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Class 12th

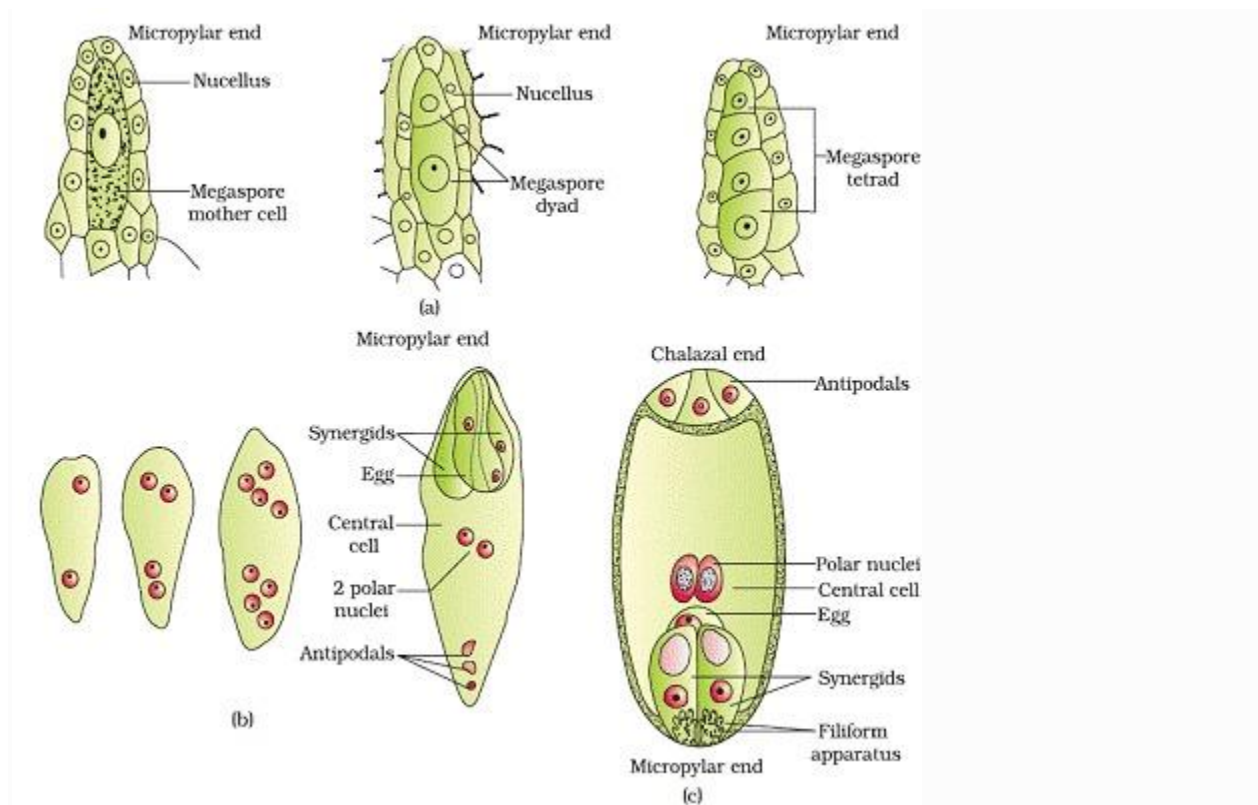
Subject Biology

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Sexual Reproduction in Flowering Plants

Megasporogenesis- The process of formation of megaspore from megaspore mother cell by meiotic division is known as megasporogenesis. This process takes place in ovule. Ovule differentiates a single megaspore mother cell (MMC) in the micropylar region of nucellus. MMC undergoes meiotic division that results into the production of four megaspores.

- In most of the flowering plants three megaspores degenerate. 1 megaspore develops into female gametophyte (embryo sac).
- The nucleus of functional megaspore divides mitotically to form two nuclei which move to opposite poles to form 2-nucleate embryo sac. Two more sequential mitotic division results into 8-nucleate embryo sac.
- Six of the eight nuclei surrounded by cell wall and remaining two nuclei (polar nuclei) are situated below the egg apparatus.
- Three cells are grouped at micropylar end to constitute **egg apparatus** and three cells at chalazal end forms **antipodal cells**. At maturity, embryo sac is **8-nucleate and 7 celled**.



Pollination – transfer of pollen grains from anther to stigma.

a) **Autogamy**– transfer of pollen grain from anther to stigma of same flower.

i. **Cleistogamous** – flower which do not open. cleistogamous flowers are autogamous as there is no chance of cross-pollen landing on the stigma. Cleistogamous flowers produce assured seed-set even in the absence of pollinators. e.g Viola (common pansy), Oxalis, and Commelina.

ii. **Chasmogamous**– exposed anther and stigma.

b) **Geitonogamy** – transfer of pollen grains from anther to stigma of different flower of same plant. Geitonogamy is functionally cross-pollination involving a pollinating agent, genetically it is similar to autogamy since the pollen grains come from the same plant

c) **Xenogamy**– transfer of pollen grain from anther to stigma of different plant's flower of same species.