Anekant Education Society's
Tuljaram Chaturchand College of Arts, Science and Commerce, Baramati
(Autonomous)

Department of Botany

Class: M.Sc. I, Subject: BOT 4102 Cell Biology

Question Bank

Short Answer Questions **(Each carries 2 Marks)**

1. Give function of Glyoxysomes.
2. Write function of nucleus.
3. What is plasmodesmata?
4. Give functions of flagella.
5. Give functions of endoplasmic reticulum.
6. Give the role of ER in synthesis of proteins
7. Enlist functions of cell wall
8. Write the cell structure.
9. What is Transporters?
10. Enlist electrical properties of plasma membrane.
11. State cell theory.
12. What is stress?.
13. Explain structure of flagella.
14. Enlist function of cell membrane.
15. Explain active transport of ions.
16. State function of Golgi complex.
17. Enlist function of mitochondria.
18. Write full form of GISH & their application.
19. Write full form of FISH & their application.
20. Give function of peroxysomes.

Write a short note **(Each Question carries 4 Marks)**

1. Cell-cell interaction.
2. Cell signalling.
3. Golgi apparatus.
4. Explain various system of transport across cell membrane.
5. Give an account of ethylene mediated two component system.
6. State function of golgi complex.
7. Discuss molecular aspects of programmed cell death.
8. What is apoptosis? Explain its mechanism.
9. Discuss phospholipid signalling mechanisms.
10. What is signal transduction? Give an account of types of receptors.
11. Explain ultra - structure of Golgi - Complex.
12. Write on biogenesis of chloroplast.
13. Explain structure of nucleus and transport across nuclear membrane
14. Give structure and functions of Glyoxysome.

15. What is cytoskeleton? Give organization of microtubules
16. Explain biogenesis of Mitochondria.
17. Write briefly on any two types of Receptor proteins.
18. Comment on gap junctions.
19. Comment on extracellular matrix.
20. Write the general principles of cell communication.
21. Explain fluid mosaic model of plasma membrane.
22. Describe various modes of transport across membrane.
23. Write note on cell cycle labelled mitotic curve.
24. Explain ultra structure of Lysosomes, membrane integrity & its role.
25. Write note on transport across Vacuolar membrane.
26. Comment on Transport of ions and solutes.
27. Comment on treonine kinase.
28. Explain transport across nuclear membrane.
29. Explain diversity in phosphates.
30. Write note on regulation of cell death.
31. What are In-situ hybridization and their Example?
32. What is Cytoskeleton? Give organization of Microtubule.
33. Explain molecular organization and biogenesis of chloroplast.
34. Explain the role of cycling and protein kinase in cell cycle.
35. What is MPF (maturity promotion factor)?
36. Explain cell aging and cell senescence.
37. Give an account of ethylene mediated two component systems.
38. Comment on PCD in response to stress.
39. Write note on ribosomes.
40. Explain the flow cytometry technique to study cell cycle.
41. Explain any one method to study cell cycle.
42. Comment on cell cycle checkpoint.
43. Explain the regulation of CDk?
44. Write Short note on Apoptosis.
45. Give an account of flow cytometry techniques.

Long Answer Questions **(Each question carries 6Marks)**

1. Explain biogenesis and ultra structure of cell wall.
2. Give the ultra structure and functions of nucleus
3. Write the mechanism transport of ions and solutes.
4. Comment on regulation of signalling pathways.
5. Describe assembly and dissociation of sub units in Ribosomes and its functions.
6. Give the difference between active and passive transport.
7. Explain calmodulin cascade signalling.
8. What is apoptosis? Explain its mechanism.
9. Write a note on the molecular aspects of cell death.
10. Write a note on - Maturation promoting factor (MPF).
11. Comment on aspects of cell organelles during apoptosis.
12. Give role of Golgi complex in sorting, storage and secretion.

13. Write mechanism of transport across membrane
14. What is cell adhesion and roles of different adhesion molecules.
15. Comment on integrin's and its regulation.
16. Comment on Bacterial chemo taxis and quorum sensing.
17. Write Specific signalling mechanisms of Biotic and abiotic stress.
18. Write Specific signalling of mechanisms ABA induced stomatal closure
19. Write specific signalling of mechanisms Stomatal guard cell signaling.
20. Comment on G-protein coupled receptors

Long Answer Questions (Each question carries 12Marks)

1. What is cell cycle? Explain phase of cell cycle.
2. Explain the role of cyclins and protein kinase in cell cycle regulation.
3. Write in brief about cancer and explain the interaction of cancer cell with normal cell.
4. Write a note on Organization and regulation of nuclear pore complex
5. Give an account of FISH, GISH and confocal microscopy.
6. Write in brief about cancer and explain their different types.
7. Write the Bacterial chemo taxis and quorum sensing.
8. What is Cell cycle- Discuss the phases of cell cycle and functional importance of each phase

Questions related to the syllabus (Each question Carries 12Marks)

1. Write on contribution of cytologist from India.
2. What are the different types of cancer?
3. Discuss the Chemotherapy treatment on cancer.
4. Discuss the Origin and Evolution of Cells.
5. How do organs grow to the correct shape and size?
6. Why are babies so rarely born with cancer?