

GOVERNMENT DEGREE COLLEGE, NANDIKOTKUR

DEPARTMENT OF BOTANY

Anatomy and Embryology of Angiosperms

Unit 1: Tissues in Plants

Short Answer Questions:

1. Define meristematic tissues and describe their classification.
2. What are the functions of apical meristems?
3. Summarize the Tunica-Corpus theory.
4. Differentiate between simple and complex permanent tissues.
5. Write a short note on plant secretory tissues.

Long Answer Questions:

1. Describe the structure and organization of shoot apical meristem with reference to Apical Cell Theory.
2. Explain the Histogen theory and its significance in plant development.
3. Discuss the characteristics and functions of permanent tissues in plants.
4. Explain the role and importance of secretory tissues in plants.

Unit 2: Anomalous Growth in Plants

Short Answer Questions:

1. What are the tissue systems in plants? List their components.
2. Explain anomalous secondary growth in the root of *Beta vulgaris*.
3. Describe the anomalous secondary growth in the stem of *Boerhaavia*.
4. Name three timber plants of economic importance and their uses.
5. How is plant anatomy applied in forensic science?

Long Answer Questions:

1. Discuss the anomalous secondary growth in the stem of *Dracaena*.
2. Explain the economic importance of Teak, Red-sanders, and Rosewood.
3. Write an essay on the applications of plant anatomy in pharmacognosy and systematics.
4. Compare and contrast the tissue systems in plants and their roles.

Unit 3: Anther and Pollen

Short Answer Questions:

1. Describe the structure of anther walls and their functions.
2. What is microsporogenesis? Explain its significance.
3. Write a brief account of pollen wall proteins.
4. What is the NPC system? Why is it important in palynology?
5. Define pseudomonads, polyads, massulae, and pollinia.

Long Answer Questions:

1. Explain the process of microsporogenesis with reference to callose deposition.
2. Discuss the development of male gametophyte in angiosperms.
3. Write an essay on pollen viability, storage, and germination.
4. Elaborate on the scope and applications of palynology in plant science.
5. Explain the abnormal features of pollen and their biological relevance.

Unit 4: Ovules, Fertilization, and Endosperm

Short Answer Questions:

1. Define ovules and describe their structure.
2. Compare monosporic, bisporic, and tetrasporic types of embryo sacs.
3. What are the methods to overcome self-incompatibility?
4. Explain the biological importance of double fertilization in angiosperms.
5. List the types of endosperm and mention their significance.

Long Answer Questions:

1. Discuss the structure and types of ovules with examples.
2. Explain the process of megasporogenesis in plants.
3. Write an essay on pollination and the mechanisms to overcome self-incompatibility.
4. Describe the process of double fertilization and its consequences in angiosperms.
5. Explain the types of endosperm and their biological roles in seed development.

Unit 5: Embryogeny and Seeds

Short Answer Questions:

1. What is embryogeny? Describe it in *Capsella bursa-pastoris*.
2. How does embryogeny in monocots differ from dicots?
3. Write a short note on the structure of seeds in monocots.
4. What are the causes of polyembryony?
5. Explain the importance of seed dispersal mechanisms.

Long Answer Questions:

1. Discuss the stages of embryogeny in dicots and monocots with examples.
2. Explain the significance of seeds and the various mechanisms of seed dispersal.
3. Write an essay on polyembryony and apomixis, highlighting their applications.
4. Compare and contrast the structure of monocot and dicot seeds.
5. Explain the classification and biological significance of apomixis in plants.