

**(FOR THE CANDIDATES ADMITTED  
DURING THE ACADEMIC YEAR 2021 ONLY)**

**21UBY304**

**REG.NO. :**

**N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI**

**END-OF-SEMESTER EXAMINATIONS: DECEMBER-2022**

**COURSE NAME: B.Sc.-BOTANY**

**MAXIMUM MARKS: 70**

**SEMESTER: III**

**TIME : 3 HOURS**

**PART - III**

**ANATOMY AND EMBRYOLOGY**

**SECTION - A**

**(10 X 1 = 10 MARKS)**

**ANSWER THE FOLLOWING QUESTIONS.**

**MULTIPLE CHOICE QUESTIONS.**

**(K1)**

1. Which of the following is not a permanent tissue?  
a) xylem      b) cambium      c) phloem      d) bark cells
2. Choose a plant from the following which is a monocot that shows secondary growth like tissue.  
a) *Zea*      b) *Tridax*      c) *Dracaena*      d) *Boerhavia*
3. Select the answer which is not related to nodal anatomy \_\_\_\_\_.  
a) leaf gap      b) leaf trace      c) intercalary meristem      d) petiole
4. In angiosperms, the endosperm is product of \_\_\_\_\_.  
a) polar cell      b) fertilized polar nuclei      c) degenerated polar nuclei      d) sporophyte
5. Which of the following is not essential for pollination?  
a) CO<sub>2</sub>      b) viable pollen      c) receptive stigma      d) viable egg

**ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES.**

**(K2)**

6. What is differentiation of cells?
7. Define the primary structure of plants.
8. What are xerophytic plants?
9. Which plays the role of male gametophyte in angiosperm?
10. What is parthenocarpy?

**SECTION – B**

**(5 X 4 = 20 MARKS)**

**ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. K3**

11. a) Explain the typical structure of vascular bundles in dicots  
**(OR)**
- b) List down the characters of meristems.

12.a) Brief the secondary growth of dicots.  
**(OR)**  
b) How will you differentiate anomalous secondary growth from normal secondary growth?

13.a) Compare and contrast the anatomy of dicot and monocot leaves.  
**(OR)**  
b) Apply the xerophytic adaptations to *Casuarina*

14.a) Discuss the various types of ovules.  
**(OR)**  
b) Critically evaluate the development of typical female gametophytes.

15.a) List the advantages of double fertilization.  
**(OR)**  
b) Classify the types of endosperms.

**SECTION - C****(4 X 10 = 40 MARKS)****ANSWER ANY FOUR OUT OF SIX QUESTIONS****(16<sup>th</sup> QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS  
(FROM Qn. No : 17 to 21) (K4 (Or) K5)**

16. Elaborate the mitosis cell division with suitable diagrams.
17. Apply the apical meristem theories to shoot apex.
18. Give a detailed account of secondary growth of dicot stem.
19. Elaborate the types of stomata.
20. Analyse the megasporogenesis in *Polygonum*
21. Explain the stages of embryo development in *Capsella*.

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