



# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

**B.Sc. DEGREE EXAMINATION – PLANT BIOLOGY AND PLANT BIOTECHNOLOGY**

**FIRST SEMESTER – APRIL 2023**

## **UPB 1502 – PLANT ANATOMY AND EMBRYOLOGY**

Date: 09-05-2023

Dept. No.

Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

### **SECTION A - K1 (CO1)**

**Answer ALL the Questions**

**(10 x 1 = 10)**

**1. Fill in the blanks**

- a) The cell wall in plants is predominantly made of \_\_\_\_\_.
- b) Phloem wedges are seen in \_\_\_\_\_.
- c) Rubiaceous type of stomata is also known as \_\_\_\_\_.
- d) The two types of tapetum are \_\_\_\_\_ and \_\_\_\_\_.
- e) The exalbuminous seeds are called as \_\_\_\_\_.

**2. State whether the following sentences are TRUE or FALSE**

- a) Middle lamella is made of lignin.
- b) Bicollateral vascular bundles are seen in Cucurbirtaceae.
- c) Guard cells have chloroplast.
- d) Pollination by wind is called entomophily.
- e) Ruminant endosperm is seen in coconut.

### **SECTION A – K2 (CO1)**

**Answer ALL the Questions**

**(10 x 1 = 10)**

**3. Choose the correct answer**

- a) Phellogen is an example for \_\_\_\_\_ meristem.  
i) apical      ii) intercalary      iii) primary      iv) secondary
- b) Bicollateral vascular bundles are seen in the stem of  
i) Poaceae      ii) Apocyanaceae      iii) Cucurbitaceae      iv) Rubiaceae
- c) In monocot leaf, the shape of the stomata is  
i) cup shaped      ii) kidney shaped      iii) dumb-bell shaped      iv) star shaped
- d) Pollen tube is formed from  
i) vegetative cell      ii) generative cell      iii) endexine      iii) ektexine
- e) The cyclic parthenogenesis is otherwise called as  
i) complete parthenogenesis      ii) incomplete parthenogenesis  
iii) hybrid parthenogenesis      iv) haploid parthenogenesis

**4. Answer the following, each within 50 words**

- a) Mention any two features of collenchyma.
- b) Define dendrochronology.
- c) Comment on bulliform cells.
- d) Differentiate exine from intine.
- e) PEN - expand and comment.

**SECTION B - K3 (CO2)**

**Answer any TWO of the following in 500 words**

**(2 x 10 = 20)**

**Draw diagrams / flowcharts wherever necessary**

5. Outline the features of parenchyma.
6. Explain the types of vascular bundles.
7. Illustrate the primary structure of dicot root.
8. Present the internal structure of a mature anther.

**SECTION C – K4 (CO3)**

**Answer any TWO of the following in 500 words**

**(2 x 10 = 20)**

**Draw diagrams / flowcharts wherever necessary**

9. Describe the characteristics of xylem tissue.
10. Outline the anatomy of *Dracaena* stem.
11. Illustrate the different types of ovules.
12. Explain about endosperm and its types.

**SECTION D – K5 (CO4)**

**Answer any ONE of the following in 1000 words**

**(1 x 20 = 20)**

**Draw diagrams / flowcharts wherever necessary**

13. Compile the various theories related to the organization of apical meristems.
14. Summarize the process of fertilization and add notes on its types.

**SECTION E – K6 (CO5)**

**Answer any ONE of the following in 1000 words**

**(1 x 20 = 20)**

**Draw diagrams / flowcharts wherever necessary**

15. Compare the anatomy of dicot and monocot stem.
16. Elucidate and illustrate the various types of pollination.

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