

QUESTION BANK
SEMESTER II
CORE COURSE-3
PLANT ANATOMY (BOT-A-CC-2-3-TH)

Plant Anatomy-

1. Answer the following questions: (1 or 2 marks)-

- a) Give an example of secondary meristem.
- b) What is a dictyostele?
- c) What is an 'anisocytic' stomata?
- d) What are 'aspirated pits'?
- e) What is 'bark'?
- f) What is plastochron?
- g) Describe the role played by the enzyme pectinase
- h) What are 'crassulae'? Where are they found?
- i) What is 'Quiescent centre'?
- j) Differentiate between bordered and half bordered pits.
- k) What is a bicollateral vascular bundle? Where is it found?
- l) Define a Leaf trace and a Leaf Gap?
- m) What is phellogen?
- n) What are 'vestured pits'?
- o) What is an 'anomocytic' stomata?
- p) What are 'trabeculae'? Where are they found?
- q) What are sunken stomata? Where are they present?
- r) What are lenticels?
- s) What are 'endarch' and 'exarch' xylem ? Where are they present?
- t) What is an amphiphloic siphonostele?

2. Discuss in brief the following: (5 marks)-

- a) Draw and describe the different types of stele which you have studied
- b) State the Korper-Kappa theory of root apical organisation with illustrations.
- c) Outline with illustrations the various stages in which 'intrastelar' secondary growth takes place in the plants.
- d) Describe the various thickenings found in the cell wall and mention their distribution.
- e) Describe the anatomical adaptations of hydrophytes.
- f) Discuss the role played by *plant anatomy* in the branch of *plant systematics*.
- g) Write a note on the different stomatal types according to *Metcalf and Chalk*.
- h) Describe the anatomical adaptations seen in xerophytes.
- i) Differentiate between 'spring wood' and 'autumn wood'.
- j) Discuss the various theories proposed to address the 'growth of the cell wall'

3. Answer the following questions: (10 marks)

- a) Write a note on the structure of 'Plasmodesmata'. State its important functions. Differentiate between Apoplast and Symplast. 5+2+3
- b) Write a note on the 'Extrastelar' secondary growth. With suitable diagram comment on the anomalous secondary growth in the *Tinospora sp* root. 5+5
- c) Describe in brief the chemical constituents of the cell wall. Write a detailed note on the ultrastructure of the cell wall 5+5
- d) Describe the anomalous secondary growth in *Tecoma sp*, *Bignonia sp*, *Boerhavia sp*, *Dracaena sp* and with diagrams. 2.5x4
- e) What are mechanical tissues? Give examples. Discuss the principle of distribution of mechanical tissues in leaves and stem. 2+1+7
- f) Illustrate with diagrams the Tunica – Corpus theory of shoot apex organization. Outline the scope of plant anatomy in forensic sciences. 6+4