

[This question paper contains 4 printed pages.]

Sr. No. of Question Paper : 762 E Your Roll No.....

Unique Paper Code : 216603

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

Name of the Paper : Reproductive Biology of Angiosperms [BTHT-611]

Semester : VI

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 the parts of a question must be attempted together.
4. Draw well-labelled diagrams and write botanical names wherever necessary.

1. (a) Fill in the blanks : (5×1=5)

(i) In 1898 _____ discovered double fertilization in *Fritillaria* and *Lilium*.

(ii) _____ is formed by oxidative polymerization of carotenoids.

(iii) Five types of microspore tetrads are found in _____.

(iv) *Citrus microcarpa* shows _____ embryony.

(v) Synergids are absent in _____ type of embryo sac.

(b) Write the name of the family or genus showing the following features :

(5×1=5)

(i) Circinotropous ovule

(ii) Composite endosperm

P.T.O.

(iii) Antipodal haustoria

(iv) Compound pollen

(v) Reduced embryos

(c) Define the following :

(5×1=5)

(i) Polyspory

(ii) Bambacioni effect

(iii) Heterofertilization

(iv) Ruminant endosperm

(v) Diplospory

2. Differentiate between the following (any five) :

(5×3=15)

(i) Crassinucellate and tenuinucellate ovules

(ii) Integumentary tapetum and tapetum

(iii) Pollen embryo sac and embryo sac

(iv) Vegetative cell and generative cell

(v) *Oenothera* and *Allium* type of embryo sac

(vi) Chalazogamy and Porogamy

(vii) Anemophily and Entomophily

3. (a) Draw well labelled diagrams for the following :

(2.5×2=5)

(i) T.S. tetrasporangiate anther showing secretory tapetum.

(ii) L.S. of orthotropous, unitegmic, tenuinucellate ovule showing *Adoxa* type of embryo sac.

- (b) Describe the evidences to support the view that endosperm provides nutrition to the developing embryo. (5)
- (c) Describe two methods to overcome self-incompatibility. (5)
4. Write short notes on the following (any five) : (5×3=15)
- (i) Helobial endosperm
 - (ii) Importance of pollen storage
 - (iii) Synergids
 - (iv) Pollen kitt
 - (v) Contribution of J. Heslop-Harrison in the field of plant embryology
 - (vi) Practical importance of Apomixis
 - (vii) Pollination in *Yucca*
5. (a) There are 280 pollen mother cells in an anther of a plant that belongs to family Cyperaceae. How many pollen grains will be present in an anther ? Explain. (5)
- (b) Describe the factors that influence pollen germination and pollen tube growth under *in vitro* conditions. (5)
- (c) Describe suspensor organisations in Orchidaceae. (5)
6. (a) Explain the significance of callose deposition during microsporogenesis and megasporogenesis. (5)
- (b) What is parasexual hybridization ? Explain briefly. (5)
- (c) Describe MGU. (5)
7. (a) Comment on the structure and function of obturator and hypostase in the seed. (5)

- (b) Describe floral mechanisms favouring cross-pollination. (5)
- (c) Draw labelled diagrams of mature embryo sacs in *Oenothera*, *Polygonum*, *Plumbago* and *Peperomia*. Also mention the ploidy level of their endosperm formed after fertilization. (5)