# LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

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

FIRST SEMESTER – **NOVEMBER 2022**

**UPB 1502 – PLANT ANATOMY AND EMBRYOLOGY**

Date: 03-12-2022 Dept. No. Max. : 100 Marks

Time: 01:00 PM - 04:00 PM

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|---|---|---|---|
| | **SECTION A** | **(20 marks)** | |
| **Answer ALL the Questions** | | | |
| **1.** | **Choose the correct answer** | **(5 x 1 = 5)** | |
| a) | Pectin and Pectic acid are seen in the cell wall of<br>i) parenchyma ii) collenchyma iii) sclerenchyma iv) aerenchyma | K1 | CO1 |
| b) | In a vascular bundle, if phloem is surrounded by xylem it is called<br>i) amphicribal ii) amphivasal<br>iii) radial iv) collateral | K1 | CO1 |
| c) | In dicot roots, the bundles of xylem are<br>i) endarch ii) exarch iii) monarch iv) diarch | K1 | CO1 |
| d) | The fruits are formed from<br>i) ovary ii) ovule iii) zygote iv) stigma | K1 | CO1 |
| e) | What is the process by which seeds are formed without the union of gametes?<br>i) apomixis ii) androgenesis iii) gynogenesis iv) fertilization | K1 | CO1 |
| **2.** | **Complete the following sentences** | **(5 x 1 = 5)** | |
| a) | The histogen theory was proposed by _____. | K1 | CO1 |
| b) | The epidermal hairs are also known as _____. | K1 | CO1 |
| c) | The conjunctive tissue is _____. | K1 | CO1 |
| d) | P0 group of pollen grains refers to _____. | K1 | CO1 |
| e) | Anther culture is used for production of _____ plants. | K1 | CO1 |
| **3.** | **Answer the following, each within 50 words** | **(5 x 2 = 10)** | |
| a) | Mention any two features of chlorenchyma. | K2 | CO1 |
| b) | Define leaf gap and leaf trace. | K2 | CO1 |
| c) | Differentiate wood from bast. | K2 | CO1 |
| d) | Write a note on endothecium. | K2 | CO1 |
| e) | Comment on androgenesis. | K2 | CO1 |
| | **SECTION B** | | |
| **Answer any TWO of the following each within 500 words. Draw diagrams / flowcharts wherever necessary.** | | **(2 x 10 = 20)** | |
| 4. | Explain the characteristics of collenchyma. | K3 | CO2 |
| 5. | Outline the anatomical features of the *Bignonia* stem. | K3 | CO2 |
| 6. | Explain the anatomy of a monocot leaf | K3 | CO2 |
| 7. | Present the structure of Ovule with its various parts. | K3 | CO2 |
| | **SECTION C** | | |
| **Answer any TWO of the following each within 500 words. Draw diagrams / flowcharts wherever necessary.** | | **(2 x 10 = 20)** | |
| 8. | Write notes on sclerenchyma and its types. | K4 | CO3 |
| 9. | Describe the anatomy of dicot stem. | K4 | CO3 |
| 10. | Compile the features of various types of stomata in dicots and monocots. | K4 | CO3 |
| 11. | Outline the process of the development of dicot embryo. | K4 | CO3 |

## SECTION D

**Answer any ONE of the following within 1000 words. Draw diagrams / flowcharts wherever necessary. (1 x 20 = 20)**

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|---|---|---|---|
| 12. | Consolidate the anatomical features of xylem and phloem tissue. | K5 | CO4 |
| 13. | Summarize and illustrate the NPC system of classification of pollen grains. | K5 | CO4 |

## SECTION E

**Answer any ONE of the following within 1000 words. Draw diagrams / flowcharts wherever necessary. (1 x 20 = 20)**

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|---|---|---|---|
| 14. | Summarize the anatomical features of monocot and dicot roots. | K6 | CO5 |
| 15. | Comparatively analyse the details of parthenogenesis with parthenocarpy. | K6 | CO5 |

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