

# **SERIAL NO. 136 : Plant Anatomy and Embryology**

## **GE/THY 6B**

### **Unit -I**

Plant anatomy: Classification of meristems; Meristem and permanent tissue: Simple tissues, complex tissues and secretory tissues; Histological organization of shoot apical meristem and root apical meristem.

### **Unit -II**

Plant Development: Origin, structure and function of cambium; Primary and secondary structure of root and stem, anomalous secondary growth ( Bignonia, Boerhaavia, Leptadenia and Nyctanthes). Periderm, lenticels, origin of lateral roots; Origin, structure and development of leaf, branching and its patterns.

### **Unit -III**

Embryology I : Structure of anthers, microsporogenesis, role of tapetum, pollination, pollen germination. Megasporogenesis, Ovule development, types of ovules, development and types of embryo sacs, embryo sac cells and double fertilization, in vitro fertilization.

### **Unit -IV**

Embryology II : Endosperm: Structure, types and development. Embryogenesis: the zygote., Types of embryogeny, embryo development in dicotyledons and monocotyledons, nutrition of embryo.

### **Unit -V**

Seed: Polyembryony, Apomixis; Development and structure of seed coat, seed dormancy ( primary and secondary) and causes of seed dormancy and methods to break seed dormancy. Specialized structure related to seed: Caruncle , aril and operculum. Experimental embryology.

### **Suggested Reading:**

- 1.Esau, K. 1977. Anatomy of Seed Plants. John Wiley & Sons, New York.
- 2.Grewal, R.C.2000. Plant anatomy. Campus Books International, N.Delhi
- 3.Maheshwari, P.1950. An Introduction to Embryology of Angiosperms. Tata McGraw Hill Publishing Co., N.Delhi
- 4.Pandey, B.P. 2002. Plant anatomy, S.Chand & Co., N.Delhi

5. Bhojwani, S.S. and Bhatnagar, S.P. 2003. The Embryology of Angiosperms. Vikas publisher, N.Delhi

6. Trivedi, P.C. Pareek, A. 2018. Plant Morphology and Anatomy. RBD Publishing house, Jaipur.

7. Trivedi, P.C. and Sharma, P. 2018. Taxonomy and Embryology of Angiosperms. RBD publishing house, Jaipur.

**Books in hindi medium**

8. Trivedi, P.C. , Sharma, N. And Dhankhar, R,K,S, 2018. Padap Aakaariki and Shaririki. RBD publishing house, Jaipur.

9. Trivedi, P.C. , Sharma, N. And Dhankhar, R.K.S. 2018. AA vratabiji vargiki and Bhroniki. RBD publishing house, Jaipur.