

BSc Biotechnology

B.Sc. III Year

Subject I (701-703)

Part A

Answer the followings in short

1. Define Genome
2. What are Nucleosomes?
3. At which substage of Meiotic Prophase crossing over takes place?
4. Define a genetic map.
5. What is a Proteome?
6. Give basic chemical composition of a protein.
7. Define Repetitive DNA.
8. Write the application of FASTA
9. Define Totipotency.
10. Define Media.
11. Who is the father of plant tissue culture?
12. Define somatic embryogenesis.
13. What are hybrids?

14. Name the chemical used for protoplast fusion.
15. Define transgenic plants.
16. Which Bacterium is called natural genetic engineer?
17. Give any two examples of Bacteria used in genetic engineering.
18. Give the significance of Yeast-two hybrid method.
19. Write the application of mass spectroscopy.
20. Explain Biotechnology
21. What do you mean by secondary cell culture?
22. Name two animal cell lines.
23. Name the parameters for selecting the cell lines.
24. What do you mean by cross-contamination?
25. What is the role of cryoprotectants in long-term storage?
26. Define cell bank.
27. Define terminal differentiation.
28. Expand HGPRT.
29. Define monoclonal antibody.
30. What is meant by stem cell plasticity?

Part-B

1. Write short note on:
 - a. Nutritional requirement of cell in vitro
 - b. Organogenesis
 - c. Haploid Production Techniques. of Somaclonal variants.

- d. Features of Ti and 2-D-Gel electrophoresis.
 - e. Designing proteins
 - f. Screening Ri Plasmid.
2. Answer the following questions briefly
 - a. Genetic Transformation.
 - b. What do you mean by secondary cell culture?
 - c. Name two animal cell lines
 - d. Name the parameters for selecting the cell lines.
 3. What do you mean by cross-contamination?
 4. What is the role of cryoprotectants in long-term storage?
 5. Write short note on
 - a. Micro culture chamber technique.
 - b. Isolation of cells.
 - c. Define cell bank
 - d. Define terminal differentiation
 - e. Expand HGPRT
 - f. Name two animal cell lines.
 - g. Name the parameters for selecting the cell lines.
 6. What do you mean by secondary cell culture?
 7. What do you mean by cross-contamination?
 8. What is the role of cryoprotectants in long-term storage?
 9. Define cell bank

10. Define the chromosomal aberration
11. Define terminal differentiation. Expand HGPRT.
12. Define monoclonal antibody.
13. What is meant by stem cell plasticity?
14. Compare prokaryotic genomes with Eukaryotic genomes.
15. Write short notes on the following:
 - a. Concepts of genes.
 - b. Linkage
16. Comment upon the following:
 - a. Genetic mapping
 - b. C value Paradox
17. Define Proteomics. Give basic principles of protein structure.
18. Discuss various applications of Genomics and Proteomics along with suitable examples.
19. What is vector? discuss the vectors use in gene therapy .
20. Give an account of the following:
 - a. GFP tags
 - b. Protein Interactions.
21. What are Multigene families? Give their function along with suitable examples.
22. Explain the Micropropagation and its Applications.
23. Describe the production of disease free plants.
24. Explain the protoplast culture techniques in detail.

25. Explain Germplasm conservation in detail.
26. Define monoclonal antibody
27. What is meant by stem cell plasticity?
28. Describe in detail the aseptic techniques along with their objectives
29. Explain the steps involved in animal cell culture
30. Describe the role of serum in cell culture, What are the disadvantages of serum in cell culture?
31. Write an account on physical methods of cell separation. What is cytotoxicity
Describe the metabolic cytotoxicity assays and their applications.
32. Describe in detail the methods of scale in suspension culture.
33. Write an account on cryopreservation of hybridoma cell lines.
34. Describe in detail the aseptic techniques along with their objectives.
35. Explain the steps involved in animal cell culture.
36. What is cell culture? Give a detailed note on applications of animal cell culture.
37. Describe the role of serum in cell culture. What are the disadvantages of serum in cell culture?
38. Write an account on physical methods of cell separation.
39. What is cytotoxicity? Describe the metabolic cytotoxicity assays and their applications.
40. Describe in detail the methods of scale up in suspension culture.
41. Write an account on cryopreservation of hybridoma cell lines.
42. What is cell culture? Give a detailed note on applications of animal cell culture.