Exam Code: 215223 **Paper Code: 3228**

Master of Science (Botany) Semester-III
Course Title: Developmental Botany
Course Code: MBTL-3071

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

Note: Attempt five questions in all, selecting atleast one question from each section. Fifth question can be attempted from any section each question carries equal (8) marks.

Section –A

1. Discuss different methods to overcoming incompatibilities.

2. Explain Self and Interspecific Incompatibility in detail.

Section –B

3. Explain in detail the post fertilization structural changes in embryo sac along with diagrams.

4. Give a detailed note on discharge and movement of sperms in fertilization.

Section –C

5. Define polyembryony? Give details of its types, causes and significance.

6. Write a detailed note on histology and organogenesis of dicot embryos.

Section –D

7. What is the role of Palynology in taxonomy? Explain in detail.

8. Embryology has proved a great tool in plant breeding? Comment and explain in detail.

Exam Code: 215223 **Paper Code: 3229**
(20)

Programme: Master of Science (Botany)
Semester-III

Course Title: Plant Molecular Biology

Course Code: MBTL-3072

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

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 8 marks.

Section-A

1. Discuss about mechanism of transcription in eukaiyotes
2. Write note on:
   a. C-value paradox
   b. Structure of mRNA

Section-B

3. Differentiate between Southern and Northern hybridization.
4. Define Cloning and write about the procedure of selection and screening of recombinant clones.

Section-C

5. Differentiate between lysogenic and lytic cycles of bacteriophages.
6. Discuss in brief about the various types of cloning vehicles with their uses in cloning and sequencing.

Section-D

7. What are RFLPs and how do they differ from RAPD and SSRs?
8. Explain the uses of molecular markers in generation of molecular linkage maps.

KMV-II (NSB) 7/12/2023

Exam Code: 215223 **Paper Code: 3230**
(20)

Programme: Master of Science (Botany) Semester-III

Course Title: Plant Breeding and IPR

Course Code: MBTL-3073

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

The question paper consists of eight questions in four sections A, B, C and D (two questions in each section). The candidates are required to attempt 5 questions selecting at least one question from each section. The fifth question may be attempted from any section.

Section A

1. Write a short note on: (2x4)
   a. Primary and secondary centres of diversity
   b. Introduction and domestication as a method of plant breeding
2. Discuss briefly: (2x4)
   a. Male sterility
   b. Self- incompatibility

Section B

3. Give a general account of system of mating in sexually reproducing species and their genetic consequences. (8)

4. Write a note on : (2X4)
   a. Pureline and mass selection
   b. Synthetic and composite varieties

Section C

5. Write a brief note on: (4x2)
   a. Heritability
   b. Genetic Advance
   c. Path analysis
   d. Cluster analysis
6. Write a note on: (2X4)
   a. Responses of host to the pathogens
   b. Multiline varieties

Section D

7. Discuss the role of genetic engineering in Crop improvement with examples. (8)
8. Give a general account of Intellectual Property Right (IPR). (8)

Exam Code:215223 **Paper Code: 3231**

Programme: Master of Science (Botany)

Semester III

Course Title: Plant Biochemistry

Course Code: MBTL-3074

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

Q1. Write a note on the following:

a. Covalent and non-covalent interactions

b. Properties of water and its biological significance (4+4)

Q2. Define pH and pH scale. Give a detailed account of Handerson-Haselbach equation. 8

Section B

Q3. Write a detailed note on:

a. Oxidation of Pyruvate.

b. Regulation of Blood glucose (4+4)

Q4. Discuss EMP pathway in detail. Give its energetics. 8

Section C

Q5. Write a note on:

a. Ketogenesis

b. Transport of fatty acids (4+4)

Q6. Describe biosynthesis of fatty acids. 8

Section D

Q7. Give an account of

a. Nomenclature and Classification of enzymes

b. Induced fit hypothesis (4+4)

Q8. Discuss Michaelis-Menton Equation and Lineweaver-Burk plot. 8

Exam Code: 215223 **Paper Code: 3232**

Programme: Master of Science (Botany)

Semester: III

Course Title: Applied Botany

Course Code: MBTL-3075

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

Note: Attempt five questions in all, 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. Define Cereals. Discuss the botanical description and cultivation of Wheat. (8)
2. Write down the extraction process of sugar from sugarcane with the help of a flow diagram. (8)

Section-B

3. Give physical characteristics of Wood. Discuss methods of seasoning and chemical treatment. (8)
4. Bamboo: Green gold of India. Justify the statement. (8)

Section-C

5. What is difference between oil, fats and waxes? Give classification, botanical description and uses of any two-vegetable oil yielding plants. (8)
6. Explain the industrial manufacturing process of quality paper from the crude sources. (8)

Section-D

7. What is the source of Commercial Rubber? Give an account of method employed for obtaining latex for preparation of rubber of commerce. Give an account of processing of latex into final product and its uses. (8)
8. Explain the extraction process of tannins and dyes. Also give the sources of plant-based dyes and tannins. (8)

Exam Code: 215223 **Paper Code: 3233**

Programme: Master of Science (Botany)

Semester III

Course Title: Plant Morphogenesis

Course Code: MBTL-3076

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

Q1. Write a note on the following:

a. Polarity in coenocytes

b. Polarity in internal structures (4+4)

Q2. Discuss physiological correlations in plants 8

Section B

Q3. Write a note on:

a. Physiological differentiation

b. Phyllotaxy (4+4)

Q4. What is symmetry? Discuss its various types in detail. 8

Section C

Q5. Write a brief note on:

a. Chimeras

b. Regeneration in lower plants (4+4)

Q6. What are somatic mutations? Discuss its methods and applications in crop improvement. 8

Section D

Q7. Give an account of

a. Abnormal growth in plants

b. Amorphous structures (4+4)

Q8. Discuss Morphogenetic Factors in detail 8