CBSE TEST PAPER-02

CLASS - XI BIOLOGY

(Biomolecules)

General Instruction:

- All questions are compulsory.
- Questions no. 1 to 4 carry one mark each. Questiosn no. 5 to 9 carry two marks each. Questions no. 10 to 11 carry three marks each.

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1. Identify the polymer which makes exoskeleton of insects.

2. Name the following:- i) sugar present is DNA ii) Base not found in DNA iii) DNA contain 11 base pairs.

3. Why proteins are called biological polymer?

4. Which molecule has the ability to make their copies?

5. What is metabolism? Mention the role of enzymes is metabolism? Name the two type of pathways occur in metabolism.

6. Why are enzymes called as biocatalyst?

7. Give the functions of carbohydrates?

8. What do you meant by activation energy?

9. List the different types of lipids

10. Describe the structure & function of ATP?

11. Differentiate between cofactors, coenzymes & prosthetic group.

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[ANSWERS]

1. Chitin a polymer of glucosamine that forms exoskeleton of insects,
2. i) Deoxyribose sugar ii) Uracil iii) 'A' DNA
3. As proteins are made up of multiple amino acids and they are able to perform multiple functions eg. Protection mechanical support, transportation, movement etc, they are called as biological polymers.
4. Deoxyribonucleic acid (DNA)
5. Metabolism is defined as the sum total of the living processes in the body. Enzymes trigger metabolic pathways. Enzymes act as catalysts. Enzymes are highly specialized organic catalysts produced by living cell . The two types of pathways occur in metabolim are catabolic and anabolic pathways.Biochemical pathways refer to the reactions occurring in the cells in sequences. Enzymes guide the biochemical pathways along desired directions. They have active site. The substrate binds at active site of enzyme & form enzyme substrate complex which further changes into desired product..
6. The substances which changes the rate of chemical reaction without altering the equilibrium point of reaction is called catalyst. The catalysts of the organism are called enzymes & they are synthesized in the living cell hence called as Biocatalysts.
7. i) Carbohydrates play important role in all metabolic reactions of body & formed as intermediate compounds in pathways of the processes.
ii) Ribose & deoxyribose sugar are found in nucleic acids.
iii) Glucose is oxidised in respiration to yield energy.
iv) Glucose is used in synthesis of fats as well as proteins.
8. Activation energy is the energy required to initiate a chemical or biochemical reaction. It overcomes the energy barriers of the reactants which occurs amongst the reactants due to i) presence of electrons over their surface ii) Absence of precise & forceful collisions essential for bringing the reactive sites of the chemical together.
9. Lipids are of three types:-
i) Simple lipids:- they are of alcohols or triglycerides containing fatty acid & glycerol.
ii) Compound lipids:- They are simple lipids with a biologically active compound in them eg. glycolipids (carbohydrate lipid) lipoprotein (protein + lipids)

iii) Derived lipids:- They are hydrolysed products of simple lipids such as fatty acids & alcohol.

10. ATP is primary & universal carrier of chemical energy in the cell living cell capture store & transport energy in a chemical form, largely ATP & it is the ATP which is the carrier & intermediate source of chemical energy to those reactions in the cell which do not occur simultaneously. These reactions can take place only if chemical energy is released.

The ATP molecule consists of a nitrogenous base adenine and a pentose sugar of ribose type & three inorganic phosphate molecules two phosphate bonds are high energy bonds & one is relatively poor in energy.

Energy released in living cell is thus stored in the chemical bonds of the ATP molecule which then serve as major energy yielding & energy requiring substance in the cell. ATP is broken down into ADP whenever energy is needed.

$ATP \rightarrow ADP + iP + Energy.$

11.

CO-FACTORS	COENZYMES	PROSTHETIC GROUP
i) It is a non protein substance or group that gets attached to an enzyme.	i) it is a protein group which is loosely attached to the open enzyme in a functional enzyme	i) it is a non protein part or group which gets attached to open enzyme.
ii) It is essential for functioning it may be organic or inorganic or metallic factor	ii) NAD is coenzyme for dehydrogenase	ii) Some prosthetic group have porphyrin of the cytochrome.