COE - office
KMV - II (N.S.B)
~~MOR~~ EVE 6-5-2024

Exam Code: 215224
(20)

Paper Code: 4222

Programme: Master of Science (Botany)
Semester-IV

Course Title: Plant Anatomy

Course Code: MBTL-4071

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

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 (Eight marks each). Draw well labelled diagrams wherever necessary.

SECTION—A

1. Write note on :
   a. Give a comparative account of the structure of tracheids and vessels.
   b. Elucidate the anatomical location and function of pericycle. 4+4
2. Give an illustrated account of node-internode transition and formation of leaf and branch traces from the nodal region. 8

SECTION-B

3. What do you understand by growth rings? How these are formed? Discuss the anatomical peculiarities of different types of wood formed during this activity. 8

4. Explain anatomy and chemistry of lignification. 8

SECTION—C

5. Give comparative account of anatomy of dicot and monocot seeds. 8

6. Discuss the theory and foliar origin of carpel with evidences. 8

SECTION-D

7. Explain the anatomy and physiology of plant roots and their interactions with soil microorganisms. 8

8. Give an illustrated account of modifications in anatomical features of leaf in relation to photosynthesis and transpiration. 8

Exam Code: 215224 **Paper Code: 4223**
(20)

Programme: Master of Science (Botany)
Semester-IV

Course Title: Structure and Metabolism of Plant Hormones

Course Code: MBTL-4072

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

Note: Attempt five questions, selecting at least one question from each of 4 sections. The fifth question may be attempted. from any section. All questions carry equal marks. Draw labelled diagrams wherever necessary.

Section A

1. Write a note on the following:
   a. Bioassays with examples of two different plant hormones
   b. Differentiate between hormones and plant growth regulators (4+4)
2. Give an account of discovery and developmental roles of auxins in plants. 8

Section B

3. Write a detailed note on:
   a. Physiological and developmental roles of gibberellins.
   b. Discovery and regulation of gibberellins (4+4)
4. Discuss discovery, biosynthesis and regulation of cytokinins in plants. 8

Section C

5. Write a note on:
   a. Physiological roles of brassinosteroids
   b. Biosynthesis of ethylene (4+4)
6. Describe biosynthesis and physiological roles of ABA in plants. 8

Section D

7. Give an account of
   a. Roles of Jasmonic acid in plants
   b. Infection by various soil bacteria in plants. (4+4)
8. Discuss the process of Agrobacterium tumefaciens mediated transformation of plant host cells during tumor induction. 8

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Exam Code: 215224 **Paper Code: 4224**
(20) EVE:- 16-05-2024

Programme: Master of Science (Botany)
Semester-IV

Course Title: Plant Tissue Culture and Biotechnology

Course Code: MBTL-4073

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

Note: Attempt five questions in all, selecting at least one question from each section and fifth question may be attempted from any section. Each question carries equal marks.

Section A

1. Write a short note on the following: (2 marks each)
   a) Micropropagation
   b) Suspension Culture
   c) Acclimatization and Hardening
   d) Androgenesis
2. Write an illustrated notes on the following: (4 marks each)
   (a) in vitro haploid plant production
   (b) Shoot Apex Culture

Section B

3. Discuss in detail procedure for isolation of Somaclonal variants for salt resistance. (8)
4. Write a detailed note on method for production of pathogen free plants through tissue culture. (8)

Section C

5. Name and describe briefly physical or mechanical methods used for genetic transformation of plants. (8)
6. Write note on the following: (4 marks each)
   a) Secondary metabolites production
   b) Strategies for the enhancement of production of secondary metabolites.

Section D

7. What are the various prospects of genetic engineering in plants? (8)
8. Write notes on the following: (4 marks each)
   a) Terminator technology
   b) Cryoprotectants

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EVE-22/05/2024

Exam Code: 215224 **Paper Code: 4225**
(20)

Programme: Master of Science (Botany)
Semester-IV

Course Title: Analytical Techniques

Course Code: MBTL-4074

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

Note: Candidates are required to attempt five questions, selecting one question from each section. The fifth question may be attempted from any section. Each question carries eight marks.

Section —A

1. Explain Principle and applications electron microscopy.
2. Write detailed procedure of
   a. fixation
   b. staining

Section —B

3. What are chromatographic techniques? Discuss instrumentation of HPLC.
4. Discuss detailed procedure of electrophoresis with well labeled diagram.

Section —C

5. What are Atomic absorption and plasma emission spectroscopy? Explain their applications.
6. How NMR is applicable in structure elucidation of the compounds? Explain in details.

Section —D

7. What is thermocycler? Explain applications of PCR in medical sciences.
8. Discuss various types of blotting techniques.

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MORE 27-05-24 [EVE]

Exam Code: 215224 **Paper Code: 4226**
(20)

Programme: Master of Science (Botany)
Semester-IV

Course Title: Diversity and Biology of Angiosperms

Course Code: MBTL-4075

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 (8) marks.

Section — A

1. a). Give a brief account on the historical perspective of plants classification.
   b). Explain phylogenetic system of classifications and their merits. 4x2=8
2. Briefly outline the phylogenetic system given by Engler & Prantl with its merit and demerits. 8

Section — B

3. What are the principles of plant nomenclature? Write its significance and importance in Botany. 8

4. Give an account on the origin of Angiosperms and discuss the interrelationships of dicots and monocots in context with plant evolution. 8

Section - C

5. a). Explain alpha taxonomy in relation to modern taxonomy.
   b) Write a note on palynology and embryology in relation to taxonomy. 4x2=8
6. Discuss the various biosystematics approaches to plant taxonomy and biosystematics analysis of taxonomic problems. 8

Section — D

7. Explain in details the role of Herbarium in plant sciences, major herbaria in India and briefly explain the methodology of herbarium sheets preparation. 8
8. a). Discuss the various factors determines the vegetation types and plant distributions.
   b) Briefly explain the concept of endemism and biodiversity hotspots. 4x2=8

Exam Code: 215224 **Paper Code: 4227**
(20)

Programme: Master of Science (Botany) Semester-IV

Course Title: Immunology

Course Code: MBTL-4076 (Opt-II)

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

Note: Candidates are required to attempt five questions, selecting one question from each section. The fifth question may be attempted from any section. Each question carries equal 8 marks.

Section 1

1. Give an overview on adaptive immunity?
2. Write briefly about secondary immunodeficiency disorder?

Section 2

3. Write a short note on: -
   (A) Prerequisites for immunogenicity ~
   (B) Relative immunogenicity of different types of moiecules
4. Discuss the antigen recognition by cells of adaptive immunity?

Section 3

5. Describe the classification of antibodies?
6. write a note on:
   (A)Antigen antibody interaction
   (B) Isotypes and allotypes

Section 4

7. Write briefly about complement system?
8. Explain the lymphoid tissue?