B.Sc. Sem I
BOT-51T-101 Cell Biology and Diversity of Plant Kingdom- l

Short Answer Type Questions-

1. Write about the Chargaff's rule.
2. Write short notes on SnRNA.
3. Write short notes on different forms of DNA?
4. State the function of histones in DNA packaging.
5. What is the difference between heterochromatin and euchromatin?
6. The sequence of the coding strand of DNA in a transcription unit is mentioned below.

   3′ AATGCAGCTATTAGG 5′

   Write the sequence for:Its complementary strand Its mRNA
7. Define nucleic acid.
8. What two strains of bacteria did Griffith use in his experiment?
9. .What did Griffith conclude from his experiment?
10. .What is the principle of the Hershey and Chase experiment?
11. . Write the functions of chromosomes.
12. Define Aster.
13. What are genes?
14. Differentiate between sub-metacentric and telocentric chromosomes.
15. What are sister and non-sister chromatids?
16. What are the functions of centromeres?
17. Define haploid and diploid chromosomes.
18. What is the function of rRNA?
19. Why is Mitosis called equational cell division?
20. Define Telophase.
21. Define cell cycle.
22. Write a short note on synaptonemal complexes.
23. Define Interphase.
24. Write about karyokinesis and cytokinesis division.
25. Briefly describe the S Phase of cell cycle.
26. What are the functions of G1 and G2 phases during cell cycle?
27. Explain the significance of Meiosis.
28. Discuss the function of Spindle fibres.
29. What is the difference between Meiosis l and Meiosis ll?
30. Define Crossing over.
31. Write short notes on chaisma.
32. Write names of five cell organelles of eukaryotic organisms .
33. Write names of five cell organelles of prokaryotic organisms.

34. Write two functions of the nucleus.
35. Write functions of plasma membranes.
36. What is passive transport?
37. What is active transport?
38. Define endocytosis.
39. Define exocytosis.
40. What is the role of microtubules?
41. What are intermediary filaments?
42. What is a nucleosome?
43. Write two differences between euchromatin and heterochromatin.
44. Write about nuclear pore complexes.
45. What is the chemical composition of a plant cell wall?
46. Write two functions of the cell wall.
47. Draw a well labelled diagram of mature basidiocarp of Agaricus.
48. Define parasexuality in fungi and in which fungus was it first observed?
49. Define oogamy.
50. Explain structure of acervulus.
51. Differentiate between homothallic and heterothallic fungi.
52. Write systematic position of Peziza.
53. Draw the diagram of LS of the apothecium of Peziza.
54. Differentiate between holobasidium and phragmobasidium.
55. Explain structure of pycnidium.
56. Discuss the internal structure of gills.
57. Write any two economic importance of mushrooms.
58. Write two methods of asexual reproduction in Peziza.
59. Write about the role of fungi in food spoilage.
60. Discuss about medicines obtained from fungi.
61. Describe sclerotia.
62. Write the name of Father of Indian Bryology.
63. Write the function of rhizoids present in bryophytes.
64. Which type of sexual reproduction present in bryophytes?
65. In Marchantia vegetative reproduction takes place through which structure?
66. Name the female reproductive organ in Marchantia.
67. Name the male reproductive organ in Marchantia.
68. What is the function of peristome teeth in Funaria?
69. Which generation is dominant in Bryophyta?
70. Write the function of elaters.
71. Pseudoelaters are present in which bryophyte?
72. Write the function of Gemma.
73. What is the common name of Anthocers?

74. What is the apical part of Funaria capsule called as?
75. Name the types of scales present in Marchantia.
76. Name the parts of sporophyte of Funaria.
77. How many types of phycobilins are found in algae and what is their function.
78. What are whiplash or acronematic flagella?
79. Which classes of algae do not have unicellular forms.
80. What is the function of gas vacuoles present in some Cyanophyceae?
81. Discuss the advantages of sexual reproduction in algae.
82. Give the characteristic features of Phaeophyceae.
83. Describe distinguishing features of Myxophyceae and Rhodophyceae.
84. Describe briefly the affinities of blue-green algae and bacteria.
85. Write about cell structure of Nostoc.
86. Write a short note on asexual reproduction of Volvox.
87. Write a short note on the plakea stage of Volvox,.
88. Give an illustrated account of the synzoospore of Vaucheria.
89. Write a short note on habitat and nature of Ectocarpus.
90. Write a short note on long and short branches of Polysiphonia.
91. Describe the post - fertilization changes in Polysiphonia.
92. Write a short note on tetrasporophyte of Polysiphonia.
93. State the differences between unilocular and plurilocular sporangia of Ectocarpus.
94. How would you distinguish between a gametophyte and a sporophyte of Vaucheria.
95. In what ways can algae be of use to space travellers?
96. What is the source of diatomite?
97. Write a short note on Agar- Agar.
98. Write a short note on Fruticose lichen.
99. Give botanical names of Iceland moss and Reindeer's moss.
100. Can the thallus of Vaucheria be considered as a single cell? Discuss.
101. Differentiate between aplanospore and hypnospores.
102. Who discovered chloroplast?
103. Who discovered mitochondria ?
104. What is granum?
105. What are F1 particles?
106. Define peroxisomes.
107. What are the functions of chloroplast?
108. What are the functions of Mitochondria?
109. Explain lysosomes.
110. Explain vacuoles.
111. Mention the types and function of Endoplasmic reticulum.
112. Explain protein glycosylation.
113. What are the functions of the Golgi apparatus?

114. Who discovered golgi apparatus and endoplasmic reticulum?
115. Write the functions of Lysosomes
116. Write the functions of vacuole.

Long Answer Type Questions-

1. Describe the structure and function of Mitochondria.
2. Describe the structure and functions of chloroplast.
3. Explain the semi autonomous structure of Mitochondria.
4. Explain semi autonomous structure of chloroplast.
5. Explain the structure and functions of lysosomes.
6. Explain the structure and function of vacuole.
7. Describe the structure and function of Golgi apparatus.
8. Describe the structure and function of Endoplasmic reticulum
9. Write a note on protein sorting and export.
10. Write experiments to prove that DNA is the genetic material.
11. Write an essay on the DNA model of Watson and Crick.
12. Write an essay on types of RNA present in cells.
13. Write a detailed note on plasmid DNA.
14. Write a detailed note on different stages of Meiosis.
15. Explain the structure of Synaptonemal complex and its functions.
16. Write a detailed note on Chiasmata formation, molecular mechanism of crossing over and factors affecting crossing over.
17. Compare Mitosis and Meiosis and explain its importance.
18. Discuss cell cycle with its various stages.
19. Write an essay on chromosome structure with the help of a diagram.
20. What are chromosomes? Describe in detail their structure, chemical composition and functions.
21. Discuss Nucleosome Solenoid Model in detail with a diagram.
22. Explain the structure of the Lampbrush chromosome with the help of a suitable diagram.
23. Write an essay on Polytene chromosomes.
24. Explain the various types of RNA.
25. Discuss DNA as a genetic material with Griffith's transformation experiment.
26. Write an essay on the Hershey and Chase blender experiment.
27. Explain the different types of chromosomes.
28. Explain the difference between Mitosis and Meiosis.
29. Discuss the functions of mRNA and tRNA.
30. Differentiate between prokaryotic and eukaryotic cells.
31. Differentiate between plant and animal cells.
32. Discuss chemistry, structure and functions of plant cell walls.

33. Explain fluid mosaic model of plasma membrane.
34. Differentiate between active and passive transport.
35. Discuss membrane transport in detail.
36. Write an essay on cytoskeleton.
37. Discuss molecular organization of chromatin.
38. Discuss structure and function of nucleus in detail.
39. Discuss various models of plasma membrane.
40. Explain types of fungi on the basis of nutrition.
41. With the help of suitable diagrams explain the life cycle of Rhizopus.
42. With the help of suitable diagrams explain the life cycle of Peziza.
43. With the help of suitable diagrams explain the life cycle of Agaricus.
44. Write a detailed note on sexual fruiting bodies in fungi.
45. Write a detailed note on asexual fruiting bodies in fungi.
46. Give an illustrated account on modified hyphal structures in fungi.
47. Write a note on the economic importance of fungi.
48. Comment on sexual reproduction in fungi.
49. Give classification of fungi given by Alexopoulus and Mims.
50. Write the affinities of bryophyte with algae and pteridophytes.
51. Describe general characters of bryophytes.
52. Describe classification of bryophytes.
53. Describe the range of thallus of bryophytes.
54. Write a note on alternation of generation in bryophytes.
55. Describe evolution of sporophytes in bryophytes.
56. Describe the structure of sporophytes in Anthoceros.
57. Describe external and internal structure of thallus of Marchantia.
58. Describe vegetative reproduction in bryophytes.
59. Draw diagram of L.S. sporophyte of Funaria
60. Give an account of the habit and habitat of the algal forms.
61. How do the algae perennate? Write some of the perennating bodies in algae that you know.
62. Write an illustrated account of the modes of reproduction in algae.
63. Give an illustrated account of alternation of generation in algae.
64. Describe the characteristic features of the different classes of algae as proposed by F. E. Fritch.
65. Give an outline of classification of algae proposed by Smith.
66. Describe briefly the various methods of reproduction in Nostoc.
67. With the help of diagrams describe the life cycle of Volvox.
68. Give an illustrated account of asexual and sexual reproduction in Vaucheria with labelled diagrams.

69. What is isomorphic alternation of generation? Explain it with reference to the life cycle of Ectocarpus.
70. Describe the methods of reproduction in Ectocarpus.
71. Give an illustrated account of thallus of Polysiphonia.
72. Describe the sexual reproduction in Polysiphonia.
73. Write an essay on the economic importance of algae.
74. What are lichens? Describe various modes of their reproduction.
75. Write an essay on the economic importance of lichens.
76. Write an essay on the range of thallus structure in lichens.
77. With help of labelled diagrams describe the structure of an isidium in lichens.
78. What is symbiosis? How are lichens the best example of symbiosis?
79. Discuss the comparative advantages gained by the fungus and the alga in a lichen.