



Blue Print (As per PU Board)

Topic	1 mark questions	2 marks questions	3 marks questions	5 marks questions	Total Marks
Sexual Reproduction in Flowering Plants	-	-	1	1	8

One mark questions

- How many cells and nuclei are present in a typical embryo**
Answer: 7 cells – 8 nuclei.
- What is emasculation?**
Answer: Removal of anthers from the flower bud before the anther dehisces.
- What is geitonogamy?**
Answer: Transfer of pollen grains from anther to the stigma of another flower of the same plant.
- What is a ditheous anther?**
Answer: Anther with two lobes

Two marks questions

- What are false fruits? Gives example.**
Answer: fruits that develop from structures other than ovary are called false fruits.
Example: Apple, cashew, strawberry etc.
- What is meant by monosporic development of female gametophyte?**
Answer: The female gametophyte or embryo sac develops from a single megaspore, out of the four resulting after megasporogenesis.
- Explain the role of tapetum in the formation of pollen – grain wall**
Answer: Apart from providing nutrition to developing pollen, tapetum also secrets:-
(i) Callase enzyme which dissolves callose by which four pollens are united in a tetrad?
(ii) Ubisch bodies which provide sporopollenin to pollen wall
(iii) Pollen kitt substances of pollen wall.

Three marks questions

- What is endosperm?**
 - Differentiate between free nuclear and cellular endosperm with suitable examples**
- Answer: (a) It is a nutritive tissue in the seed that nourishes the developing embryo

(b)

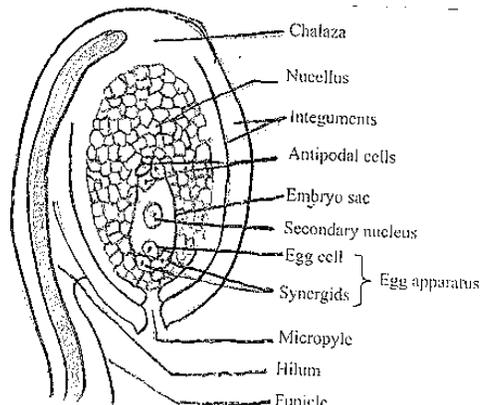
	Free nuclear endosperm		Cellular endosperm
(i)	The successive division of the PEN are not followed by cell wall formation	(i)	The successive division of the PEN are immediately followed by cell wall formation
(ii)	It results in the formation of multinucleate endosperm Example: coconut water	(ii)	It results in the formation of multinucleate endosperm Example: Kernel in coconut

- What is apomixes? Mention its significance in agriculture**
Answer: production of seeds without fertilization is known as apomixes
Significance:
 - Apomictic seeds are developed to retain the parental characters together in the hybrids for many generations
 - They reduce the cost of producing hybrid seeds and buying of hybrid seeds every year by farmers.



10. With a neat labelled diagram explain the structure of a ovule

- Answer: Mega sporangium, the ovule is attached to the placenta by the funicle. The function of the ovule and the funicle is called hilum
- Each ovule has one or more protective layers, called integuments, which cover the rest of the ovule, except for a small opening called micropyle
- The chalaza lying on the opposite side of the micropyle end represents the basal part of the ovule
- Nucellus is present within the integuments and contains reserve food. The embryo sac or female gametophyte is located within the nucellus.



Mature ovule

Five marks questions

I. Five mark questions:

11. What is autogamy? Explain the devices that the plants have developed to prevent this

Answer: Autogamy self-pollination in which there is transfer of pollen grains from the anther to the stigma of the same flowers.

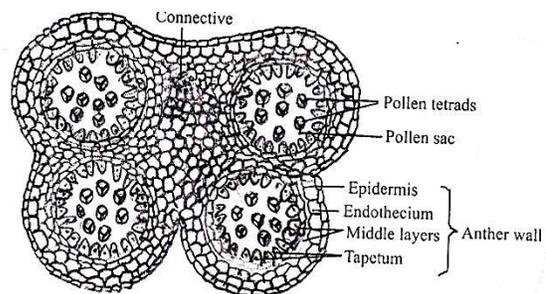
Devices in following plants to prevent autogamy.

- Release of pollen grains before the stigma becomes receptive or stigma becoming receptive much before the release of pollen grain
- Placement of anther and stigma at different positions so that pollen cannot come in contact with the stigma of same flower
- Self-incompatibility: genetic mechanism which inhibits the germination of their own pollen grain or growth of pollen tube inside the style, thus preventing fertilization
- Unisexuality: production of unisexual flowers

12. Describe the structure of microsporangium

Answer: The microsporangium is surrounded by four wall layers epidermis, endothecium, middle layers and tapetum

- The outer three layers are protective and help in dehiscence of anther to release the pollen grains.
- The tapetum provides nourishment to the developing pollen grains
- In the young anther, the sporogenous tissue forms the centre of each microsporangium.



T.S of microsporangium