

## Assignment

### Chapter 14: Biomolecules

- 1 State two main differences between globular proteins and fibrous proteins. Give one example of each.
- 2 a) Write the full forms of DNA and RNA. Write the names of the bases in them.  
b) What are three types of RNA molecules which perform different functions?
- 3 Write chemical equations for the reactions of glucose with  
(i) Acetic Anhydride (ii)  $\text{NH}_2\text{OH}$  (iii)  $\text{HNO}_3$  (iv)  $\text{HI}$
- 4 Define and classify vitamins. Name the main disease caused due to lack of vitamins and its sources in each of the following ;A , B<sub>6</sub>, E , B<sub>12</sub> and K .
- 5 (a) Write any two reactions of glucose which cannot be explained by the open chain structure of glucose molecule.  
(b) Write the structure of the product obtained when glucose is oxidized with nitric acid.
- 6 Define enzymes .State the activity of enzyme. How do enzymes differ from ordinary chemical catalysis? Comment on the specificity of enzyme action.
- 7 In what way is a nucleotide different from a nucleoside? Illustrate with examples?
- 8 What is essentially the difference between alpha-glucose and beta-glucose? What is meant by pyranose structure of glucose?
- 9 (a) Name some biological functions of nucleic acids.  
(b) What is the name given to the linkage which holds together two nucleotides
- 10 Explain what is meant by  
(i) a peptide linkage  
(ii) a glycosidic linkage
- 11 Name two water soluble vitamins, their sources and the diseases caused due to their deficiency in diet.
- 12 What is glycogen? How is it different from starch? How is starch structurally different from cellulose?
- 13 How do you explain amphoteric behaviour of amino acids
- 14 Define denaturation in proteins.

- 15 Nita's mother fell ill and the doctor diagnosed her with pernicious anemia. She felt lethargic and did not have the energy to do work. Nita helped her mother in household work till she recovered.
- (i) Name the vitamin whose deficiency caused pernicious anemia.
  - (ii) Name the sources which will provide this vitamin.
  - (iii) Mention the values shown by Nita.
- 16 In a school, lot of emphasis is given to the 3R principle of Reduce, refuse and Recycle. The students observe their teachers following it and they are made to follow it in school. Rita also follows at home and always tries to save paper. She also keeps waste paper and waste items separately so that they be sent for recycling. She does not use plastic bags and takes a jute bag with her while going to the market.
- (i) Mention the values shown by Rita.
  - (ii) If the jute bag is made of cellulose polymer, and name the monomer.
  - (iii) Name the chemical substance used in cotton, Jute and Rayon fibre.
- 17 After watching a programme on TV about the adverse effects of junk food and soft drinks on the health of school children, Sonali, a student of Class XII, discussed the issue with the school principal. Principal immediately instructed the canteen contractor to replace the fast food with the fibre and vitamins rich food like sprouts, salad, fruits etc. This decision was welcomed by the parents and the students.

After reading the above passage, answer the following questions:

- a) What values are expressed by Sonali and the Principal of the school?
- b) Give two examples of water-soluble vitamins.

