

[This question paper contains 6 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 836

I

Unique Paper Code : 32165102

Name of the Paper : Plant Anatomy and Embryology

Name of the Course : Botany : G.E. for Honours

Semester : I

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 Five questions in all including Question No. 1 which is compulsory.
3. All questions carry equal marks.
4. Attempt all parts of a question together.
5. Draw well labelled diagrams whenever necessary.

1. (a) Define the following terms (**any five**) : (1×5=5)

(i) Double fertilization

(ii) Geitonogamy

(iii) Bark

- (iv) Pollination
- (v) Exarch or Endarch
- (vi) Microsporogenesis
- (vii) Cambium

(b) Fill in the blanks (any five) :

(1×5=5)

- (i) cells are located at the chalazal end of the embryo sac.
- (ii) The third integument present in some seeds called
- (iii) Parenchyma cells that contain chloroplast are called
- (iv) is a specialized parenchyma cell which is associated with a sieve tube element and arises from the same mother cell.
- (v) Casparian strips are the characteristic feature of
- (vi) is present at the micropylar end of the synergids.

(c) Match the following :

(1×5=5)

Column 1	Column 11
(i) Nuclear endosperm	(a) <i>Nerium</i> leaf
(ii) Pollen wall	(b) scattered vascular bundles
(iii) Monocot stems	(c) insects
(iv) Entomophily	(d) coconut
(v) Egg apparatus	(e) embryo sac
(vi) <i>Citrus microcarpa</i>	(f) double fertilization
(vii) S. Nawaschin	(g) adventive embryony
(viii) Porogamy	(h) sucrose, boron
(ix) Pollen germination	(i) micropyle
(x) Sunken stomata	(j) exine and intine

Differentiate between the following (any five) : (3×5=15)

- (a) Monocot and dicot stem
- (b) Secretory and amoeboid tapetum
- (c) Anemophily and entomophily
- (d) Orthotropous and anatropous ovule.

(e) Meristematic tissues & Permanent tissues

(f) Vascular cambium and cork cambium

3. Draw well label diagrams of following (**any five**) : (3×5=

(a) T.S of tetrasporangiate anther ready for dehiscence

(b) A germinating pollen grain with its wall structure.

(c) T.S. Stem of *Hydrilla*

(d) L.S. of anatropous ovule

(e) T.S. monocot root of *Zea mays*.

(f) L.S. of Root apex

4. Write short notes on (**any five**) :

(3×4=

(a) Apical meristem

(b) Epidermis

(c) Embryo-endosperm relationship

(d) Vascular cambium

(e) Role of tapetum

(f) Double fertilization

- (a) Define polyembryony? How is it classified? Discuss its practical applications. (5)
- (b) Discuss the ultrastructure of mature egg apparatus cells. (5)
- (c) What are the differences between meristematic and permanent tissues? (5)
- (a) Explain briefly how secondary growth takes place in a dicot stem with the help of suitable diagrams. (5)
- (b) What is endosperm? Discuss different types of endosperm formation with one example of each. Mention the functions of endosperm. (7)
- (c) Draw different stages of dicot embryo development in an angiosperm. (3)
- (a) Discuss the functions of suspensor. (2)
- (b) What is wood? Differentiate between heartwood and sapwood. (3)
- (c) Give the general account of adaptations in xerophytes and hydrophytes. (5)

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