

This question paper contains 6 printed pages

Your Roll No.....

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Sr. No. of Question Paper : 7386

Unique Paper Code : 32161501

Name of the Paper : Reproductive Biology of Angiosperms

Name of the Course : B.Sc. (Hons.) Botany

Semester : V

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 parts of a question must be attempted together.
4. Draw well-labelled diagrams wherever necessary.

(a) Fill in the blanks (**any six**) :

(6×1=6)

(i) Rejection reaction occurs at the stigma surface in _____ self-incompatibility.

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- (ii) Pseudo-embryo sac is a characteristic feature of the family _____.
- (iii) _____ is a fleshy outgrowth of the integument at the micropylar region of the seed which helps in dispersal and germination.
- (iv) Coconut milk is an example of _____.
- (v) The presence of composite endosperm is a characteristic feature of the family _____.
- (vi) The contents of the pollen tube are discharged in _____ cell of the embryo sac.
- (vii) Hypodermal position of megaspore mother cell is characteristic of _____ ovules.

(b) Define **any six** of the following terms :

(6×1=6)

- (i) Cleistogamy
- (ii) Hypostase
- (iii) Palynology

- (iv) Cybrids
- (v) Aril
- (vi) Nemec Phenomenon
- (vii) Diplospory
- (viii) Helobial Endosperm

(c) Write the contributions of the following embryologists (**any two**) : (2×1.5=3)

- (i) G.B. Amici
- (ii) E. Strasburger
- (iii) B. M. Johri

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

- (i) Anemophily and Hydrophily
- (ii) Simultaneous and Successive Cytokinesis
- (iii) Vegetative and Generative cell
- (iv) Autochory and Anemochory

(v) Gametophytic and Sporophytic Self-
Incompatibility

(vi) Endothecium and Endothelium

3. Write short notes on the following (any three):
(3×5=15)

(i) Bisporic Embryo sac development

(ii) Germ line transformation

(iii) Embryogenesis in *Paeonia*

(iv) Pollen wall structure

4. Answer the following (any three): (3×5=15)

(a) What are the different methods used to overcome incompatibility? Explain any two methods in detail.

(b) Describe the floral mechanisms favouring cross-pollination in bisexual flowers.

(c) What are the various methods used for pollen storage? Briefly outline the practical applications of the technique of pollen storage.

- (d) Explain the development of *Plumbago* type of embryo sac diagrammatically and mention the ploidy of primary endosperm nucleus.

Attempt **any three** :

(3×5=15)

- (a) Define apomixis. What is the difference between apospory and adventive embryony?

- (b) Write briefly about the functions of the anther tapetum.

- (c) Explain the structure and the role played by the synergids in double fertilization.

- (d) What is unique about the microsporogenesis in Cyperaceae?

6. Answer the following (any **three**) : (3×5=15)

- (a) What are the different pathways taken by the pollen tube to enter the ovule?

- (b) Explain the different factors affecting the germination of pollen grains.

- (c) What is the difference between cleavage polyembryony and adventive polyembryony?
- (d) Draw well-labelled diagrams of :
- (i) Male Germ Unit of *Plumbago zeylanica*.
 - (ii) T.S. tetrasporangiate anther showing secretory tapetum and microspore tetrads.