

Exam Code: 225101

Paper Code: 1222

Programme: Master of Science (Botany) Semester - I

Course Title: Fungi and Plant Pathology

Course Code - MBTL-1071

Time Allowed: 3 Hours

Max. Marks: 70

Note: Attempt five questions in all, selecting atleast one questions from each section. Fifth question may be attempted from section. Each question carries 14 marks.

Section A

- Q1 i) Write down the short note on the reproduction of Myxomycetes
ii) Draw the well labelled diagram of life cycle of Allomyces with brief note
- Q2 i) Write a short note on *Pythium*.
ii) Write down the differences between Gymnomycota and Mastigomycota.

Section B

- Q3 i) Write down the characters of ascomycetous fungi and how it differ from basidiomycota.
ii) Draw the well labelled diagram of *Ustilago* & *Puccinia* life cycle.
- Q4 i) Draw the life cycle of *Cercospora* and *Rhizoctonia* and write brief note.
ii) Write down the medicinal and economic importance of *Morchella*.

Section C

- Q5 i) Short note on late blight of potato.
ii) Short note on white rust of crucifers.
- Q6 i) Brief note on Citrus Canker.
ii) Brief note on bunchy top of banana.

Section D

- Q7 Explain the various defense mechanisms of plants against pathogens.
- Q8 i) Explain Koch's postulates with examples.
ii) Write down the five names of national & international journals of plant pathology.

Exam Code: 225101

Paper Code: 1223

Master of Science (Botany) Semester I

Course Title: Phycology

Course Code: MBTL-1072

Time: 3 Hours

Max. Marks: 70

Note: Attempt five questions, selecting atleast one question from each section. The fifth question can be attempted from any section. Each question carries 14 marks.

Section A

1. Discuss the habit and habitat of algae.
2. Write notes on the following:
 - i) Algal pigments
 - ii) Eukaryotic algal cell
 - iii) Algal Food reserve
 - iv) Heterocyst

Section-B

3. What is gonidium? Describe asexual reproduction in *Volvox*. How the colony of *Volvox* different from colony of *Hydrodictyon*.
4. Discuss the asexual reproduction in *Vaucheria*. Draw its life cycle. Also give salient features of the genus.

Section-C

5. Describe the sexual reproduction in *Laminaria*. Give salient features of the genera.
6. Write notes on the following:
 - i) Post fertilization changes in *Polysiphonia*
 - ii) Post fertilization changes in *Batrachospermum*

Section-D

7. Give a comparative account of reproduction in *Oscillatoria* and *Nostoc*.
8. Write notes on any two of the following:
 - i) Rhythms and Bioluminescence in Algae
 - ii) Economic importance of algae
 - iii) Algal Blooms

Exam Code: 225101

Paper Code: 1224

Master of Science (Botany) Semester I

Course Title: Bryology

Course Code: MBTL-1073

Time: 3 Hours

Max. Marks: 70

Note: Attempt five questions, selecting one question from each section. The fifth question can be attempted from any section. Each question carries 14 marks.

Section A

1. Describe habit, habitat and distribution of Bryophytes. 14
2. Write a detailed note on economic uses of Bryophytes. 14

Section B

3. Explain briefly life cycle of Porella. 14
4. Explain following:-
 - i. Give structure of sporogonium of Anthoceros.
 - ii. Describe thallus structure of Riccia.
 - iii. Gemma cups in Marchantia. (5, 5, 4)

Section C

5. Give a brief account of origin of land habit in Bryophytes. 14
6. Explain evolution of gametophyte in Liverworts with example. 14

Section D

7. What are the methods to conserve bryophytes at National level? 14
8. Write note on following:
 - i. Spore dispersal in Bryophytes
 - ii. Peristomal Teeth
 - iii. Palynology of Bryophytes (5, 5, 4)

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Exam Code: 225101

Paper Code: 1225

Master of Science (Botany) Semester I

Course Title: Plant Physiology

Course Code: MBTL-1074

Time: 3 Hours

Max. Marks: 70

Note: Attempt five questions, selecting one question from each section. The fifth question can be attempted from any section. Each question carries 14 marks.

SECTION A

Q1) Write short notes on:

- a) Diffusion with suitable examples
- b) Raoult's Law
- c) Bioenergetics
- d) Biological energy transducers

(4 × 3.5 = 14)

Q2) Define coupled reactions. Explain the mechanism of oxidative phosphorylation? (3, 11)

SECTION B

Q3) Define signal transduction. Discuss phospholipid signaling in detail. (14)

Q4) Elaborate two-component sensor-regulator system in plant. (14)

SECTION C

Q5) Describe in detail:

- a) Assimilation and uptake of Nitrate
- b) Carbon metabolism

(2 × 7 = 14)

Q6) Explain enzymology of nitrogen fixation in detail. (14)

SECTION D

Q7) Write short notes on:

- a) Glutathione
- b) Overview of sulphate assimilation

(2 × 7 = 14)

Q8) Describe Sulphur function, uptake and transport in plants. (14)

Exam code: - 225101

Paper code: - 1226

Programme: Master of Science (Botany)

Semester: Sem I

Course Title: Genetics and Evolution

Course Code: MBTL – 1075

Time Allowed: 3 hrs

Max. Marks: 70

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 in detail about proof that the genetic information is stored in DNA. 14
2. a) What do you understand by rolling circle replication of phage ϕ X174.
b) What is Penetrance and Expressivity. 10+4

Section B

3. a) Write about the biochemistry and molecular basis of Cancer.
b) Describe different type of genetic disorders. 7+7
4. a) Discuss mutation in relation with the molecular basis of mutation.
b) Explain the Structure of Lampbrush Chromosome. 10+4

Section C

5. What are transposable elements? Discuss about the transposable elements in bacteria. 14
6. a) Write in detail about the somatic crossing over and molecular mechanism of crossing over.
b) Define somatic cell hybridization. 12+2

Section D

7. a) Write in detail about the Inheritance pattern in autoployploids with the help of chromosome and chromatid segregation.
b) What is Hardy-Weinberg law? 10+4
8. Discuss about the evolutionary time scale and major events in the evolutionary time scale. 14

Exam Code: 225101
(20)

Paper Code: 1227

Programme: Master of Science (Botany)
Semester-I

Course Title: Computer Applications and Bioinformatics

Course Code: MBTL-1046

Time Allowed: 3 Hours

Max Marks: 70

Note: Attempt five questions in all by selecting at least one question from each section. Fifth question may be attempted from any section. Each question carries 14 marks.

Section — A

1. a) What is hanging indentation? How can you set it?
b) Write note on formatting tools available in MS-Word? (2x7=14)
2. a) Explain Cut, Copy and Paste commands.
b) How you can apply header & footer in MS-Word Document
c) What is the function of CTRL+A and CTRL+X commands? (5,5,4)

Section — B

3. (a) What is a worksheet in MS Excel? Write note on entering data, saving and existing worksheet? (2x7=14)

- b) What is Absolute and Relative referencing/ addressing? Give examples. ~~(5,5,4)~~
4. a) How a range of continuous cells can be specified in MS Excel formulas?
b) What are charts? How it is useful?
c) In order to insert a formula in an excel sheet, which menu item is to be clicked? What is the category type of IF ()? (5,5,4)

Section - C

5. a) Explain in brief about various views option available in MS Power Point.
b) What are the components of Power point Menu Bar? (2x7=14)
6. a) Differentiate between 1^o and 2^o databases.
b) Write note on PubMed Central. (2x7=14)

Section — D

7. a) Write note on data retrieval and data deposition tools.
b) Write about the tools of data submission and data retrieval for GenBank. (2x7=14)
8. Write note on following:
a) GlycoSuiteDB
b) PDB (2x7=14)