2/12/19 M

[This question paper contains 6 printed pages.]

Your Roll No.....

Sr. No. of Question Paper : 7386 J

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.

1. (a) Fill in the blanks **(any six)** : (6×1=6)

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

P.T.O.

(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

2. 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

P.T.O.

(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

P.T.O.

(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)** : (3x5=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.

5. 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.