**CBSE Class 12 Biology**
**Important Questions**
**Chapter 2**
**Sexual Reproduction in Flowering Plants**

**1 Marks Questions**

**1. In a young anther, a group of compactly arranged homogenous cells were observed in the centre of each microsporangium. What is the name given to these cells?**
**Ans.** Sporogenous tissue

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**2. Give the scientific name of a plant which came to India as a contaminant with imported wheat and causes pollen allergy.**

**Ans.** Parthenium

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**3. Pollen grains of water pollinated species have a special characteristics for protection from water. What is that?**

**Ans.** Presence of mucilagenous covering

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**4. Why are pollen grains produced in enormous quantity in Maize?**

**Ans.** To ensure pollination because Maize is pollinated by wind.

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**5. In same species of Asteraceae and grasses, seed are formed without fusion of gametes. Mention the scientific term for such form of reproduction.**

**Ans.** Apomixis

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**6. Arrange the following in correct developmental sequence : Male gamete, Potential pollen mother cell, sporogenous tissue, Pollen grains, Microspore tetrad.**

**Ans.** Sporogenous tissue Potential pollen mother cell microspore tetrad Pollen grain male

gamete.

**7. If the diploid number of chromosomes in an angiospermic plant is 16. Mention number of chromosomes in the endosperm and antipodal cell.**
**Ans.** Chromosomes in endosperm and 16 chromosomes in antipodal cell.

**8. What kind of structures is formed at the end of microsporogenesis and megasporogenesis?**

**Ans.** Microsporogenesis results into formation of four haploid pollen grains arranged generally in a tetrahedral tetrad while Megasporogenesis forms four megaspores arranged in linear tetrad.

**9. What is funiculus?**

**Ans.** The stalk of the ovule is called funiculus.

**10. Define parthenocarpy.**

**Ans.** Production and development of seedless fruit is called parthenocarpy.

**11. What is microsporogenesis?**

**Ans.** The process that leads to the formation of microspores from pollen mother cell through meiosis is referred to as microsporogenesis.

**12. Why is emasculation done in the process of hybridization?**

**Ans.** Emasculation that is the stamens are removed prior to artificial hybridization to ensure no undesirable pollens fall on the stigma and the flower can be pollinated with the desired pollen grains.

**13. What do you understand by double fertilization?**
**Ans.** Fertilization or fusion in the female gametophyte happens at two cites: the egg cell and

the generative cell; the vegetative cell and the polar nuclei. This is referred to as double fertilization.

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**14. What is sporopollenin?**

**Ans.** The exine of the pollen grain is composed of a highly resistant organic chemical called sporopollenin.

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**15. Name one plant each where pollination occurs with the help of**

**a) Water.**

**b) Bats**

**Ans.** Water pollinated: *Vallisneria* and *Hydrilla.*

Bat pollinated: *Anthocephalous* and *Bauhinia megalandra*.

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**16. Why do most zygotes develop after certain amount of embryo is formed?**

**Ans.** The zygote divides only after certain amount of endosperm is formed as it is an adaptation to provide assured nutrition to the developing embryo.

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**17. What is polyembryony?**

**Ans.** Polyembryony is the phenomenon of formation of more than one embryo during the development of seed.

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**18. Name the type of cross pollination in Vallisneria & Bougainvillea.**

**Ans.** (i) vallisneria - Hydrophily

(ii) Bougainvillea - Entomophily

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**19. How many haploid nuclei and haploid cells are present in female gametophyte of angiosperm?**

**Ans.** 8 – haploid nuclei and 7 – haploid cells.

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**20. Mention the scientific term for the type of pollination which ensures Genetic**

**Recombination.**

**Ans.** Xenogamy or Allogamy

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**21. Which are the nuclei that fuse to form endosperm?**

**Ans.** The second male gamete fuses with secondary nucleus (which is formed by fusion of two polar nuclei) to form a triploid primary endosperm.

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**22. Give an example of Bat – Pollinated flower.**

**Ans.** Adansonia digitata.

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**23. Why are pollen grains produced in enormous quantity in maize?**

**Ans.** because in maize, pollen grains are transferred through air Large quantity of pollen grains are produced but only few of air-borne Pollen grains are entangled by protruding stigma.

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**24. Name the part of an angiosperm flower in which development of male & female gametophyte takes place.**

**Ans.** Development of male gametophyte takes place in microspore in pollen grains & development of female gametophyte occurs in megaspore in ovule.

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**25. Why apple is called a false fruit. Which part of plant forms the fruit?**

**Ans.** Apple is called a false fruit because it develops from ovary along with accessory floral plants e.g. Thalamus

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**26. Name the part of plant producing seed & fruit after fertilization.**
**Ans.** After fertilization, ovule develops into seed & ovary develops into fruit.

## 2 Marks Questions

**1. In angiospermic plant before formation of microspore sporogenous tissue undergo cell division**

**(a) Name the type of cell division.**

**(b) What would be the ploidy of the cells of tetrad?**

**Ans.** (a) meiosis division (b) haploid

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**2. Outer envelop of pollen grain made of a highly resistant substance. What is that substance? At which particular point the substance is not present?**

**Ans.** Sporopollenin; at germpore sporopollenin is absent.

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**3. Fruits generally develops from ovary, but in few species thalamus contributes to fruit formation.**

**(a) Name the two categories of fruits.**

**(b) Give one example of each.**

**Ans.** Two categories of fruits are

(i) True fruits e.g., Mango

(ii) False fruit e.g., Apple

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**4. Among the animal, insects particularly bees are the dominant pollinating agents. List any four characteristic features of the insect pollinated flower.**

**Ans. i**. Flowers are large.

ii. Colorful petals of flower.

iii. Presence of fragrance.

iv. Rich in nectar.

**5. Differentiate between geitonogamy and xenogamy.**

**Ans.**

| Geitonogamy | Xenogamy |
|---|---|
| 1. Transfer of pollen grains from the another to stigma of another flower of the same plant | 1.Transfer of Pollen grains from another to stigma of defferent plant. |
| 2. Does not provide opportunity for gametic recombination. | 2.Provide opportunity for gametic recombination. |

**6. In the given figure of a dicot embryo, label the parts (A) and (B) and give their function.**

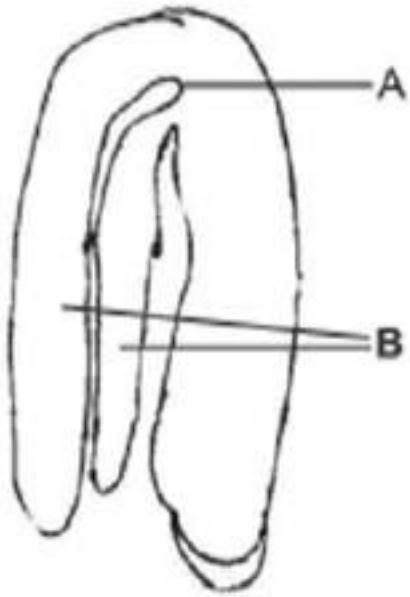


Figure 1

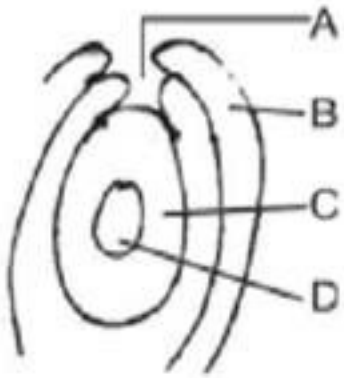


Figure 2

**Ans.** A = Plumule To form shoot system

B = Cotyledons Storage of food

**7. Name the parts A, B, C and D of the anatropous ovule (Figure 2) given above.**

**Ans.** A = Micropyle, B = Outer integument, C = Nucellus, D = Emnbryo sac

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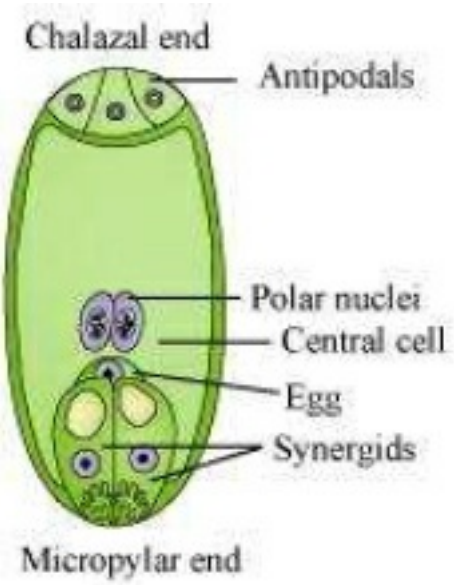
**8. Given below is an incomplete flow chart showing formation of gamete in angiospermic plant. Observe the flow chart carefully and fill in the blank A, B, C and D.**




**Ans.** A = Ovule/megasporangium, C = Tapetum

B = Megaspore mother cell, D = Pollen grains

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**9. Name the blank spaces a, b, c and d is the table given below : Item What it represents in the plant**

**(i) Pericarp a**

**(ii) b Cotyledon in seeds of grass family**

**(iii) Embryonal axis c**

**(iv) d Remains of nucellus in a seed.**

**Ans.** a = wall of fruit, b = scutellum, c = shoot and root tip, d = perisperm

**10. Even though each pollen grain has two male gametes. Why are at least 10 pollen grains and not 5 pollen grains required to fertilise 10 ovules present in a particular carpel?**

**Ans.** Because only one male gamete is involved in syngamy. ie fursionof male gamete with egg cell.

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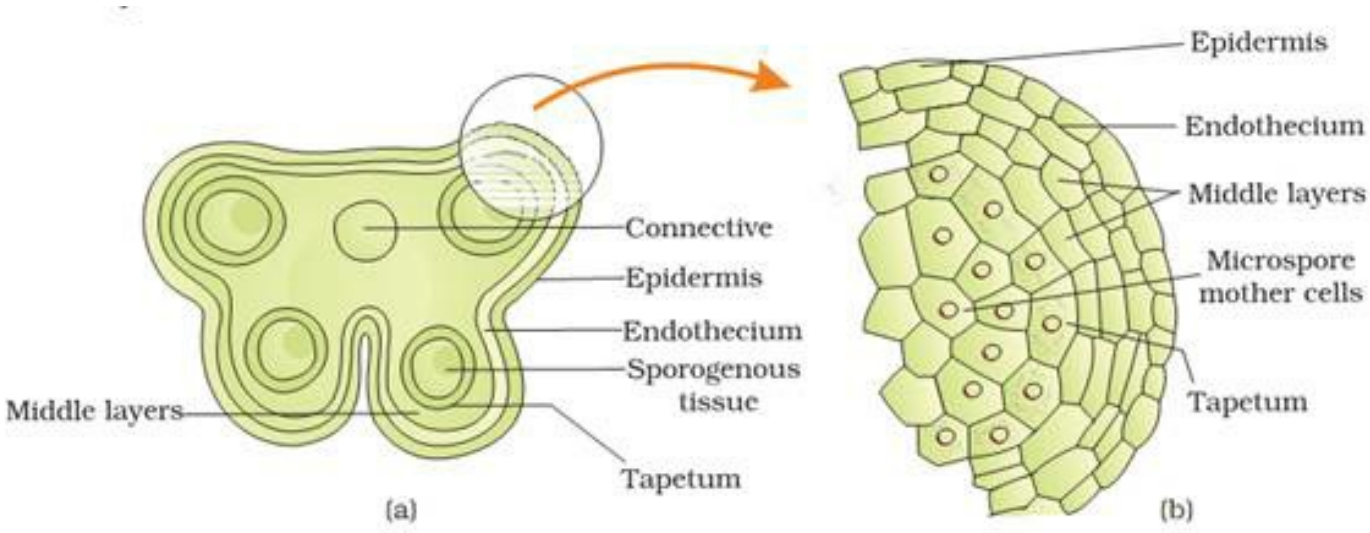
**11. Describe the structure of a microsporangium with a neatly labeled diagram.**

**Ans.** The structure of the microsporangium is as follows:

- It is almost circular with four wall layers.
- The outer three layers: epidermis, endothecium and middle layers are protective in function and help in dehiscence of anther to release pollen grains.
- The inner tapetum nourishes the developing embryo. Sporogenous tissue occupies the central position.

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**12. Why pollen grains can remain well preserved as fossils?**

**Ans.** Pollen grains are well preserved as fossils because the exine of the pollens is composed of a chemical, sporopollenin which can withstand high temperature, strong acids and alkalies and strong enzymes

**13. How are the cells arranged in an embryo sac?**

**Ans.** An embryo sac is a 7 celled and 8 nucleated structure. At the micropylar end is present a group of three cells; two synergids and one egg cell. The chalazal end consists of three cells called antipodals. There is a central cell with two polar nuclei.

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**14. Why are cleistogamous flowers invariably autogamous?**

**Ans.** In a cleistogamous flower, the flower never opens and when the anther dehisce in the bud the pollen grains fall on the stigma of the same flower and thus it is strictly autogamous.

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**15. State any one advantage and disadvantage of pollen grains to humans.**

**Ans.** Advantage: Pollen grains are rich in nutrients and therefore in the western world pollen tablets are used as food supplements. Disadvantage: Pollens of many species cause severe allergies and bronchial afflictions leading to chronicle respiratory disorder.

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**16. State the characteristics of insect pollinated flowers.**

**Ans.** The characteristics of an entomophilous flower include:

- Petal and sepals well developed with attractive colours to invite insects.
- Flowers are normally bigger in size with strong odour.

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**17. Differentiate between chasmogamous and cleistogamous flowers**

**Ans.**

| Chasmogamous flower. | Cleistogamous flower. |
|---|---|
| 1. The flowers are conspicuous. The anthers and the stigmas are exposed. | 1. The flowers are small and inconspicuous. The anthers and stigmas are never exposed. |
| 2. Both self and cross pollination can occur. | 2. Only self pollination is possible. |

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**18. Which type of pollination ensures the arrival of genetically different pollen grains**

**to stigma?**

**Ans.** In xenogamy pollens from a different plant of the same species pollinate the stigma and thus ensure the arrival of genetically different types of pollen grains on to the stigma.

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**19. What relationship exists between a species of moth and Yucca plant?**

**Ans.** There exists a relationship between moth and *Yucca* plant. The moth deposits its egg in the locule of the ovary and in turn pollinates the flower of the plant. The larvae develop from the eggs as the seeds start developing.

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**20. Differentiate between Geitonogamy & Allogamy.**

**Ans.**

| GEITONOGAMY | ALLOGAMY |
|---|---|
| i) It takes place between anther & pistil of different flowers of same plant. | i) It takes place between two flowers of two different plants of same species. |
| ii) Bisexual flower are essential for geitonogamy | ii) Unisexual flowers are essential for Allogamy. |
| iii) Progenies do not show variation & are genetically pure | iii) Progenies shows variations & are genetically impure |

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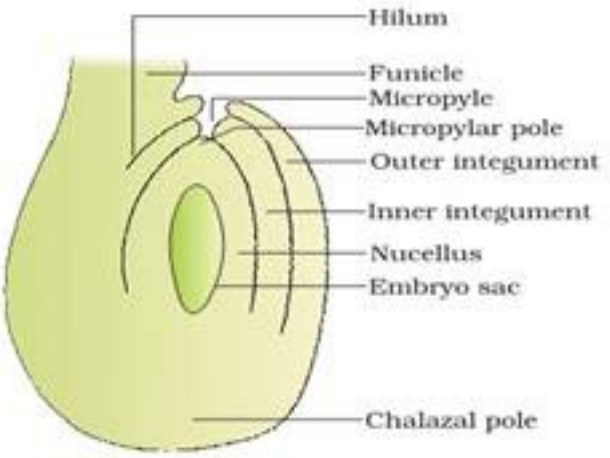
**21. Draw a diagram of L.S. of an anatropous ovule of an Angiosperm & label the following parts :-**

**(i) Nucellus**
**(ii) Integument**
**(iii) Antipodal cells**
**(iv) Secondary Nucleus.**
**Ans.**




**22. Why is process of fertilization in flowering plants referred to as double fertilization?**

**Ans.** In flowering plants, the first male nuclei fuses with egg to form a diploid zygote & Second male nuclei fuses with Secondary nucleus to give rise to primary endosperm nucleus – thus process of fertilization twice in an embryo sac. & therefore called DOUBLE FERTILISATION.

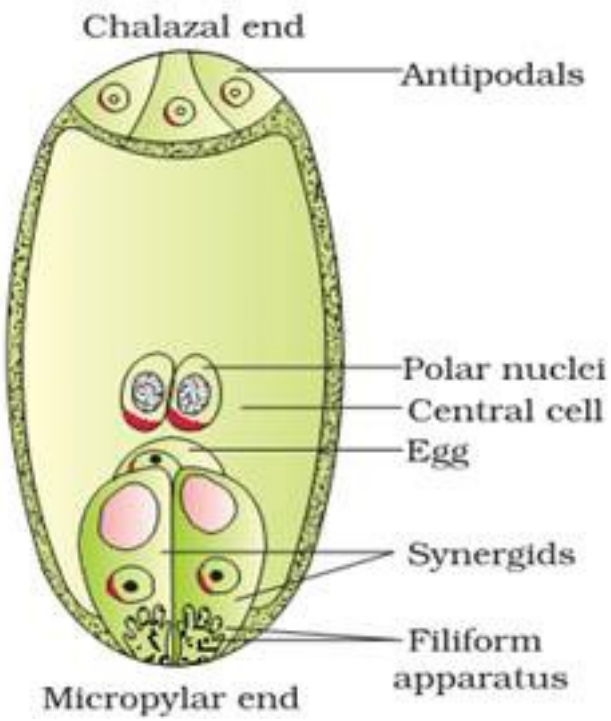
**23.What are cleistogamous flowers? Can cross – pollination occurs in cleistogamous flowers. Give reason?**

**Ans.** In some Angiospermic plants eg. Commelina, Oxalis etc, flowers are bisexual & they never open. This condition is called cleistogamy & flowers are called cleistogamous cleistogamous flowers are self – Pollination & to ensure this they never open Hence, cross pollination is not possible.

**24. Draw a labeled diagram of mature embryo sac & label the following**

**i) Egg cell ii) Antipodal cells iii) Synergids iv) Polar nuclei**

**Ans.**




**25. Mention two strategies evolved lay flowers to prevent self-pollination**

**Ans.** Two strategies evolved lay flowers to prevent self-pollination

(i) Dichogamy – In this, two reproductive organs of a bisexual flower matures at different time

(ii) Self – sterility:-Pollen grains are unable to germinate on stigma of same flower or flower of same plant.

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**26. What is apomixis? What is its importance?**

**Ans.** The development of reproductive propagules without meiosis & syngamy is called apomixis. It is also called asexual reproduction. It is a method of reproduction which produces new individuals with the help of vegetative part of plant body.

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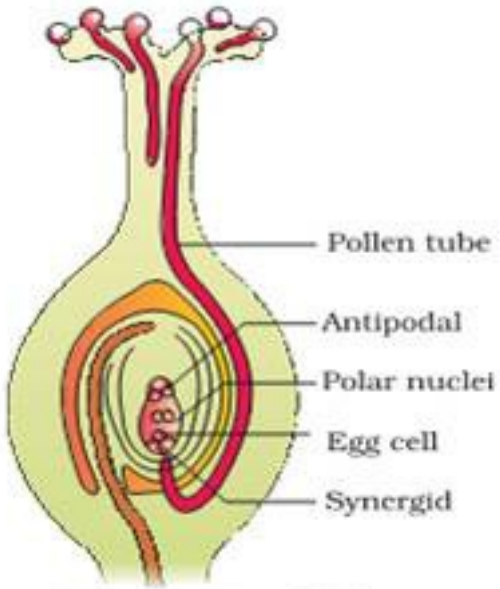
**27. Draw a well labeled diagram of longitudinal section of pistil showing pollen germination?**

**Ans.**




Longitudinal section of a flower showing growth of pollen tube

(c)

**28. List the advantages of pollination to angiospermic plants?**

**Ans.** Pollination leads to fertilization & production of seeds & fruits which are necessary for continuity of life.

i) It is important for new varieties of plants.

ii) It is important for production of hybrid seeds.

iii) It helps in genetic recombination in plants.

## 3 Marks Questions

**1. Continued self pollination lead to inbreeding depression. List three devices, which flowering plant have developed to discourage self pollination?**

**Ans. (a)** Release of pollen and stigma receptivity is not synchronised in some species

**(b)** Anther and stigma are at different position/heights in some plants

**(c)** Self-incompatibility a genetic mechenism.

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**2. What will be the fate of following structures in the angiospermic plant? Ovary wall, Ovule, zygote, outer integument Inner integument and primary endosperm nucleus.**

**Ans.** Ovary wall = Pericarp ; Ovule = Seed,

Zygote - Embryo; Outer integument = Testa;

Inner integument = Tegmen; Primary endosperm nucleus = Endosperm.

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**3. Differentiate between microsporogenesis and megasporogenesis. What type of cell division occurs during these events. Name the structure formed at the end of these two events.**

**Ans.** Microsporogenesis Process of formation of microspore from a Pollen mother cell.

Megsporogenesis Process of formation of megaspore from megaspore mother cell. Meiotic division in both Microsporogenesis results in the formation of pollen grain while megasporogenesis results in the formation of megaspore.

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**4. Differentiate between microsporogenesis and megasporogenesis.**

**Ans.**

| Microsporogenesis | Megasporogenesis |
|---|---|
| 1. It is the formation of haploid microspores or pollen grains from the diploid microspore mother cell. | 1. it is the formation of megaspores from the diploid megaspore mother cell. |
| 2. The pollen grains are arranged in tetrahedral tetrad. | 2. The megaspores are arranged in linear tetrad. |
| 3. All the microspores are functional. | 3. Only one megaspore is functional. Others degenerate. |

**5. Explain the stages involved in the maturation of a microspore into a pollen grain.**

**Ans.** The microspore has a dense cytoplasm and a prominent nucleus in the centre. As the microspore matures the nucleus is pushed towards the periphery due the formation of vacuoles in the upper end of the cytoplasm. The nucleus divides mitotically to form two nuclei which separate out into two cells; the upper bigger vegetative cell and the lower generative cell. A mature pollen grain normally has two cells.

**6. What is triple fusion? Where does it occur?**

**Ans.** The nucleus of the vegetative cell of the pollen grain fuse with the two polar nuclei of the central cell of the female gametophyte fuse to form the primary endosperm. This fusion is known as vegetative fusion or triple fusion as it involves three nuclei. It occurs in the central cell of the egg apparatus.

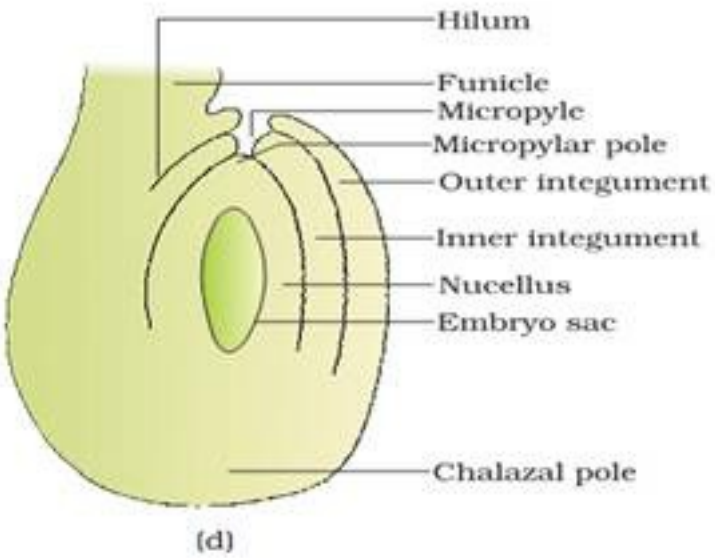
**7. Explain the structure of an anatropous ovule with a neat labeled diagram?**

**Ans.** An anatropous ovule consists of:

- a stalk called funicle attached to the placenta.
- the junction between the funicle and the ovule is called helium.
- The ovule may be surrounded by one or more integuments with an opening at the tip. The opening is called the micropyle.
- the opposite end of the micropyle is referred to as chalazal end, the basal part of the

ovule.

- mass of cells known as nucellus is present within the integuments that contain normally single embryo sac.

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**8. Describe the structure of a pollen grain.**

**Ans.** The pollen grain is normally spherical with two wall layers.

- the outer layer is exine composed of highly resistant organic substance called sporopollenin which is absent at the aperture region called germ pore.
- the inner layer is the in tine which is composed of cellulose and pectin.
- a mature pollen grain has a vegetative cell and a generative cell

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**9. Enlist the advantages offered by seeds to angiosperms.**

**Ans.** The significance or the importance of seed formation:

- seed formation is associated with pollination and fertilization that are independent of water and therefore more dependable process.
- it provides protection and nutrition to the developing embryo.
- seeds are means of multiplication of higher plants. Being capable of perennation, it can withstand variable climate.

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**10. Give any three advantages of sexual incompatibility.**

**Ans.** Advantages of sexual incompatibility:

- it prevents self pollination.
- it has made plants outbreeders and this maintain vigour and vitality of the race.
- variations appear due to outbreeding provide adaptability to the changes in the environment.

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**11. List any three differences between wind pollinated flower & insect – pollinated flower.**

**Ans.**

| Wind Pollinated flower | Insect Pollinated flower |
|---|---|
| i) Flowers are small & colourless. | i) Flowers are brightly coloured |
| ii) Flowers do not have scent or nectar | ii) Flowers possess nectar glands. |
| iii) Pollen grains are dry & unwettable. | iii) Pollen grains are sticky or Spiny. |
| iv) Stigma is large well- exposed hairy & branched | iv) Stigma is short & is present within the flower. |

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**12. Trace the development of microsporocyte into mature pollen grains.**

**Ans.** i) When the anther is young, the microsporangium contains compactly arranged homogenous cells forming the Sporogeneous tissues.

1. Every cell of the sporogenous tissue is a potential Pollen mother cell (PMC) & give rise to microspore tetrad or Pollen grains.
2. But Some of them forego this Potential & become differentiated into pollen or microspore mother cell (MMC)
3. Each microspore mother cell undergoes meiosis to form a cluster of four haploid cells called microspore tetrad.
4. As the anther matures, microspores dissociate from tetrad & develop into pollen grains.
5. The nucleus of microspore undergoes mitosis to form large vegetative cell & small generative cell. They develop a two layered wall – outer exine made up of sporopollenin

& inner intine made up of cellulose & pectin. Usually Pollen grains are liberated at two celled stage.

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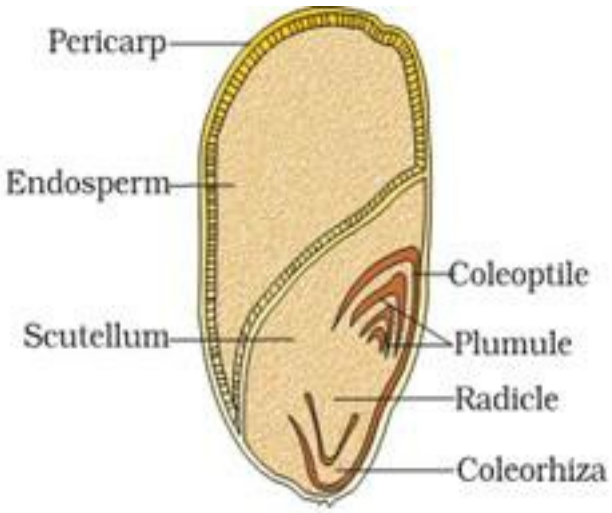
**13. i) Explain the structure of a maize grain with the help of a diagram**

**ii) Why cannot we use the term maize seeds for maize grains?**

**Ans. (i)** In grass family ( eg. Maize ) fruit is single seeded where pericarp & seed coat are fused together to form the husk. Just below husk, there is a layer of cells called aleurone layer, with stores proteins. There is a large endosperm that stores starch. The embryo lies on one side of endosperm & consists of a single cotyledon called scutellum & embryonal axis. The region of embryonal axis that points down ward from point of attachment of cotyledons is radicle & is covered by protective sheath called coleorhiza. The region of embryonal axis that points upward from point of attachment of cotyledon is plumule, it is covered by foliaceous sheath called coleoptite




**(ii)** We cannot use the term seeds for maize grain because seed is not completely developed from embryo but retains a part of endosperm.

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**14. Trace the development of megasporocyte into mature ovule.**

**Ans.** i. A single Megaspore mother cell is differentiated in the micropylar region of nucleus of an ovule & undergoes meiosis & forms a cluster of haploid cells called megaspore tetrad. Of these, soon three degenerates & only one megaspore becomes functional

ii. Functional megaspore enlarges to form embryo sac. Its nucleus undergoes mitotic division & two nuclei move to opposite poles forming 2-nucleate embryo Sac.

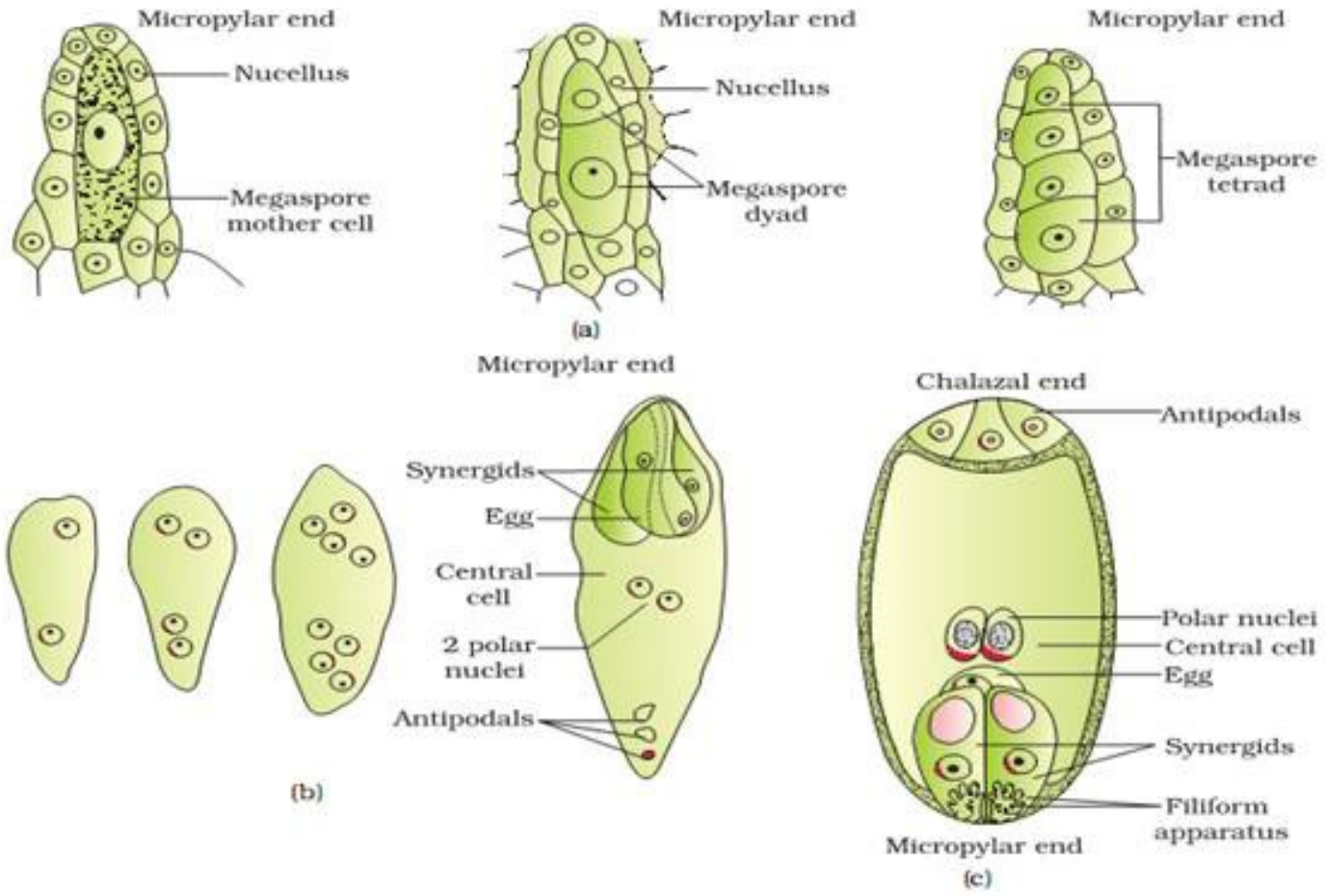
iii. Two successive mitotic divisions in each of these two nuclei results in formation of 8-nucleate embryo sac.

iv. Three cells are grouped together at micropylar end to form egg apparatus. consisting of two synergids & a female egg cell .

v. Three cells are grouped together at the chalazal end, they are called antipodal cells.

vi. The remaining two nuclei are called Polar nuclei, they move to centre of embryo sac & fuse to form Secondary nucleus.

Thus a typical angiospermic embryo sac is 8-nucleate 7-celled




**15. "Incompatibility is the natural barrier in fusion of gamete". Justify this statement.**

**Ans.** Pollen grains of a plant species cannot germinate on stigma of other unrelated species because both the species are incompatible & process is called pollen – pistil incompatibility. In many angiospermic plants, it is seen that pollen grains germinate on stigma of unrelated species but male gametes produced in pollen tube cannot fertilize egg. This is called gametic incompatibility Self incompatibility can be achieved by any of the following ways :-

1. Pollen Stigma interaction: - In this phenomenon, pollen grains fails to germinate on Stigma because of incompatibility.
2. Pollen tube style interaction: - In this phenomena, pollen grains become able to germinate on stigma & pollen tube penetrate stigmatic surface but due to incompatibility growth of pollen tube within stigma & style is inhibited.
3. Pollen – ovule interaction: - pollen tube successfully pierces & grows within style & its growth is inhibited at micropyle of ovule.

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**16. How dose pollination takes place in salivia. List any four adaptations required for such type of pollination.**

**Ans.** In salivia, entomophily or pollination lay insects occurs. The flowers of salivia are bilipped. Its upper lip consists of two petals & lower lip consists of three petals. The lower lip functions as sitting pad for insects. In normal conditions, the connective remains upright. When insect enters the tube of corolla towards nectar sitting on lower lip, it pushes sterile anther lobe which automatically brings about fertile anther to touch the back of insects gets the blow of fertile lobe. Pollen grains are dusted on back feather & legs of insects.

**ADAPTAIONS EOR ENTOMOPHILY :-**

1. Flowers are brightly coloured.
2. Flowers possess nectar glands.
3. pollen grains are usually sticky & spiny
4. flowers are large – sized & stout

## 5 Marks Questions

**1. Draw the embryo sac of a flowering plants and label :**

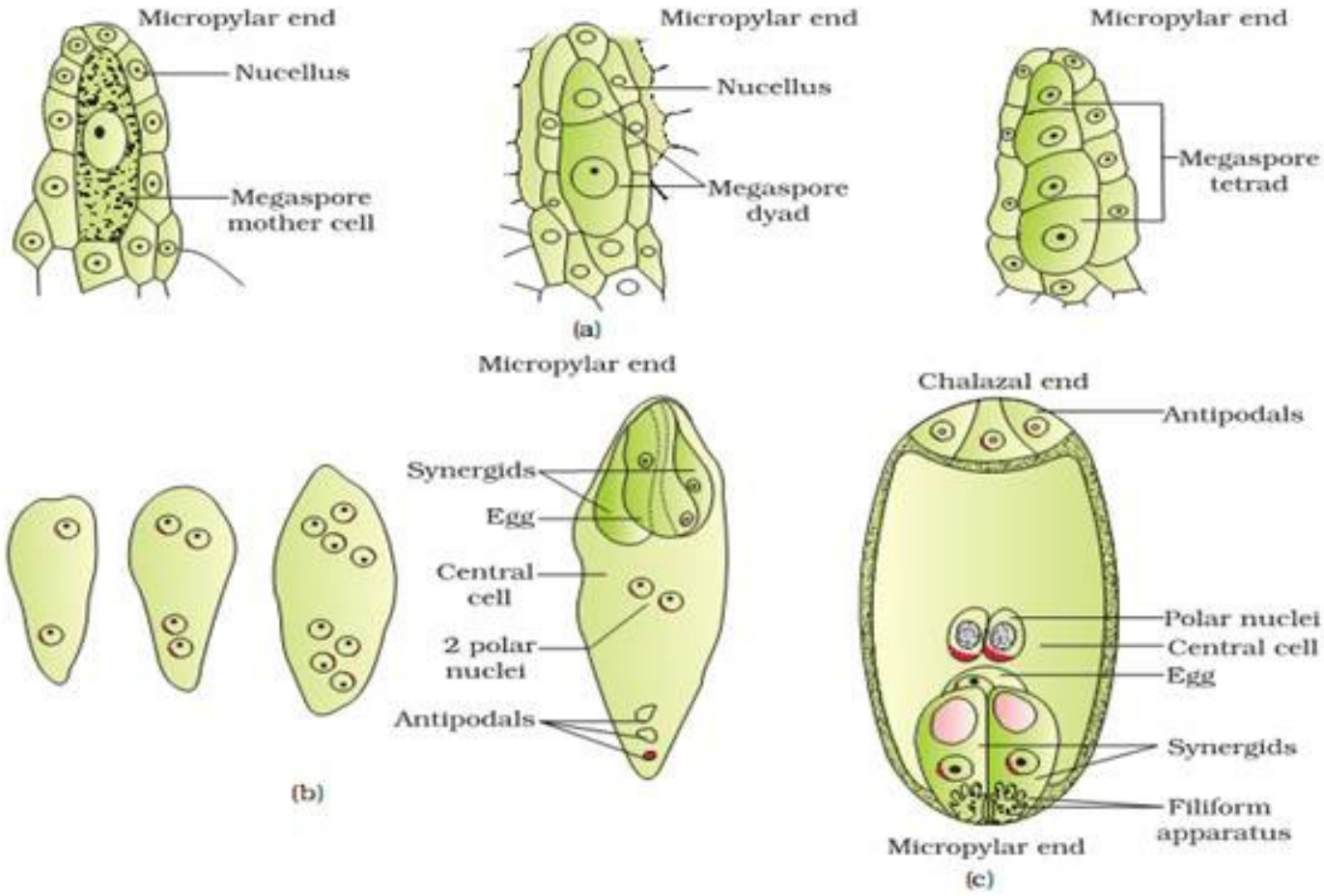
**(a) (i) Central Cell (ii) Chalazal end (iii) Synergids**

**(b) Name the cell that develops into embryo sac and explain how this cell leads to formation of embryo sac.**

**(c) Mention the role played by various cells of embryo sac.**

**(d) Give the role of filiform apparatus.s**

**Ans. (a)**



**(b)** Functional Megaspore

**(c)** Egg : Fuses with male gamete to form zygote or future embryo

Synergid : Absorption of nutrient, attract and guides pollen tube.

Central Cell : After fusion with second male gamete forms Primary endosperm cell which gives rise to Endosperm

**(d)** Guides the entry of pollen tube.

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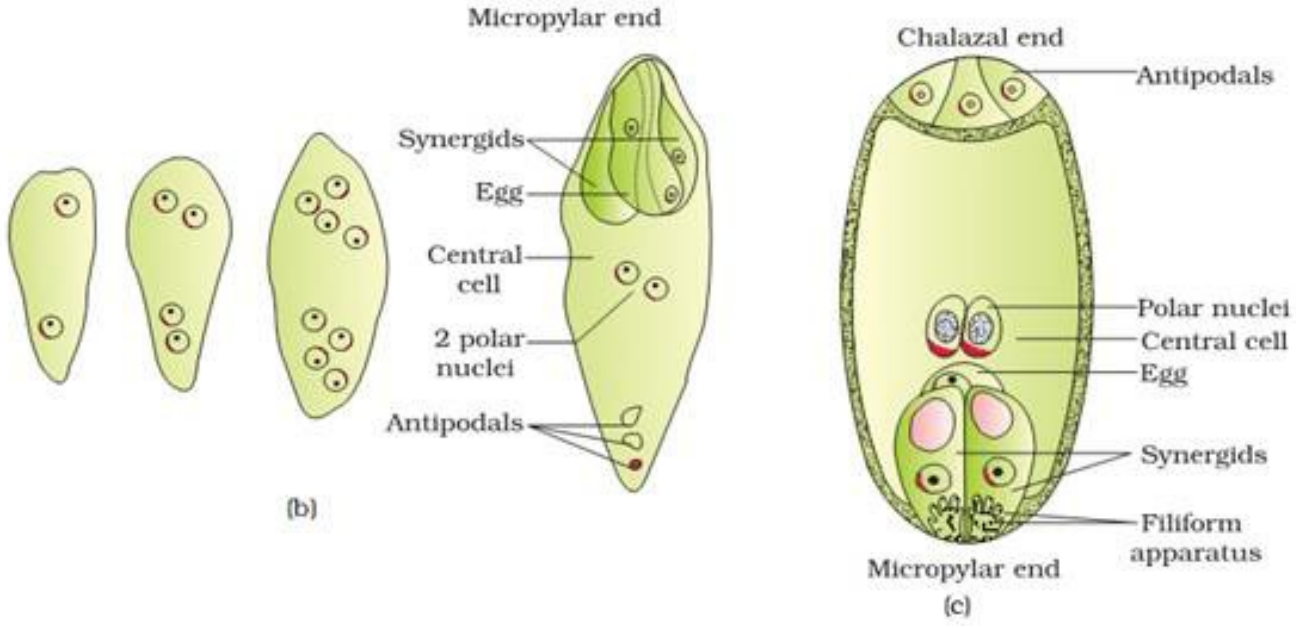
**2. Explain the formation of an embryo sac with diagrams.**

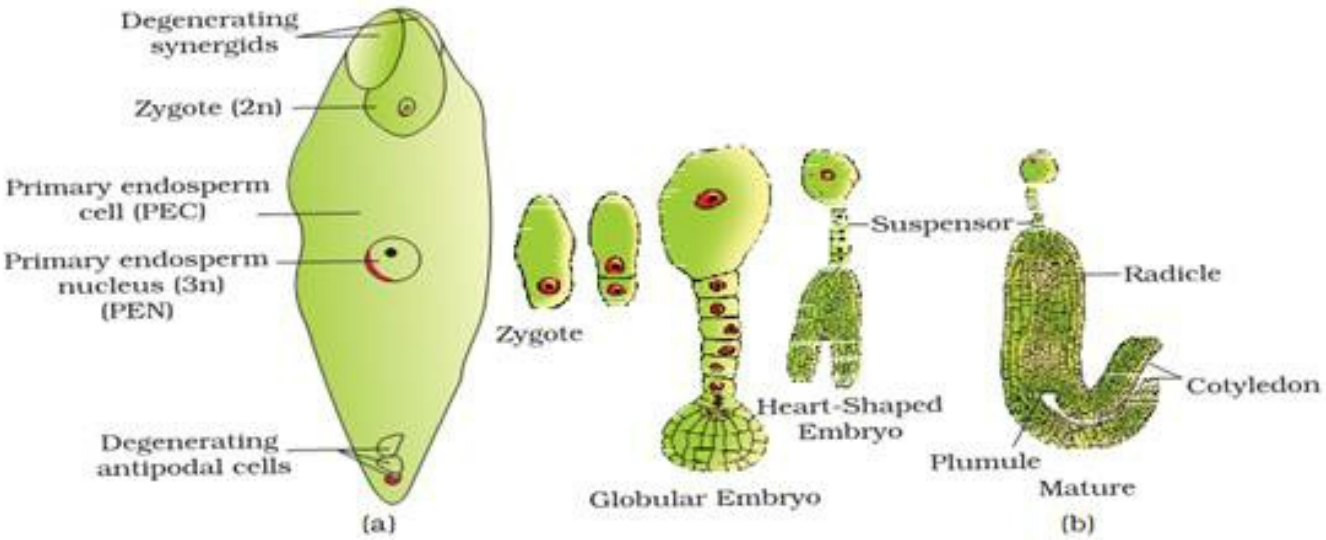
**Ans.**

- The functional megaspore grows in size.
- The nucleus divides mitotically to form two nuclei which move to opposite poles.
- Each nucleus at the poles undergoes two mitotic divisions to form four nuclei in each pole or a total of 8 nuclei.
- two nuclei from each pole move to the centre to form the polar nuclei.
- the other nuclei, three at each pole get surrounded by bit of cytoplasm to form cells.
- the female gametophyte or the embryo sac thus has 7 cells and eight nuclei.

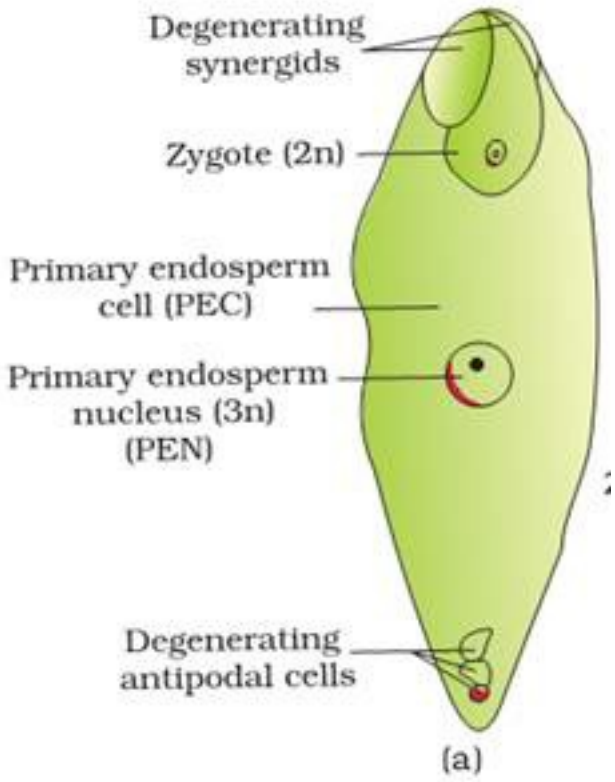


**3. Explain the development of embryo in a dicotyledonous plant with neatly labeled diagrams.**

**Ans.** The embryo develops at the micropylar end where the zygote is located. The zygote starts developing only after certain amount of endosperm is formed to assure nutrition to the embryo. The zygote divides mitotically to form various stages including pro- embryo, globular, heart shaped and finally the mature embryo




**4.Describe the post-fertilization changes taking place in a flowering plant?**

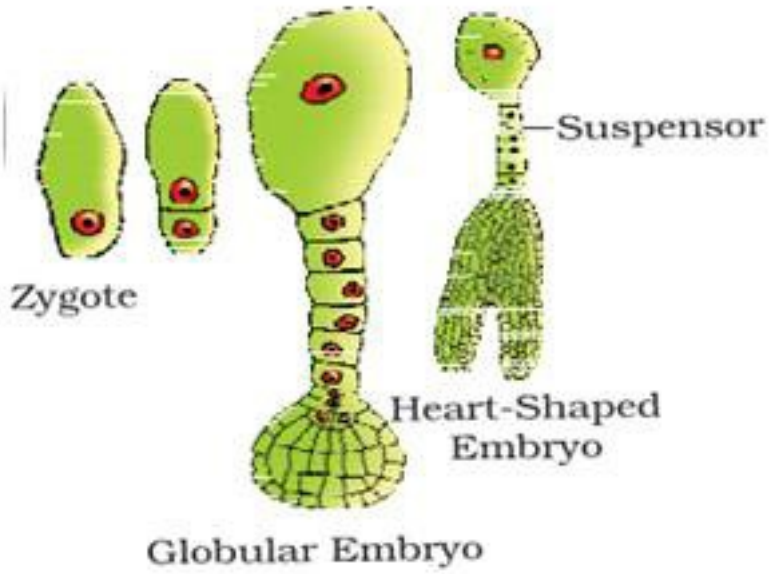


**Ans.** The major events taking place in a flowering plant after fertilization:-

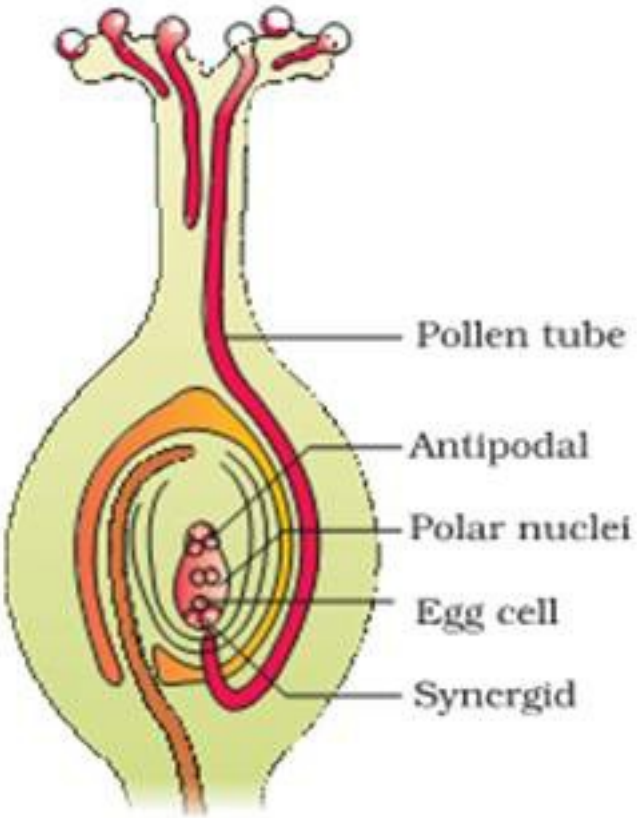
(i) DEVELOPMENT OF ENDOSPERM:- Endosperm development proceeds embryo development . The most common method of endosperm development is nuclear type where triploid endosperm (PEN) undergoes repeated mitotic divisions without cytokinesis – Subsequently cell wall formation occurs from periphery & endosperm store food materials

which is later used up by embryo.

(ii) DEVELOPMENT OF EMBRYO :- The zygote divides lay mitosis to for a pro-embryo first . Later development results in formation of globular & heart shaped embryo & that ultimately become horseshoe – shaped embryo with one or more cotyledons. In dicot embryo, the portion of embryonal axis about the level of attachment is epicotyl & it terminates into plumule while portion of embryonal axis below the level of attachment is hypocotyl & terminates into radicle.



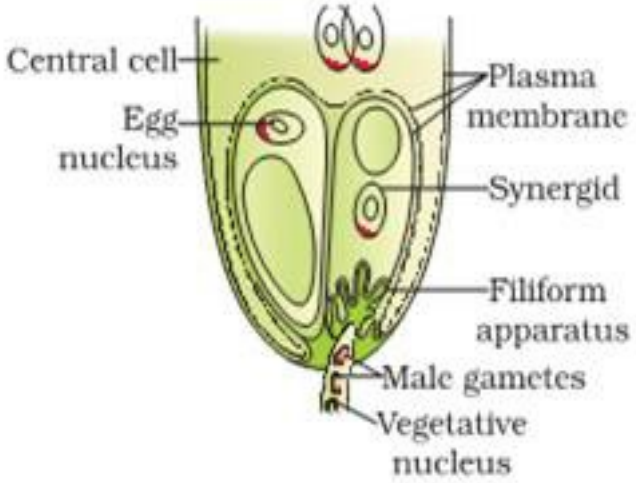

**5.Trace the events that would take place in flower from the time of Pollen grain of species fall on stigma up To completion of fertilization.**



Longitudinal section of a flower showing growth of pollen tube

**Ans.** GERMINATION OF POLLEN GRAINS ON STIGMA

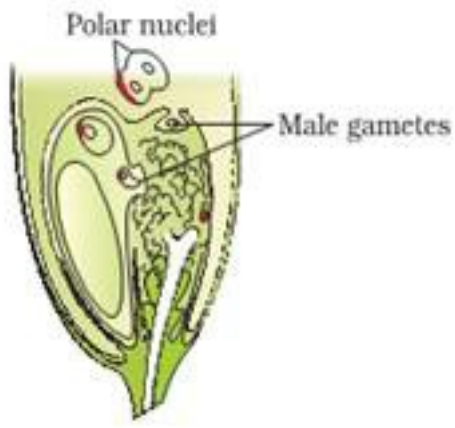
The pollen grains absorb fluid present on stigma & swell up. The exine ruptures at the place of germ pore & intine comes out in the form of tube with its internal contents. This small tubular structure is called pollen tube & process is called pollen germination.




ii) Entry of pollen tube into Ovule: - The entry of pollen tube into ovule occurs through

micropyle or chalaza or through lateral sides of ovule. Only one pollen tube enters inside the embryo sac of an ovule. Normal two synergids are destroyed while entry of pollen tube into embryo sac.

iii) Discharge of Mate Gametes :- After enter of pollen tube both the male gametes discharged into embryo sac by either forming two pores into pollen tube & each male gamete is discharged through every pore or sometime pollen tube may burst & release the male gametes into embryo sac.




iv) Fertilization:- The fusion of first male gamete (n) with egg (n) is called fertilization. It results in formation of a diploid zygote (2n). The second male gamete fuses with secondary nucleus (2n) to form triploid endosperm nucleus (3n). This fusion between second male gamete & secondary nuclei is triple fusion. Since process of fertilization occurs twice. It is called double fertilization.

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**6. i)Why is zygotes dominant for sometime in fertilized ovule.**

**ii) What is polyembryony? Give an example.**

**iii) In fruits, what is formed from following parts :-**

**a) Ovary wall**

**b) Outer integument**

**c) Inner integument**

**d) zygote**

**e) primary endosperm**

**f) Ovary**

**g) Nucellus**

**Ans. (i)** Zygote remain dominant for sometime in a fertilized ovule because embryo develops after formation of endosperm therefore zygote wants for formation of endosperm which supplies food material for developing embryo

**(ii)** The presence of more than one embryo in a seed is called polyembryony eg. Sometimes more than one embryo is formed within an embryo sac either by cleavage or splitting of egg, synergid, antipodal or endosperm.

**(iii)** In fruits, the following is formed from given parts:-

| | | |
|---|---|---|
| a) | Ovary wall | Per carp |
| b) | Outer integument | Testa |
| c) | Inner integument | Tegmen |
| d) | zygote | embryo |
| e) | primary endosperm | endosperm |
| f) | Ovary | fruit |
| g) | Nucellus | perisperm. |