

1. Who coined the term cell and when?
2. List the contributions of
  - a) Robert Hooke
  - b) Robert Brown
  - c) Leuwenhoek
  - d) Purkinje
  - e) Schwann Schleiden and Virchow
  - f) Golgi
3. Differentiate between unicellular and multicellular organisms. Give three examples for each.
4. What determines the shape and size of a cell?
5. How are the following cells specialised for their functions-
  - a. smooth muscle cell
  - b. blood cell
  - c. nerve cell
  - d. Ovum
  - e. Sperm
  - f. bone cell
  - g. fat cell
6. Name the fundamental unit of life?
7. What are cell organelles? Give three examples.
8. List three basic organisational features of each cell.
9. Why is plasma membrane called selectively permeable membrane ?
10. What are the functions of plasma membrane?
11. How do carbon dioxide and oxygen move across the cell membrane?
12. Define diffusion. Where does it take place at the cellular level?
13. Define Osmosis. How is it a special case of diffusion?
14. What happens when a plant cell is put in an isotonic medium, hypotonic medium, hypertonic medium?
15. What happens when an animal cell is put in --
  - a. isotonic medium
  - b. hypotonic medium
  - c. hypertonic medium
16. Give two examples where Osmosis is exhibited in nature.
17. What role does diffusion play in living systems?
18. What is the composition and function of plasma membrane?

19. What is the advantage of flexibility of plasma membrane?
20. Explain the terms
  - a. Endocytosis
  - b. Exocytosis
  - c. phagocytosis
  - d. pinocytosis
21. How is cell wall different from cell membrane?
22. What is the composition of cell wall in case of plant cell, bacterial cell and fungal cell?
23. A plant cell is put in a strong salt solution. After some time its protoplast pulls away from the cell wall. What is this condition called? How can it be reversed?
24. A Rheo leaf boiled in water did not show the above phenomenon (refer Q 23). What does this show?
25. Why is glycerine used in making slides?
26. Which stain is used for making slides of onion peel and cheek cells respectively?
27. What is the advantage of a cell wall to plant and fungal cells?
28. Draw a labelled diagram for, and describe the structure of nucleus?
29. Why does the nuclear membrane have pores?
30. Name the category of organisms which are devoid of nucleus?
31. What are chromosomes made of? Why are they called so?
32. Differentiate between chromosomes and chromatin.
33. What is a functional segment of DNA?
34. Differentiate between nucleus and nucleoid.
35. How do prokaryotes carry out various functions when they lack nucleus, mitochondria and chloroplast?
36. Draw a diagram for prokaryotic cell.
37. Differentiate between prokaryotes and eukaryotes and give two examples for each.
38. A mature RBC does not have a nucleus, is it a prokaryote? justify your answer.
39. List all six functions of Endoplasmic reticulum.
40. Describe membrane biogenesis.
41. Explain in detail the following---
  - a. endoplasmic reticulum
  - b. rough endoplasmic reticulum
  - c. smooth endoplasmic reticulum
  - d. Golgi apparatus
  - e. Lysosome
  - f. mitochondria
  - g. plastid

- h. vacuole
  - i. nucleus
42. Distinguish between SER and RER.
43. Draw a labelled diagram of an animal cell.
44. What is the role of SER in the liver cells of vertebrates?
45. Draw a labelled diagram of plant cell. Mark the organelles present only in plant cells.
46. What are the components of endo-membrane system?
47. Which cell organelle gives rise to lysosomes?
48. Which other cell organelles, apart from nucleus, are capable of protein synthesis? How?
49. In which form is chemical energy stored in cells?
50. Name the plant cell organelle responsible for storing cell sap.
51. Which organelle synthesizes the enzyme found in lysosomes?
52. How is a bacterial cell different from your liver cell?
53. Which cell organelle contains hydrolases?
54. Name two organelles involved in protein synthesis?
55. Amoeba and paramecium are unicellular organisms however a cell of our body is called one cell. Justify.
56. All multicellular organisms come from one cell. How?
57. What will happen if --
- a. amount of carbon dioxide in a Cell increases?
  - b. If the plasma membrane bursts.
  - c. if the plasma membrane is not flexible
  - d. if the plasma membrane is not selectively permeable
58. What are the similarities between prokaryotes, mitochondria and chloroplast.
59. Write the names of different types of plastids and their functions.
60. What are vacuoles? what do they contain?
61. What is the name of the wall of a vacuole ?
62. What is the role of vacuoles in amoeba?
63. Why is mitochondria called powerhouse of cell?
64. Why are mitochondria and chloroplast called semi autonomous?
65. Where is ATP produced in mitochondria?
66. What is the other term used for plasma membrane?
67. What are the two factors on which the shape of a cell depends? support your answer with examples from human cells.
68. Name a non-membrane bound cell organelle found in both prokaryotes and eukaryotes.
69. What is the significance of
- a. Mitosis

## b. Meiosis

70. How is mitosis different from meiosis?
71. How does a cell acquire its structure and ability to function?
72. Why do cells divide?
73. Why is the chromosomal number reduced to half during meiosis?

