## CBSE Worksheet 03 Ch-2 Sexual Reproduction in Flowering Plants

- 1. Inside the ovary the ovule is attached to placenta by means of
  - a. Funicle
  - b. Micropyle
  - c. Helium
  - d. Chalaza
- 2. Which one is the correct evolutionary sequence of gametogenesis
  - a. Pollen grain, microspore, microspore mother cell, Sporogenous tissue
  - b. Microspore mother cell, Sporogenous tissue, Pollen grain, microspore
  - c. Sporogenous tissue, microspore mother cell, microspore, pollen grain
  - d. Sporogenous tissue, microspore, pollen grain, microspore mother cell
- 3. The cotyledon of maize grain is technically called as
  - a. Funicle
  - b. Dicots
  - c. Testa
  - d. Scutellum
- 4. Assertion: In epigynous flowers, other floral organs are borne above the level of ovary.

Reason: The ovary is inferior while other floral parts are superior.

- a. Assertion is incorrect but reason is correct.
- b. Reason does not explain the assertion completely.
- c. Both assertion and reason are correct.
- d. Assertion is correct but reason is incorrect.
- 5. Female gametophyte is also known as
  - a. Embryo sac
  - b. Ovary
  - c. Nucellus
  - d. Megaspore
- 6. Strawberry is sweet and eaten raw just like any other fruit. Why do botanists call it a false fruit?

- 7. Differentiate between albuminous and non-albuminous seeds, with an example for each.
- 8. What is the edible past of litchi?
- 9. Which is the triploid tissue in a fertilised ovule? How is the triploid condition achieved?
- 10. In the given figure of a typical dicot embryo, label the parts (1), (2) and (3). State the function of each of the labeled part.



- 11. Emasculation may not be necessary, yet bagging is necessary. Justify giving the condition when such a thing can happen.
- 12. Draw a diagram of L.S. of an anatropous ovule of an angiosperm and label the following parts.
  - i. Nucellus
  - ii. Integuments
  - iii. Antipodal cells
  - iv. Secondary nucleus.
- 13. Which is the most common type of endosperm ? Give its characteristics and process of development.
- 14. Draw a labelled sketch of L.S. of pistil showing the progamous type of fertilization.
- 15. Draw a diagrammatic sketch of a dicot embryo and label any four parts including the reduced suspensor.

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## Answer

- a. Funicle, Explanation: Ovule/s are located inside the ovary. The point of attachment of ovule to ovary is called funicle. Funicle extends to helium as stalk.
- 2. c. Sporogenous tissue, microspore mother cell, microspore, pollen grain
  Explanation: The process of male gamete formation involves following events in succession as Sporogenous tissue, microspore mother cell, microspore formation and pollen grain that finally produce two male gametes.
- d. Scutellum, Explanation: Maize grain is monocotyledonous, having single cotyledon. This cotyledon is also called as scutellum
- c. Both assertion and reason are correct.
  Explanation: In Epigynous flower, the other floral organs are borne at the top of the ovary and ovary is below. Hence they are called ovary inferior while other floral parts are superior to ovary.
- a. Embryo sac, Explanation: Female gametophyte is also known as embryo sac. One out of four megaspores develops as female gametophyte. Mature embryo sac is 8 nucleated and 7 celled structure.
- 6. Strawberry is an aggregate false fruit because this fruit develops from a ovary and thalamus.

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Albuminous seeds	Exalbuminous seeds
Endosperm is present in mature seed	No residual endosperm is found in the mature seed
Endosperm is not consumed entirely by the growing embryo	Endosperm is consumed entirely by the growing embry
Cotyledons are thin	Cotyledons are thick

7.

- 8. Third integument (Fleshy Aril).
- 9. The triploid tissue in ovule is endosperm. Its triploid condition is attained due to the fusion of two polar nuclei and one haploid male gamete nucleus (due to fusion of three nucleus it is known as triple fusion).
- 10. i. Plumule forms the shoot
  - ii. Cotyledons Supply the food material
  - iii. Radical Grows into the root
- 11. When the flower chosen is unisexual (female), there is no need for emasculation. Yet bagging is necessary to prevent contamination of the stigma with unwanted pollen grains.



13. The nuclear type of endosperm is most commonly found in angiosperms. It is found in wheat, rice, sunflower, and coconut.

In nuclear endosperm the endosperm mother nucleus or triple fusion nucleus or primary endosperm nucleus(PEN) undergoes repeated divisions without wall forrmation and nuclei so formed get arranged at the periphery leaving a large central vacuole. Later cytokinesis begins centripetally i.e., from the periphery towards the centre making it cellular. However, in coconut endosperm formation occur by free nuclear division followed by wall formation, but wall formation is restricted only to the periphery, resulting in the formation of multicellular endosperm(the white edible portion), while in the central part the wall formation, does not take place, it remains as free nuclear endosperm, also called coconut milk.

It has free mutinucleated stage.



Diagram showing Endosperm formation.

