

## DEPARTMENT OF BOTANY

### QUESTION BANK

#### SEM – V PAPER – 5

#### Essay type Questions (10 Marks)

1. Define cell. Describe the ultra structure of a typical plant cell.
2. Write an essay on plant cell wall.
3. Describe the structure and functions of Plasma membrane.
4. Describe the structure and functions of Nucleus.
5. What is Nucleosome? Give an account of solenoid model of Chromosomes.
6. Describe the structure and chemistry of Chromosomes.
7. Explain the structure and functions of Watson and Crick model of DNA.
8. Explain the process of DNA replication.
9. Write an essay on different types of RNA.
10. Discuss Mendel's Laws of inheritance.
11. Describe the monohybrid and dihybrid experiments that were conducted by Mendel on *Pisum sativum*.
12. Describe the process of Linkage and mention its significance.
13. Define Linkage. Describe different types of linkage.
14. Give a brief account of the procedure used in preparing a chromosome map with the help of three point test cross.
15. Describe the mechanism of Crossing over and its significance.
16. What is Plant breeding? Write an account of its Objectives and Activities.
17. Write in detail about plant Introduction.
18. Write about the selection method which helps in Crop-Improvement.
19. What is Hybridization? Describe the procedure advantages and limitations of Hybridization.
20. Write an essay on the role of Mutations in Crop-Improvement.
21. Write an essay on somaclonal variations and their role in Crop-Improvement.
22. What is Molecular Breeding? Write in detail about Molecular breeding.
23. Write in detail about molecular markers and their uses in Plant Breeding.

#### Short Answer Questions (5 Marks)

1. Cell wall.
2. Endoplasmic Reticulum.
3. Golgi complex.
4. Mitochondria
5. Plastids.
6. Ribosomes.
7. Nucleus.
8. Nucleolus
9. Chromatin
10. Euchromatin and Heterochromatin.
11. Hammerling's experiment.

12. Chemical composition of Cell Wall.
13. Fluid mosaic model of plasma membrane.
14. Unit membrane model of plasma membrane.
15. Functions of plasma membrane.
16. Centromere.
17. Karyotype.
18. Chromosome banding.
19. SAT chromosomes.
20. Giant chromosomes.
21. Polytene chromosomes.
22. Lamp brush chromosomes.
23. B-chromosomes.
24. Nucleotides.
25. Nitrogen Bases.
26. Replicon.
27. DNA polymerase.
28. m-RNA.
29. Soluble RNA or t-RNA.
30. Ribosomal RNA or Insoluble RNA.
31. Test cross.
32. Back cross.
33. Coupling and Repulsion.
34. Two-point test cross.
35. Three-point test cross.
36. Crossing over.
37. Copy-Choice hypothesis.
38. Mass selection.
39. Pure line selection.
40. Clonal selection.
41. Heterosis.
42. Emasculation.
43. Bagging.
44. SSD method.
45. Mutagens.
46. Somaclone.
47. Molecular Markers.
48. SSR
49. RAPD
50. RFLP
51. MAS
52. MAB
53. MABC