose is not a polysaccharide

METABOLITES

1 .Identify the lectin present in the plant body from the followings
a.Abrin b. Concanavalin A c. Vinblastin d. Codeine

2. Which among the following is a primary metabolite
Alkaloids,Antibiotics,Aminoacids, Flavonoids

3.Metabolites are organic compunds constantly utilzed in various metabolic activities in the cells
a)What are the two types of metablites in the cells?
b)Give an example for each type of metabolites

4. differentiate between primary metabolite and secondary metabolite

ENZYMES

1.Nucleic acid acting as enzyme is called ……

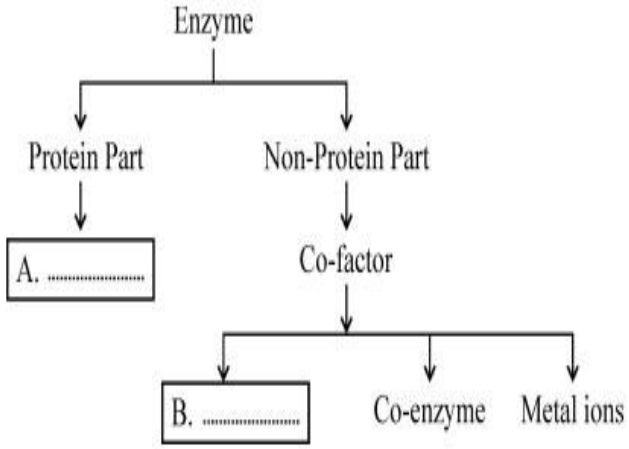
2.Inhibition of succinic dehydrogenase enzyme by malonate is an example for…….

3.Note the relationship between the first two words and find a suitable word for the fourth place

Non protein part of Enzyme: Cofactors;
Protein part of Enzyme : …….

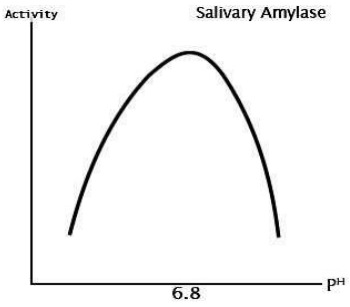
4..... vitamin is present in coenzyme NAD and NADP

5.



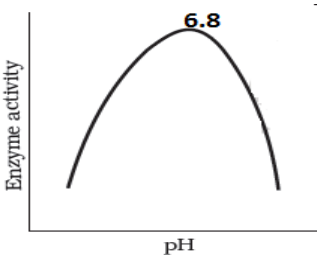
a) Identify A & B and fill the blanks.
(b) What happens when the co-factor is removed from the enzyme ?

6.Analyse the graph showing the activity of salivary amylase and answer the following questions



a. Which is the optimum PH for salivary amylase ?
b. Why does the activity decline below the optimum PH value?

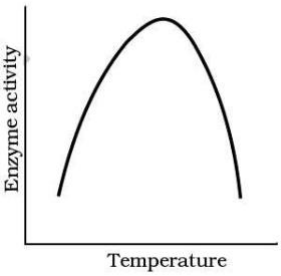
7.Oserve the graph shoing the activity of an enzyme influenced by pH



a. Name the possible enzyme involved in this reaction?

b. Where is its site of action

c. Mention any other factor which affects this enzyme



8.Observe the graph and answer the questions given below

a. What is meant by optimum temperature?

b The enzyme activity does decline at high or low temperature. Give reason ?

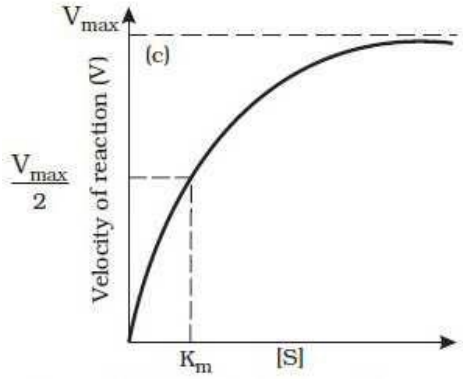
9.Enzymes are biological catalysts which regulate various biochemical reactions. Explain the following reaction.

$E_+ S \rightarrow ES \rightarrow EP \rightarrow E + P$

10.Hydrogen peroxide (H_2O_2) is a harmful compound produced in cell. Cellular enzymes break down hydrogen peroxide to water and oxygen

a. Identify the enzymes that help in the breakdown of H_2O_2
b. Name the prosthetic group of the enzyme

11.Observe the graph and answer the questions given below.



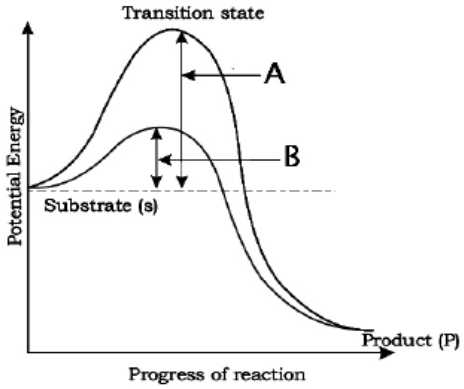
a. Identify the figure
b. What is meant by Vmax value?
c. Why Vmax doesnot exceed by any further rise in substrate concentration?
d. If a chemical substance closely resembling to that of a substrate is introduced into a reaction system, what will be the consequences? Sustantiate

*Similar question:

(Based on the graph given below, explain the effect of concentration of substrate on enzyme activity)

* *When substrate concentration increases, the velocity of enzymatic reaction increases at first. After attaining a maximum velocity, it cannot be exceeded by further addition of substrates. Why ?*

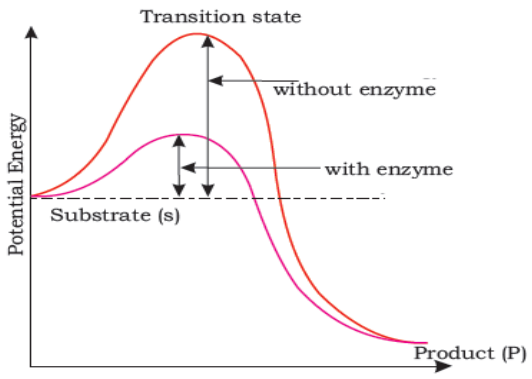
12.Observe the graph and answer the questions given below.



a. Identify the graph
b. Identify A and B
c. How does an enzyme increase the rate of a biological reaction ?

Similar question:

Oserve the graph and answer the following



a.Find out the role of enzyme?

b.Mention any two factors that influence the activity of an enzyme and state their influences

13..Match the following

Classification of Enzymes	Reactions
A	B
Hydrolases	Oxidation-reduction reaction
Lyases	Linking together of molecules
Oxido-reductase	Transfer of a group
Isomerases	Inter conversion of molecules
Ligases	Removal of groups
Transferases	Hydrolysis of bonds

**Fill in the blanks coloumns with the correct terms/sentence*

A	B
.....(1).....	Catalyse oxiod reduction between 2 sustrate
Transferase	.....(2).....
Lyases	Catalyse hydrolysis of ester, glycosidic bond
.....(3).....	Catalyse inter conversion of opical isomers
Ligase	.....(4).....

14.Identify the class of enzyme which catalyses the following reaction

a) S reduced + S' oxidised_____S oxidised+S_reduced

b) S–G+ S' _____S +S_ – G

c) CX–CY _____X –Y+C=C

d) Linking of two compounds

15.Complete the table

A	B
Oxidoreductase	.....
.....	Transfer of a group
Hydrolases	.....
.....	Removal of groups

16.a)Complete the diagrammatic representation showing the nature of enzyme action :

$$E + S \rightleftharpoons ES \rightleftharpoons \text{.....?.....} \rightleftharpoons E + \text{.....?.....}$$

(a) (b)

b) List out any two factors affecting enzyme activity.

c)Based on the reaction formulae given below, identify the classes of the enzymes.

i) S reduced + S' oxidized $\longrightarrow$ S oxidized + S' reduced

ii) $C(X)-C(Y) \longrightarrow X-Y+C=C$

17.Examples of 2 enzymatic reactions A and B are given. Identify the class of enzyme in A and B

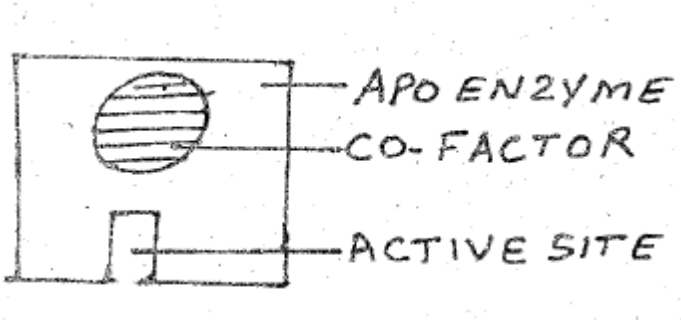
A) S reduced + S' oxidised → S oxidised + S' reduced.

(S,S'- Substrate)

B) S - G + S' → S + S' – G

(S,S'- substrate,G-Group)

18.Symbolic presntation of a functional enzyme is given below



a.Write one difference between cofactor and apoenzyme?
b.name the different types of cofactor
c.what is the cofactor for the enzyme , carboxypeptidase

(In an enzyme non-protein constituents called cofactors are bound to make the enzyme catalytically active.

Name the protein part of the enzyme

Mention any two types of cofactors with example)

19.Distinguish between cofactor and coenzyme with an example for each?

20.Non protein constituent called cofactor are bound to the enzyme to make the enzyme catalytically activity

a.Name the protein portion of the enzyme
b.What happens to the catalytic activity when the cofactor is removed from the enzyme?
c.Mention any two kinds of cofactor with examples?