03/1

2006

BOTANY

Paper 1

Time : 3 Hours] *[Maximum Marks : 300*

INSTRUCTIONS

Candidates should attempt ***all*** *the questions in Parts A, B & C. However, they have to choose only* ***three*** *questions in Part D. The number of marks carried by each question is indicated at the end of the question.*

Answers must be written in English.

This paper has four parts :

A	20 marks
B	100 marks
C	90 marks
D	90 marks

Marks allotted to each question are indicated in each part.

SEAL

PART A

4×5=20

Answer each question in about 50 words. Each question carries 5 marks.

1. (a) Explain the stelar evolution in pteridophytes.

(b) Describe the importance of organogenesis in biotechnology.

(c) List four economic importances each of algae and bryophytes.

(d) Differentiate between caulogenesis and rhizogenesis.

PART B

10×10=100

Answer each question in about 100 words. Each question carries 10 marks.

2. Briefly describe the principle and application of Confocal and Fluorescence microscopy in cell biology.

3. Enumerate the names of nitrogen fixing microbes found in rhizosphere of rice plants along with their taxonomic location. Also explain the regulation of nif genes by nif A and L.

4. Explain that prion causes fatal diseases.

5. Define 'Incompatibility' and write on its importance. Explain how the stigma and style control incompatibility reactions.

6. Briefly describe the Taxonomy of Leguminaceae.

7. Write a detailed note on Social Forestry.

8. Explain the production of an industrially important microbial enzyme.

9. Explain that Archeae and Eubacteria are two different living domains.

10. Draw a well labelled Fluid mosaic model of a cell membrane. Add a note on membrane transport.

11. Briefly explain the following :

    (a) Heterocyst

    (b) Nitrogenase

    (c) Bt Cotton

    (d) Microbes in bioleaching of precious metals

03/2

2006

BOTANY

Paper 2

Time : 3 Hours] *[Maximum Marks : 300*

INSTRUCTIONS

Candidates should attempt ***all*** *the questions in Parts A, B & C. However, they have to choose only* ***three*** *questions in Part D. The number of marks carried by each question is indicated at the end of the question.*

Answers must be written in English.

This paper has four parts :

A	20 marks
B	100 marks
C	90 marks
D	90 marks

Marks allotted to each question are indicated in each part.

SEAL

PART A

4×5=20

Answer each question in about 50 words. Each question carries 5 marks.

1. (a) What is stratification in a plant community ?

(b) Give a brief account of any five oil yielding plants.

(c) Draw a well labelled diagram of ATP synthetase. Mention its location(s).

(d) Explain why do you expect differences among cells arising from meiosis and not among those resulting from mitosis.

PART B

10×10=100

Answer each question in about 100 words. Each question carries 10 marks.

2. Briefly describe the structure of lampbrush chromosomes and discuss their utility in cytogenetic studies.

3. Mention the different types of RNA and their important structural characters. Also mention their location in the cell and function.

4. Compare the ultrastructure details and functions of mitochondria and chloroplasts.

5. Give the Michaelis-Menten equation and its significance in the study of enzyme kinetics.

6. What are polyploids ? How will you distinguish between autopolyploids and allopolyploids.

7. Cite examples and discuss the evidence suggesting the role of chloroplasts and mitochondria in cytoplasmic inheritance.

8. Explain Photorespiration and give its significance.

9. Define water potential, osmotic potential and turgor potential. Explain the relationship between each of them.

10. What are macro and micro elements ? What you understand by mineral toxicity ? Explain the deficiency symptoms of Fe and Mo in plants.

11. Diagrammatically elucidate C4 pathway of CO_2 fixation. Mention its importance and two examples of C4 plants.