



BIOLOGY

BOOKS - PSEB

BIOMOLECULES

Exercise

1. What are macromolecules? Give examples.



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2. Illustrate a glycosidic, peptide and a phospho-diester bond.



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3. Explain primary and secondary structure of proteins in brief.



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4. Find and write down structures of 10 interesting small molecular weight biomolecules. Find if there is any industry which manufactures the compounds by isolation. Find out who are the buyers.



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5. Proteins have primary structure. If you are given a method to know which amino acid is at either of the two termini (ends) of a protein,

can you connect this information to purity or homogeneity of a protein?



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6. Find out and make a list of proteins used as therapeutic agents. Find other applications of proteins (e.g., Cosmetics etc.)



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7. Explain the composition of triglyceride.



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8. Can you describe what happens when milk is converted into curd or yoghurt, from your understanding of proteins.



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9. Can you attempt building models of biomolecules using commercially available atomic models (Ball and Stick models).





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10. Attempt titrating an amino acid against a weak base and discover the number of dissociating (ionizable) functional groups in the amino acid.



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11. Draw the structure of the amino acid, alanine.



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12. What are gums made of? Is Fevicol different?



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13. Find out a qualitative test for proteins, fats and oils, amino acids and test any fruit juice, saliva, sweat and urine for them.



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14. Find out how much cellulose is made by all the plants in the biosphere and compare it with how much of paper is manufactured by man and hence what is the consumption of plant material by man annually. What a loss of vegetation!



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15. Describe the important properties of enzymes.



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