Exam Code: 225201 **Paper Code: 1236**

Programme: Master of Science (Botany) Semester: I

Course Title: Computer Applications and Bioinformatics

Course Code: MBTL-1046

Time Allowed: 3 Hours **Max Marks: 60**

Note: Attempt five questions in all, selecting atleast one question from each section. The fifth question may be attempted from any section. Each question carries 12 marks.

Section – A

Q1. a) Write note on formatting tools available in MS-Word?

b) Enlist various types of lists. Write steps to create nested lists in MS word? (2x6=12)

Q2. a) How you apply Styles in MS Word?

b) How can you apply the Border to the pages in MS Word document?

c) What is the function of CTRL+X and CTRL+V commands? (3x4=12)

Section – B

Q3. a) Write note on various types of Charts & Graphs available in MS-Excel.

b) What is Absolute and Relative referencing/addressing? Give examples. (2x6=12)

Q4. a) How can you enter a formula in the worksheet? Explain the Auto Sum feature.

b) What are charts? How it is useful?

c) How can you Copy or Move worksheet? (3x4=12)

Section - C

Q5. a) Explain in brief about various views options available in MS Power Point.

b) What are the main components of the PowerPoint home screen? What is the ribbon in PowerPoint? (2x6=12)

Q6. a) Write down various applications of Bioinformatics in biological sciences.

b) Write about the literature databases and their uses. (2x6=12)

Section – D

Q7. a) Give examples of nucleotide sequence databases. Explain GenBank in brief.

b) Write note on data retrieval and data deposition tools. (2x6=12)

Q8. Write note on following:

a) LIPIDAT b) Rice Genome Annotation Project (2x6=12)

Exam Code: 225201 **Paper Code: 1231**
(20)

Programme: Master of Science (Botany)
Semester-I

Course Title: Fungi and Plant Pathology

Course Code: MBTL-1071

Time Allowed: 3 Hours **Max Marks: 60**

NOTE:-

(i) Attempt five question in all, selecting one question from each section. The fifth question may be attempted from any section. Each question carries 12 marks.

(ii) Draw neat and well-labelled diagrams in support of your answers, wherever necessary.

SECTION – A

I. Give an account of structure and life cycle of Saprolegnia. 12

II. Write in detail about the following:
(i) Diplophase of Plasmodiophora 6
(ii) Hat-thrower fungus 6

SECTION – B

III. Give an illustrated account of the life history of Protomyces. 12

IV. Write notes on the following:
(i) Structure of basidiocarp in Lycoperdon 6
(ii) Sporulation and germination of brand spores in Ustilago 6

SECTION – C

V. Give symptoms, etiology and control measures of the following diseases:
(i) Apple scab 6
(ii) Citrus canker 6

VI. Give symptoms, etiology and control measures of the following diseases:
(i) Wart disease of potato 6
(ii) Leaf curl of tomato 6

SECTION – D

VII. Describe various morphological or structural defence mechanisms existing before infection and formed after infection in plants. 12

VIII. Write notes on the following:
(i) Parasexual cycle 6
(ii) Role of mycorrhiza in agriculture and plant growth 6

Exam Code: 225201 **Paper Code: 1232**
(20)

Programme: Master of Science (Botany) Semester-I

Course Title: Phycology

Course Code: MBTL-1072

Time Allowed: 3 Hours **Max Marks: 60**

Note: Attempt five questions, selecting at least one question from each section. The fifth question may be attempted from any Section. All questions carry equal marks. Draw labelled diagrams wherever necessary.

Section-A

1. Write notes on any three of the following: (4marks each)
   i) Habit of Algae
   ii) Multicellular thalli among algae
   iii) Algal Food reserve
   iv) Heterocyst (12)
2. Give salient features of Lee's system of classification? How it is different from the earlier classification of Fritsch? (12)

Section-B

3. What is coenobium? Describe in detail asexual reproduction in any motile coenobial form as you know of. Differentiate the colony of Volvox from colony of Hydrodictyon. (2+8+2)

4. Discuss any two of the following: (6 marks each)
   i) Macrandrous and Nannadrous species of Oedogonium
   ii) Sexual reproduction in *Chara*
   iii) Sexual reproduction in Vaucheria (12)

Section-C

5. Describe the life history of Laminaria. Give salient features of the genera. (12)
6. Explain the sexual reproduction in Batrachospermum. Give salient features of the genera. (12)

Section-D

7. Give a comparative account of reproduction in Oscillatoria and Nostoc. (12)
8. Write notes on the following: (4 marks each)
   i) Rhythms and Bioluminescence in Dinoflagellates
   ii) Economic importance of algae
   iii) Algal blooms (12)

Exam Code: 225201 **Paper Code: 1233**

Programme: Master of Science (Botany) Semester: I

Course Title: Bryology

Course Code: MBTL-1073

Time Allowed: 3 Hours **Max Marks: 60**

Note: Attempt five questions in all, selecting atleast one question from each section. The fifth question may be attempted from any Section. Each question carries 12 marks. Draw well labelled diagrams wherever necessary.

Section A

1. Write notes on the following:- **3*4=12**
   i. Why Bryophytes are called the amphibians of plant kingdom?
   ii. The plant body of Bryophyte is a gametophyte or sporophyte. Explain.
   iii. Compare primitive and advance characters of Bryophytes.
2. Write the major differences between Hepatcopsida, Anthoceropsida and Bryopsida along with diagrams. **12**

Section B

3. What is alternation of generation? Describe alternation of generation with reference to Funaria. **12**
4. Explain following: **2*6=12**
   i. Give life-cycle of Marchantia with diagrams.
   ii. Describe Sporophyte of Anthoceros.

Section C

5. How bryophytes developed the land habit? Justify it with suitable examples. **12**
6. Explain evolution of sporogonium in mosses with examples. **12**

Section D

7. Describe the morphogenetic changes in moss protonema. **12**
8. Explain characters of ectohydric, myxohydric and endohydric Bryophytes. **12**

Exam Code : 225201 **Paper Code: 1234 (20)**

Programme: Master of Science (Botany)
Semester: I

Course Title: Plant Physiology

Course Code: MBTL-1074

Time Allowed: 3 Hours **Max Marks: 60**

Note: **Candidates are required to attempt five questions in all, selecting at least one question from each section. The fifth question may be attempted from any Section. Each question carries 12 marks.**

Section – A

1. Write short notes on:
   a. Diffusion with suitable examples
   b. Raoult's Law
   c. Bioenergetics
   d. Biological energy transducers

   (4×3=12)
2. Define coupled reactions. Explain the mechanism of oxidative phosphorylation? (2+10)

Section - B

3. Define signal transduction. Discuss phospholipid signalling in detail. (12)

4. Elaborate two-component sensor-regulator system in plant. (12)

Section - C

5. Describe in detail:
   a. Assimilation and uptake of Nitrate
   b. Carbon metabolism (2×6=12)
6. Explain enzymology of nitrogen fixation in detail? (12)

Section - D

7. Write short notes on:
   a. Glutathione
   b. Overview of sulphate assimilation (2×6=12)
8. Describe Sulphur function, uptake and transport in plants. (12)

Exam Code: 225201 **Paper Code: 1235**
(20)

Programme: Master of Science (Botany)
Semester-I

Course Title: Genetics and Evolution

Course Code: MBTL-1075

Time Allowed: 3 Hours **Max Marks: 60**

NOTE: The candidates are required to attempt five questions, selecting at least one question each from sections A, B, C & D carrying 12 marks each. The fifth question carrying 12 marks may be attempted from any of the four sections. Draw well labelled diagrams where ever necessary.

SECTION-A

1. a. Describe the terms-
   Over-lapping genes, Pleiotropy, pseudogenes, split gene (8)
   b. What is cis and trans complementation test for functional allelism. (4)
2. Give mechanism of DNA replication. (12)

SECTION-B

3. a. Write a short note on lambrush and polytene chromosomes. (6)

   b. Explain the correlation between mutagenicity and carcinogenicity. (6)

4. Describe the molecular basis of mutations and their repair mechanism. (12)

SECTION-C

5. a. Give molecular mechanism of crossing over. (6)

   b. Explain ordered tetrad analysis with the help of suitable example. (6)

6. What do you mean by operator gene? Describe the inducible operon system of regulation of gene expression. (12)

SECTION-D

7. What is polyploidy? Give its role in evolution. (12)
8. a. Explain the term and mode of speciation. (6)

   b. Explain Hardy-Weinberg law of evolution. (6)

For Reappear Candidates (2022-23)

Exam Code: 225201 **Paper Code: 9153**

Programme: Master of Science (Botany) Semester: I

Course Title: Genetics and Evolution

Course Code: MBTL-1075

Time Allowed: 3 Hours **Max Marks: 40**

Note: Attempt five questions in all, selecting at least one question from each section. The fifth question can be attempted from any Section. Each question carries equal marks. Draw well labelled diagrams wherever necessary.

Section A

1. Write in detail about proof that the genetic information is stored in DNA. **8**
2. Give the detailed account of Classical versus Molecular Concept of Gene. **8**

Section B

3. a) Discuss about the mutation in relation with the molecular basis of mutation. **5+3=8**

   b) Explain the Structure of Lampbrush Chromosome.

4. What are induced mutations? Explain the mechanism of detection of mutation in Maize. **8**

Section C

5. Discuss about the positive control of the lac operon by CAP and CAMP. **8**
6. a) Give the detailed account of somatic cell hybridization. **5+3=8**

   b) Discuss about the significance of transposable elements.

Section D

7. Write in detail about the Inheritance pattern in autopolyploids with the help of chromosome and chromatid segregation. **8**
8. What is evolutionary time scale? Describe major events in the evolutionary time scale. **8**