

GOVERNMENT DEGREE COLLEGE, NANDIKOTKUR

DEPARTMENT OF BOTANY

Vascular Plants (Pteridophytes, Gymnosperms and Taxonomy of Angiosperms)

Unit 1: Pteridophytes

Short Answer Questions:

1. Define Pteridophytes and list their general characteristics.
2. Explain Smith's classification (1955) of Pteridophyta.
3. Describe the morphology and reproduction of *Lycopodium*.
4. What is stelar evolution? List its types in Pteridophytes.
5. Discuss the ecological and economic importance of Pteridophytes.

Long Answer Questions:

1. Compare the morphology and reproduction of *Lycopodium* and *Marsilea*.
2. Explain the concept of heterospory and its significance in seed habit evolution.
3. Write an essay on stelar evolution in Pteridophytes with diagrams.
4. Describe the life cycle of *Marsilea* with appropriate illustrations.

Unit 2: Gymnosperms

Short Answer Questions:

1. What are the general characteristics of Gymnosperms?
2. Summarize Sporne's classification (1965) of Gymnosperms.
3. Write a brief note on the economic importance of Gymnosperms.
4. Explain the structure and reproduction of *Cycas*.
5. What are the distinguishing features of *Gnetum*?

Long Answer Questions:

1. Discuss the life cycle of *Cycas* with suitable diagrams.
2. Compare the structural and reproductive features of *Cycas* and *Gnetum*.
3. Explain the ecological and economic significance of Gymnosperms.
4. Write an essay on the anatomy, morphology, and life history of *Gnetum*.

Unit 3: Principles of Plant Taxonomy

Short Answer Questions:

1. Define taxonomy and explain its aim and scope.
2. What is the species concept? Describe its significance in taxonomy.
3. Outline the rules of binomial nomenclature according to the ICBN.
4. Explain the role of herbarium in plant taxonomy and mention its techniques.
5. What are monophyly, paraphyly, and polyphyly? Provide examples.

Long Answer Questions:

1. Write an essay on Bentham and Hooker's system of classification.
2. Discuss the concept and applications of digital herbaria in modern taxonomy.
3. Explain phylogenetic systematics with reference to clades, synapomorphy, and apomorphy.
4. Compare APG-IV classification with earlier systems of plant taxonomy.

Unit 4: Descriptive Plant Taxonomy

Short Answer Questions:

1. Describe the vegetative and floral characteristics of the family *Annonaceae*.
2. Write a note on the economic importance of *Curcubitaceae*.
3. Explain the diagnostic features of *Asteraceae*.
4. List the characteristics and economic uses of *Euphorbiaceae*.
5. What are the distinguishing features of the family *Poaceae*?

Long Answer Questions:

1. Compare and contrast the floral structures of *Annonaceae* and *Curcubitaceae*.
2. Write a detailed account of *Amaranthaceae* with emphasis on its economic importance.
3. Describe the systematic position, diagnostic features, and economic value of *Arecaceae*.

4. Discuss the vegetative, floral characteristics, and uses of the family *Asclepiadaceae*.

Unit 5: Evidences for Plant Systematics

Short Answer Questions:

1. What is the role of anatomy in plant systematics?
2. How does phytochemistry contribute to plant taxonomy?
3. Define numerical taxonomy and explain its importance.
4. Discuss the significance of cytology and cytogenetics in plant taxonomy.
5. Explain the concept of origin and evolution of angiosperms.

Long Answer Questions:

1. Discuss the relationship between embryology and plant systematics with examples.
2. Explain the applications of numerical taxonomy in solving taxonomic problems.
3. Write an essay on the contribution of phytochemistry to the classification of plants.
4. Analyze the role of cytogenetics in understanding evolutionary lineages in plants.