

## **CELL CHEMISTRY QUESTIONS**

1. (a) Define the term “autotrophic”.  
(b) What types of organisms are autotrophic?
2. Differentiate between several types of heterotrophic nutrition, and give an example of each.
3. Distinguish between an element and a compound.
4. What is the exact meaning of each of the following terms: (a) atom (b) ion (c) pH (d) acid (e) base?
5. Define the term “chemical reaction”, giving an example.
6. What properties of water make it an essential component of living matter?
7. Why are carbohydrates, lipids, proteins and nucleic acids called organic compounds?
8. What is a macromolecule? Give 3 examples.
9. Explain the 3 types of carbohydrates in terms of their structure.
10. Carbohydrates are composed of small repeated units. What are these?
11. Give 2 examples of each of monosaccharides, disaccharides and polysaccharides.
12. In what form is sugar mostly transported in animals and in plants?
13. As the size of the carbohydrate molecule increases, what happens to its solubility?
14. Describe the tests for starches and sugars in food.
15. What are some functions of carbohydrates?
16. Lipids are frequently referred to as fats. Why is this description insufficient?
17. What are the components of which lipids are made?
18. Lipids are said to be hydrophobic. What does this mean?
19. What are the functions of lipids?
20. Give an example of each of oils, fats, waxes and steroids.
21. Describe the different types of proteins.
22. Different types of cells have different proteins. How can this be used to identify cell types?
23. Is every protein composed of all possible amino acids? Explain.
24. Why are some amino acids called essential amino acids?
25. What are some of the many functions of proteins?

26. Nucleic acids are the largest macromolecules in the human body. Of what are they composed?
27. Are all nucleic acids found in the nuclei of cells? Explain.
28. For what do the acronyms DNA and RNA stand?
29. What components make up a nucleotide in (a) DNA (b) RNA?
30. Distinguish between a DNA molecule and a RNA molecule in terms of structure, chemistry and location in the cell.