

[This question paper contains 2 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 5664

J

Unique Paper Code : 2162012403

Name of the Paper : Developmental Biology of Angiosperms: Form,
Anatomy and Function

Name of the Course : Botany

Semester : IV

Duration : 2 Hours

Maximum Marks : 60

Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **Four** questions in all. **All** questions carry equal marks.
3. **All** parts of questions must be attempted together.
4. Question No. 1 is compulsory.
5. Draw well labelled diagrams wherever necessary.

1. A. Fill in the blanks (any **five**):

- (a) _____ is a commonly used clearing agent.
- (b) Sclereids with dilated ends resembling bones are called _____.
- (c) Lateral roots originate from _____.
- (d) Histogen theory was given by _____.
- (e) Sugarcane leaves show special type of anatomy known as _____.
- (f) Water secretion from margins of leaves occur through pores called _____.
- (g) _____ is a specialized parenchyma cell which is associated with a sieve tube element and arises from the same mother cell.

-(5×1=5)-

B. Define the following (any **five**):

- (a) Transfer cells
- (b) Rhytidome
- (c) Bulliform cells
- (d) Phloem wedges
- (e) Periderm
- (f) Maceration
- (g) Quiescent centre

(5×1=5)

P.T.O.

C. Give one word for the following (any **five**):

- (a) Needle shaped crystals of calcium oxalate found in many plants.
- (b) The time interval between the formation of one leaf primordium and the next
- (c) In wood, elements of xylem are blocked by balloon-like ingrowths.
- (d) Vascular bundles with phloem on either side of xylem.
- (e) A multicellular epidermal layer found around orchid roots consisting of dead cells with lignified secondary cell walls.
- (f) Suberin thickening bands in endodermal cells.
- (g) Phloem patches enclosed within secondary xylem. (5×1=5)

2. Write short notes on the following (any **three**):

- (a) Classification of stomata by Metcalfe and Chalk
- (b) Seasonal activity of cambium
- (c) Secretory system in plants
- (d) Korper-Kappe theory
- (e) Application of Plant Anatomy in Forensics (3×5=15)

3. Differentiate between the following (any **three**):

- (a) Monocot and dicot stem
- (b) Tracheids and Vessels
- (c) Sapwood and Heartwood
- (d) Stratified and Non-stratified Cambium (3×5=15)

4. Draw well labelled diagrams of the following (any **three**):

- (a) V.S. *Zea mays* leaf
- (b) T.S. *Helianthus* root
- (c) V.S. of *Ficus* leaf showing lithocyst
- (d) L.S. of Root Apex (3×5=15)

5. (a) Describe the structure and function of simple tissues with well labelled diagrams. (8)

(b) Discuss secondary growth in dicot stem along with suitable diagrams. (7)

6. (a) What are the characteristic features of meristematic cells? Give a brief account of any three theories for the organization of Shoot Apical Meristem. (8)

(b) Give a detailed account of anatomical adaptations in stem of a xerophytic plant with well labelled diagram. (7)