



iii. It is situated inside the integument but outside the nucellus  
iv. It has an egg apparatus situated at the chalazal end

- (a) i and iv (b) ii and iii  
(c) i and ii (d) ii and iv

Answer. (c) A typical female gametophyte of a flowering plant is 8-nucleate and 7-celled at maturity and free-nuclear during the development.

Question.10. Autogamy can occur in a chasmogamous flower if

- (a) Pollen matures before maturity of ovule  
(b) Ovules mature before maturity of pollen  
(c) Both pollen and ovules mature simultaneously  
(d) Both anther and stigma are of equal lengths

Answer. (c) In a normal flower which opens and exposes the anthers and stigma complete autogamy is rather rare. Autogamy in such flowers requires synchrony in pollen release and stigma receptivity and also, the anthers and the stigma should lie close to each other so that self-pollination can occur.

Question.11. Choose the correct statement from the following:

- (a) Cleistogamous flowers always exhibit autogamy  
(b) Chasmogamous flowers always exhibit geitonogamy  
(c) Cleistogamous flowers exhibit both autogamy and geitonogamy  
(d) Chasmogamous flowers never exhibit autogamy

Answer. (a) Cleistogamous flowers are invariably autogamous as there is no chance of cross-pollen landing on the stigma. Cleistogamous flowers produce assured seed-set even in absence of pollinators.

E.g. of cleistogamous flowers are *Viola* (common pansy), *Oxalis*, *Commelina*, *Arachis hypogea* and *Oryza sativa*.

Question.12. A particular species of plant produces light, non-sticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by

- (a) Insects (b) Water (c) Wind (d) Animals

Answer. (c) Pollination by wind is called anemophily. Anemophilous flowers are small, inconspicuous non-scented without bright colours, nectar and fragrance. Wind pollination also requires that the pollen grains are light and non-sticky which is in large numbers and its stigmas are long and feathery.

Question.13. From among the situations given below, choose the one that prevents both autogamy and geitonogamy.

- (a) Monoecious plant bearing unisexual flowers  
(b) Dioecious plant bearing only male or female flowers  
(c) Monoecious plant with bisexual flowers  
(d) Dioecious plant with bisexual flowers

Answer. (b)

- Autogamy (same flower); geitonogamy (different flowers of same plants; xenogamy (different plant's flower)
- Dioecious plant bearing only male or female flowers prevents both autogamy and geitonogamy.

Question.14. In a fertilised embryo sac, the haploid, diploid and triploid structures are

- (a) Synergid, zygote and primary endosperm nucleus
- (b) Synergid, antipodal and polar nuclei
- (c) Antipodal, synergid and primary endosperm nucleus
- (d) Synergid, polar nuclei and zygote

Answer. (a) In a fertilised embryo sac, the haploid, diploid and triploid structures are synergid, zygote and primary endosperm nucleus, respectively.

Question.15. In an embryo sac, the cells that degenerate after fertilisation are

- (a) Synergids and primary endosperm cell
- (b) Synergids and antipodals
- (c) Antipodals and primary endosperm cell
- (d) Egg and antipodals

Answer. (b) In an embryo sac, synergids and antipodals degenerate after fertilisation.

1. Ovary	Fruit
2. Ovary wall	Pericarp (fruit wall)
3. Ovule	Seed
4. Outer integument	Testa (Outer seed coat)
5. Inner integument	Tegmen (Inner seed coat)
6. Secondary nucleus	Endosperm
7. Egg	Zygote

Question.16. While planning for an artificial hybridization programme involving dioecious plants, which of the following steps would not be relevant?

- (a) Bagging of female flower
- (b) Dusting of pollen on stigma
- (c) Emasculation
- (d) Collection of pollen

Answer. (c)

• Artificial hybridisation is one of the major approaches of crop improvement programme. In such crossing experiments it is important to make sure that only the desired pollen grains are used for pollination and the stigma is protected from contamination (from unwanted pollen). This is achieved by emasculation and bagging

techniques.

- Emasculation is relevant in monoecious plants.