

# THE GURUKUL INSTITUTE

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PLOT 5C, 2ND FLOOR, GANAPATI COMPLEX, SEC-13, OPP. JAIPURIA  
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## BIOMOLECULES

1. Name the deficiency diseases resulting from lack of vitamins A and E in the diet.
2. Why is cellulose in our diet not nourishing?
3. Under what conditions does each protein take a shape that is energetically most stable?
4. Describe the following: Functions of carbohydrates in plants.
5. What are heterocyclic bases? Give an example of a nitrogenous heterocyclic base.
6. In what sense are two strands of DNA not identical but complementary to each other?
7. Name two of the different types of RNA molecules found in the cells of organisms.
8. State a use of the enzyme Streptokinase in medicine.
9. Define the term denaturation in relation to proteins.
10. State any one characteristic of enzymatic catalysts.
11. Name one important function of nucleic acids in our bodies.
12. Name the purines present in DNA.
13. The deficiency of which vitamin causes the disease 'Pernicious anemia'?
14. What type of substance is phenylalanine hydroxylase? What is its importance for us?
15. Why are carbohydrates generally optically active?
16. Give an example of anomers.
17. What is the structural difference is there between  $\alpha$ -glucose and  $\beta$ -glucose.
18. Name the enzyme that is used to dissolve blood clots.
19. State two main differences between globular proteins and fibrous proteins.
20. What are essential and non-essential amino acids? Give two examples of each.
21. Which forces are responsible for the stability of  $\alpha$ -helix?
22. State the difference between the following pairs:
  - a.  $\alpha$ -helix and  $\beta$ -helix.
  - b. Primary and secondary structure of a protein.
23. What role do enzymes have in the functioning of our bodies?
24. Describe two important functions of nucleic acids.
25. (a) Name the three major classes of carbohydrates and give an example of each of these.  
(b) Answer the following:
  - i. What type of linkage is responsible for the primary structure of proteins?
  - ii. Name the location where protein synthesis occurs in our body.
26. (a) Answer the following questions briefly:
  - i. What are two good sources of vitamin A?
  - ii. What are nucleotides?  
(b) How are carbohydrates classified?
27. (i) Define the following terms:
  - a. Co-enzymes
  - b. Mutation in biomolecules
  - c. Nucleotides.  
(ii) List four main functions of carbohydrates in organism.
28. What are reducing and non-reducing sugars? What is the structural feature characterizing reducing sugar? What is invert sugar?
29. Define enzymes? What is the most important reason for their specificity in action?
30. What are the deficiency caused due to lack of vitamins A, B, B<sub>6</sub> and K in human diet?
31. (a) State the constitutional difference between DNA and RNA. Write down the names of the bases produced on the hydrolysis of DNA.  
(b) Draw simple Fischer projections of D-glucose and L-glucose. Can these be called enantiomers?
32. Define vitamins and state their classification. List two vitamins of each class.