

[This question paper contains 8 printed pages.]

**Your Roll No.....**

**Sr. No. of Question Paper : 1714**

**C**

Unique Paper Code : 42164301

Name of the Paper : Plant Anatomy and Embryology

Name of the Course : **B.Sc.** **Life Science**

Semester : III

Duration : 3 Hours

Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt **Section A** and **Section B** on separate sheets.
3. All parts of a question must be answered together.
4. Supplement your answer with well labelled diagram.



SECTION A  
(37 marks)

Attempt three questions from  
Section A including Question number 1,  
which is compulsory.

1. (a) Fill in the blanks (Any four)

(4+3=7)

- (i) \_\_\_\_\_ In collenchyma the thickening material is deposited on the walls bordering the intercellular spaces.
- (ii) The protoxylem vessels generally have \_\_\_\_\_ and \_\_\_\_\_ thickening.
- (iii) The histogen theory was given by \_\_\_\_\_
- (iv) Epidermis that develops multiseriate tissue is called \_\_\_\_\_.
- (v) Plants growing immersed in water are called \_\_\_\_\_.



- (vi) The wall thickening impregnated with suberin and lignin on the radial and transverse walls of endodermis is called \_\_\_\_\_.

(b) Define the following terms (**any three**)

- (i) Chlorenchyma
- (ii) Quiescent centre
- (iii) Hypostomatic leaf
- (iv) Bulliform cells (1×3=3)

2. Differentiate between any **three** of the following : (3×5=15)

- (a) Sclereids and fibres
- (b) Isobilateral and dorsiventral leaf
- (c) Storied and Non-storied cambium
- (d) Heart wood and Sap wood
- (e) Monocot and dicot root



3. Write short notes on any **three** of the following :

(5×3=15)

- (a) Sclerenchyma
- (b) Cytohistological zonation
- (c) Vascular Cambium
- (d) Secondary growth in stem
- (e) Seasonal activity of cambium

4. (a) What are meristematic tissues? Describe different types of meristematic tissues with example.

(7+8=15)

**OR**

Define xerophytes. What adaptive features they possess to withstand that environment? (7)

(b) Give a brief account of various theories to describe shoot apical meristem.

**OR**



Describe Metcalfe and Chalk theory and different types of structural configuration proposed by them. (8)

### SECTION B

(38 MARKS)

*Attempt three questions from Section B including Question number 1, which is compulsory.*

1. Fill in the blanks (any eight) : (1×8=8)

- (a) The phenomenon of double fertilization was given by \_\_\_\_\_
- (b) Pollination by bats is known as \_\_\_\_\_
- (c) Ubisch bodies are produced by \_\_\_\_\_ tapetum.
- (d) A small opening at the apical end of the ovule is known as \_\_\_\_\_



- (e) The condition where the stigma loses its receptivity by the time the anthers of the same flower dehisce is known as \_\_\_\_\_.
- (f) The phenomenon which involves fusion of nucleus of one of the sperms with the polar nuclei is called \_\_\_\_\_.
- (g) The basal region of an ovule where funiculus is attached is called as \_\_\_\_\_.
- (h) Geitonogamy and xenogamy are the types of \_\_\_\_\_ pollination.
- (i) Finger like projections present in synergid cells are called as \_\_\_\_\_.
- (j) \_\_\_\_\_ type of embryo sac is genetically most heterogenous.

2. Differentiate between any **three** of the following :

(5×3=15)

(a) Dichogamy and herkogamy

(b) Self pollination and cross pollination



(c) Amoeboid and secretory tapetum

(d) Monosporic and tetrasporic embryo sac

(e) Dicot and monocot embryo

3. Write short notes on any **three** of the following :

(3×5=15)

(a) Egg apparatus

(b) Male germ unit

(c) Double fertilization and triple fusion in angiosperms

(d) Name any five eminent embryologists along with their significant contributions

(e) Anther at dehiscence stage

4. Give a detailed account of different types of endosperm with examples. Discuss embryo-endosperm relationship.

OR



Discuss different seed dispersal mechanisms and its adaptations in plants.

(15)

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