

**CBSE Test Paper 04**  
**Ch-2 Sexual Reproduction in Flowering Plants**

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1. Statement I: Megaspore mother cell undergoes meiotic division to form four megaspores. Statement II: One of the megaspore degenerate and three remain functional. Statement III: Only functional megaspore develops into female gametophyte.
  - a. All three statements are correct.
  - b. Statement I and II are correct
  - c. Statement I and III are correct
  - d. All statements are incorrect.
2. Which type of flower have ovary superior?
  - a. None of these
  - b. Perigynous
  - c. Epigynous
  - d. Hypogynous
3. The cleavage of the zygote or earlier stage of its development into two or more units to form many embryo is called as
  - a. Primary polyembryony
  - b. Spontaneous polyembryony
  - c. Secondary polyembryony
  - d. Cleavage polyembryony
4. The outer most layer of maize endosperm is
  - a. Perisperm
  - b. Tapetum
  - c. Endothecium
  - d. Aleurone
5. The fertilisation in which male gametes are carried through pollen tube is called as
  - a. Syngamy
  - b. Chalazogamy
  - c. Siphonogamy
  - d. Porogamy

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6. Why does the zygote begin to divide only after formation of primary endosperm cell?
  7. The probability of fruit set in a self-pollinated bisexual flower is far greater than a dioecious plant. Analyze.
  8. Write the function of the Coleoptile.
  9. An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Give reason.
  10. Mention two strategies evolved to prevent self pollination in flowers.
  11. The characteristic features and function of tapetum.
  12. What is meant by emasculation? When and why does a plant breeder employ this technique?
  13. What is double fertilization? Mention its significance.
  14. Draw a vertical section of maize grain label any three embryonic and three other parts.
  15. Draw a labelled diagram of the sectional view of a mature pollen grain of angiosperms. Explain the function of any two of its parts.

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**Answer**

1. c. Statement I and III are correct, **Explanation:** The megaspore mother cell undergoes meiotic division to form four megaspores. One megaspore becomes functional and other three degenerate. The functional megaspore develops into female gametophyte.
2. d. Hypogynous, **Explanation:** In hypogynous flower ovary is located at highest position on thalamus of flower. Other floral parts are below it. These kinds of flower are called ovary superior.
3. d. Cleavage polyembryony, **Explanation:** Zygote may divide into two or more parts to develop multiple embryos. The formation of more than one embryo inside the same ovule by cleavage is called cleavage polyembryony.
4. d. Aleurone, **Explanation:** Maize is monocotyledonous seed containing large amount of endosperm as reserve food. It is covered by a thin layer called as aleurone layer. This layer is protective in nature.
5. c. Siphonogamy, **Explanation:** Pollen grain lands on stigma for pollination. The pollen grain germinates and moves towards egg through pollen tube. This male and female gamete fusion is called siphonogamy.
6. The zygote needs nourishment for its development. As the mature, fertilised embryo sac offers very little nourishment to the zygote, the PEC divides and generates the endosperm tissue by repeated division having dense cytoplasm for nourishing growing zygote. Hence, the zygote always starts division after formation of endosperm.
7. The self-pollinated bisexual flower is a sure method of pollination, as in these flowers stamens and stigma mature simultaneously or the anther and stigma are in close association to each other helping in self-pollination.
8. Coleoptile is a cap-like structure over the plumule in monocot seeds. It forms a hollow foliar structure which protects the plumule forming shoot (leaf primordia) in its early development.
9. Tapetum nourishes the developing pollen grain so a malfunctioning tapetum will fail to produce viable male gamete.
10. Flowering plants have developed many devices to discourage self pollination and to

encourage cross pollination.

(i) Dichogamy: Maturation of anthers and stigmas of a flower at different times. It is of two types:

(a) Protandry: Anthers mature earlier than the stigma.

(b) Protogyny: Stigma mature earlier than the anthers.

(ii) Self incompatibility: The pollen grains of a flower are incapable of completing growth on the stigma of the same flower.

11. The tapetal cells possess dense cytoplasm and become multinucleate or undergo endoploidy. These cells provide nutrition to the developing pollen grains. Tapetum secretes both enzymes and hormones and special proteins for the pollen grains to recognize compatibility.
12. Emasculation is the process of removal of anthers before maturation from the flower buds of female parent so that chances of self pollination are eliminated. Plant breeders employ this technique for artificial hybridization for crop improvement programme.
13. Double fertilization is the joining of a female gametophyte with two male gametes. One sperm fertilizes the egg cell and the other sperm combines with the two polar nuclei of the large central cell of the embryo sac. This helps in providing enough nutrition to the embryo during seed germination.

