



Mentor Guru

Class 12 – Biology

Chapter 1 – Sexual Reproduction in flowering Plants

Very short types question with answer

Q.1. What are the component cells of the egg apparatus in an embryo sac?

A.1. An egg apparatus consists of:

- One egg cell
- Two synergids

Q.2. Which part of gynoecium determines the compatible nature of pollen grain?

A.2. Stigma

Q.3. What is common in the function performed by nucellus and cotyledon?

A.3. The cotyledons and nucellus both store reserve food material and does the work of providing nourishment- nucellus (embryo sac), cotyledons (embryo).

Q.4. Fill in the missing words:

Pollen mother cell → Pollen tetrad → Pollen grain → Vegetative cell, _____? _____

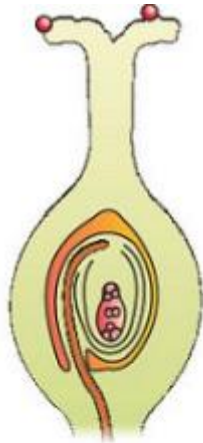
A.4. Generative cell

Q.5. In the following events, indicate the stages where mitosis and meiosis occur (1,2,3).

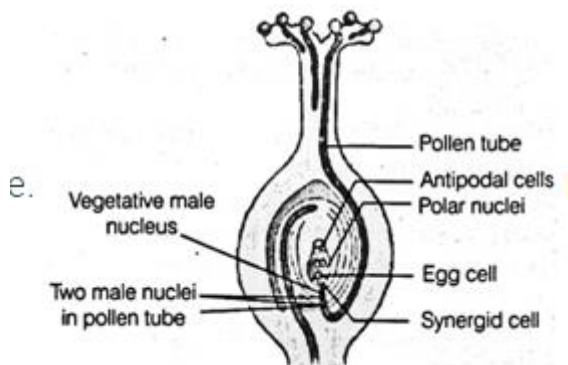
Megaspore mother cell →(1)→Megaspores→(2)→Embryo sacs→(3)→Egg

A.5. 1- Meiosis 2- Mitosis 3- Meiosis

Q.6. Show the direction of the pollen tube from the pollen on the stigma in the embryo sac in the given diagram.



A.6.



Q.7. Which regions of pistil form fruits and seeds?

A.7. The **ovary** develops into a **fruit**. The **ovule** develops into the **seed**.

Q.8. During polyembryony, if one embryo is formed from synergids and the other from nucellus, state the one that is haploid and the one that is diploid.

A.8. Embryo developed from the synergid- haploid Embryo developed from the nucellus- diploid.

Q.9. Is it possible that an unfertilized apomictic embryo sac gives rise to a diploid embryo? Give a reason in support of your answer.

A.9. Yes, an unfertilized apomictic embryo sac can give rise to a diploid embryo. If the megaspore develops into an embryo sac without mitotic division, it will give rise to a diploid embryo.

Q.10. When a pollen grain is shed at the 3-celled stage, which three cells are found?

A.10. The following three cells are found at the three-celled stage:

- One vegetative cell
- Two male gametes

Q.11. Define self-incompatibility. How do self-incompatible plants pollinate?

A.11. Self-incompatibility is a genetic mechanism in which the growth of the pollen tube in the pistil is inhibited which prevents self pollens from fertilizing the ovules. The self-incompatible plants pollinate by cross-pollination.

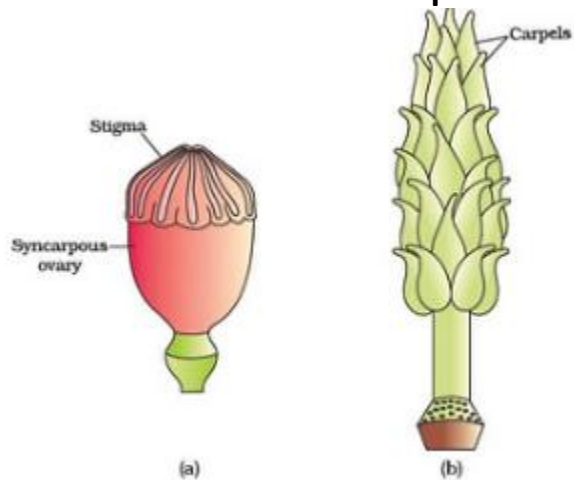
Q.12. Which is a triploid tissue? How is the condition achieved in a fertilized ovule?

A.12. The endosperm is a triploid tissue in a fertilized ovule. Triple fusion, leading to the fusion of one male gamete and two haploid polar nuclei form the triploid tissue.

Q.13. Does apomixis require fertilization and pollination? Give reasons in support of your answer.

A.13. No, apomixis does not require pollination and fertilization. This is because apomixis is a form of asexual reproduction in which the female reproductive apparatus is used. The embryos can develop directly from the nucellus or synergids.

Q.14. Mention the kind of carpel in the diagram given below.



A.14.

- (a) Multicarpellary, the syncarpous pistil of *Papaver*
- (b) Multicarpellary, apocarpous gynoecium of *Michelia*

Q.15. How do aquatic plants undergo pollination?

A.15. A few aquatic plants have their flowers growing in the air. They are pollinated by the insects. Other plants that have their flowers submerged in water release their pollen in the water that drifts in the water and are caught by the feathery stigma of female flowers.

Q.16. Each pollen grain in the flowering plants produces male gametes. State the function of the male gametes.

A.16. One male gamete fuses with the nucleus of the egg cell, while the other male gamete moves towards the two polar nuclei present in the central cell and fuses with it to form a triploid primary endosperm nucleus.

Q.17. List out the agents of pollination.

A.17. The pollinating agents are involved in transferring pollen grains from the male to the female part of the flower. Animals, birds, insects, wind and other biotic and abiotic agents are all examples of pollinating agents.

Q.18. What is pollination?

A.18. Pollination is a process of transferring pollen grains from the male anther of a flower to the flower's female part called the stigma. Pollination is the sexual mode of reproducing, which is carried out by all flowering plants of a plant kingdom.

Q.19. What are the stages of post-fertilization in plants?

A.19. In all flowering plants, the post-fertilization is a critical stage which occurs after the double fertilization and includes the series of steps:

1. Endosperm development.
2. Embryo improvement.
3. Development of ovule into a seed.
4. Development of ovary into a fruit.

Q.20. What are the male and female reproductive parts of a flower?

A.20. A flower plays a vital role in the reproduction process of a plant. Therefore, it is called the reproductive organ of plants.

The male reproductive parts of the flower include the stamen the filament and the anther, which are collectively termed the androecium.

The female reproductive parts of the flower include carpels, pistils, stigma, style and an ovary, which are collectively termed the gynoecium.

Q.21. What is cross-pollination?

A.21. Cross-Pollination is the complex type of pollination during which the pollen grains are transferred from the anther of one flower into the stigma of another flower. This type of pollination makes use of both biotic and abiotic agents like wind, water, insects, birds, animals, and other agents as pollinators.

Q.22. Define double fertilization.

A.22. In plants, double fertilization refers to the fusion of one female gametophyte with two male gametophytes. It is a complex process in all flowering plants.

Q.23. What are the main layers of a flower?

A.23. There are different types of flowers in a plant kingdom. A few among them vary in colour, structure, shape, etc. However, all flowers have unique layers. The four main layers of a flower:

1. Calyx
2. Corolla
3. Androecium
4. Gynoecium

Q.24. Define Morphogenesis.

A.24. Morphogenesis is defined as a biological process which controls the growth, development in size, shape and structure and distribution of cells during the embryonic development of an organism.

Q.25. State the role of endothecium.

A.25. The endothecium protects the microsporangium and helps in the dehiscence of anther for the release of pollen grains.