Important Questions for Class 12

Biology

Chapter 1 - Sexual Reproduction In Flowering Plants

Very Short Answer Questions **1 Marks**

1. In a young anther, a group of compactly arranged homogenous cells was observed in the center of each microsporangium. What is the name given to these cells?

Ans: Sporogenous tissue

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

Ans: Parthenium

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

Ans: Presence of mucilaginous covering

4. Why are pollen grains produced in enormous quantities in Maize?

Ans: To make sure pollination is happening as the Maize is pollinated by wind.

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

Ans: Apomixis

6. Arrange the following in the 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.

7. If the diploid number of chromosomes in an angiospermic plant is 16.

Mention the number of chromosomes in the endosperm and antipodal cell.

Ans: Chromosomes are in the endosperm and 16 chromosomes are present in the antipodal cell.

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

Ans: Microsporogenesis comes about into the arrangement of four haploid dust grains orchestrated usually in the tetrahedral tetrad whereas Megasporogenesis produces four megaspores orchestrated in a linear tetrad.

9. What is funiculus?

Ans: The stalk of the ovule is known as the funiculus.

10. Define parthenocarpy.

Ans: Parthenocarpy is the production and development of seedless fruit.

11. What is microsporogenesis?

Ans: Microsporogenesis is the process which leads to the production of microspores from pollen mother cells through meiosis is referred to as microsporogenesis.

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

Ans: Emasculation is when the stamens are separated before artificial hybridization to secure that no unwanted pollen lands on the stigma and the flower can be pollinated with the wanted pollen grains.

13. What do you understand about double fertilization?

Ans: Fertilization in female gametophytes occurs at two locations and that are the egg cell & the generative cell; the vegetative cell and polar nuclei. This is known as double fertilization.

14. What is sporopollenin?

Ans: The exine of the pollen grain is made of a quite resistant organic chemical known as sporopollenin.

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

a) Water.

Ans: Water pollinated: Vallisneria and Hydrilla.

b) Bats

Ans: Bat pollinated: Anthocephalus and Bauhinia megalandra.

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

Ans: As an adaptation to give guaranteed sustenance to the developing embryo, the zygote divides only when a particular amount of endosperm is created.

17. What is polyembryony?

Ans: Polyembryony is the process of formation of more than one embryo during the formation of a seed.

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

Ans: (i) vallisneria - Hydrophily (ii) Bougainvillea - Entomophily

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

Ans: 8-haploid nuclei and 7-haploid cells.

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

Ans: Allogamy or Xenogamy

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

Ans: The second male gamete combines with a secondary nucleus, which is produced by the union of two polar nuclei to form a triploid primary endosperm.

22. Give an example of a Bat-Pollinated flower.

Ans: Adansonia digitata.

23. Why are pollen grains produced in enormous quantities in maize?

Ans: Pollen grains are produced in enormous quantities in maize because, in maize,

pollen grains are transferred through the air. A large number of pollen grains are produced but only a few of them are air-borne, Pollen grains are entangled by protruding stigma.

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

Ans: The advancement of male gametophyte takes place in microspores in pollen grains and the development of female gametophyte happens in the megaspore of the ovule.

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

Ans: Apple is known as a false fruit as it develops from the ovary together with the accessory floral plants such as the Thalamus

26. Name the part of the plant producing seed & fruit after fertilization.

Ans: After the fertilization, the ovary develops into fruit & the ovule develops into a seed.

Short Answer Questions **2 Marks**

1. In Angiospermic plants before the formation of microspore sporogenous tissue undergo cell division.

Ans: The polyembryony is known as the presence of more than one embryo in a seed, Example- Sometimes more than one embryo is created inside an embryo sac by splitting of egg or by cleavage, endosperm, synergid, or antipodal.

(a) Name the type of cell division.

Ans: Meiosis division

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

Ans: Haploid

2. Outer envelope 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 not present.

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

(a) Name the two categories of fruits

Ans: Two categories of fruits are (i) True fruits (ii) False fruit

b) Give one example of each fruit

Ans: (i) True fruits e.g., Mango (ii) False fruit e.g., Apple

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

Ans: Four characteristic features of the insect-pollinated flower are:-

i. Flowers are large.

ii. Colorful petals are there in flowers.

iii. Presence of fragrance in flowers.

iv. They are rich in nectar.

5. Differentiate between geitonogamy and xenogamy.

Ans: Below given are the differences between geitonogamy and xenogamy:-

Geitonogamy	Xenogamy
Transfer of pollen grains from the anther to the stigma of another flower of the same plant.	Transfer of Pollen grains from the anther to the stigma of different plants.
Does not provide an opportunity for genetic recombination.	Provide an opportunity for gametic recombination.

6. In the given figure of a dicot embryo, label the parts and give their function.

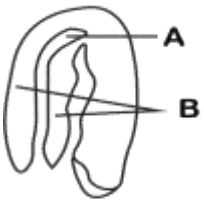


Fig-1

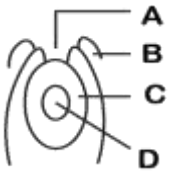


Fig-2

Ans:

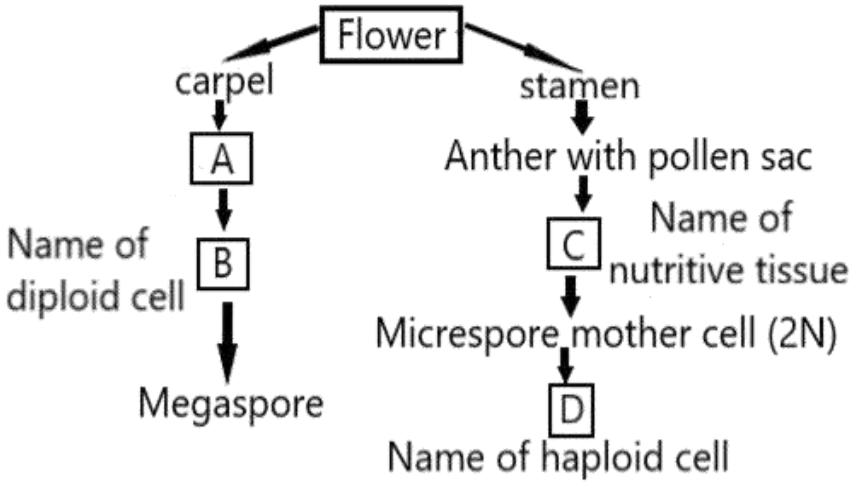
A =Plumule To form shoot system

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 = Embryo sac

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



Ans: In the given flow chart

A represents Ovule/Megasporangium

B represents Megaspore mother cell

C represents Tapetum

D represents Pollen grains

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

Part	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: In the given table a, b, c, and d represents the following:

(i) Pericarp

Ans: a- wall of fruit

(ii) Cotyledon in seeds of the grass family

Ans: b-scutellum

(iii) Embryonal axis

Ans: c-shoot and root tip

(iv) Remains of nucellus in a seed.

Ans: 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 fertilize 10 ovules present in a particular carpel?

Ans: This is because only one male gamete is involved in syngamy. ie fusion of male gamete with the egg cell.

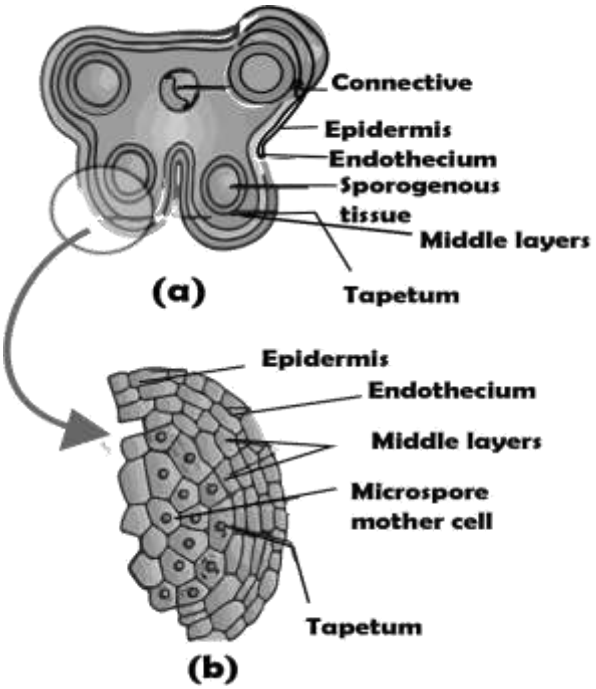
11. Describe the structure of a microsporangium with a neatly labeled diagram.

Ans: The structure of the microsporangium is as follows:

-It is almost circular and it also has four wall layers.

-The outer three layers are epidermis, endothecium and middle layers are protective in nature and help in the dehiscence of anther so that it can release pollen grains.

-The inner tapetum provides food and nourishes the developing embryo. Sporogenous tissue remains at the central position.



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

Ans: Pollen grains are well preserved as fossils because the exine of the pollen is composed of a chemical, sporopollenin which can withstand high temperature, strong acids and alkalis, 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. A group of three cells is present at the micropylar end which are two synergids and one egg cell. The chalazal end has three cells, which are called antipodals. There is a central cell with 2 polar nuclei.

14. Why are cleistogamous flowers invariably autogamous?

Ans: In a cleistogamous flower, the flower never opens and when the anther dehiscence in the bud the pollen grains rest on the stigma of the same flower and therefore it is totally autogamous.

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

Ans: Advantage: Pollen grains are rich in nutrients and therefore in lots of western countries, they(pollen tablets are used as food supplements.

Disadvantage: Pollens of many species of plants can cause severe bronchial afflictions and allergies which will usually lead to severe diseases like chronicle respiratory disorder.

16. State the characteristics of insect-pollinated flowers.

Ans: An entomophilous flower has the following characteristics:

• Petals and sepals are well developed with attractive colors to invite insects.

• Flowers are normally bigger in size with a strong odor.

17. Differentiate between chasmogamous and cleistogamous flowers

Ans:

chasmogamous	cleistogamous
The flowers are conspicuous. The anthers and the stigmas are exposed.	The flowers are small and inconspicuous. The anthers and stigmas are never exposed.
Both self and cross-pollination can occur.	Only self-pollination is possible

18. Which type of pollination ensures the arrival of genetically different pollen grains 9 to stigma?

Ans: In xenogamy pollens from another plant of the same species pollinate the stigma and thereby ensure the coming of genetically different types of pollen grains onto the stigma.

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

Ans: There exists a relationship between the Yucca plant and the moth. The moth deposits its egg in the locule of the ovary and in return moth pollinates the flower of the yucca plant. As the seeds begin to mature, the larvae hatch from the eggs.

20. Differentiate between Geitonogamy & Allogamy.

Ans: Below given are the Differences between Geitonogamy & Allogamy:-

Geitonogamy	Allogamy
It takes place between anther & pistil of different flowers of the same plant.	It takes place between two flowers of two different plants of the same species.
Bisexual flowers are essential for geitonogamy.	Unisexual flowers are essential for Allogamy.
Progenies do not show variation & are genetically pure.	Progenies show variations & are genetically impure.

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:

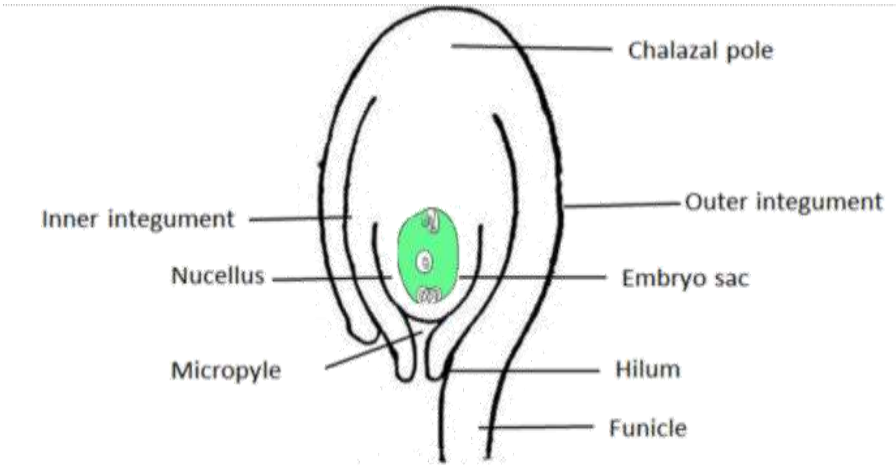


Figure: Structure of a typical anatropous ovule

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

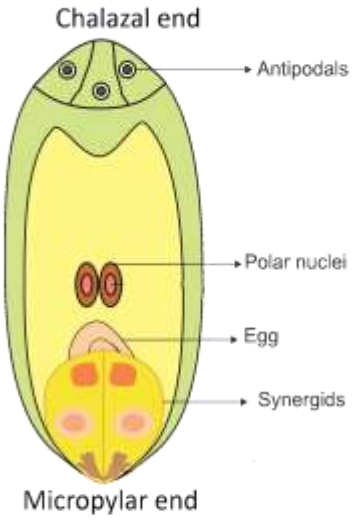
Ans: In flowering plants, the first male nuclei fuse with the egg to produce a diploid zygote, and the second male nuclei fuse with the Secondary nucleus to produce the primary endosperm nucleus, resulting in DOUBLE FERTILISATION.

23. What are cleistogamous flowers? Can cross-pollination occur in cleistogamous flowers? Give a reason?

Ans: In some Angiosperm plants eg. Commelina, Oxalis, etc, flowers are bisexual and they never open. This condition is known as cleistogamy and flowers from this condition are called cleistogamous. The cleistogamous flowers are self-pollinated and 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:



A Mature Embryo Sac

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

Ans: Two strategies evolved lay flowers to prevent self-pollination

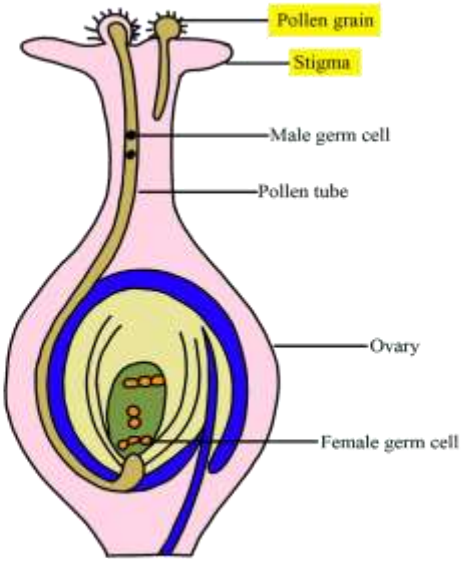
(i) Dichogamy - In this process, two reproductive organs of a bisexual flower mature at different- different times.
(ii) Self sterility – The Pollen grains couldn't germinate on the stigma of the same flower or on the flower of the same plant.

26. What is apomixis? What is its importance?

Ans: The development of the reproductive propagules without meiosis and syngamy is known as apomixis. It is also known as asexual reproduction. apomixis is a method of reproduction that produces new individuals from the vegetative part of the plant body.

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

Ans:



Pollen grain germination

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 critical for the development of new plant varieties.
ii) It is necessary for hybrid seed production.
iii) It aids in plant genetic recombination.

Short Answer Questions **3 Marks**

1. Continued self-pollination leads to inbreeding depression. List three devices, which flowering plants have developed to discourage self-pollination?

Ans:

(a) Release of pollen and stigma receptivity is not synchronized in some species

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

(c) Self-incompatibility is a genetic mechanism.

2. What will be the fate of the 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.

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 is the process of production of microspore from a Pollen mother cell. Megasporogenesis is the process of production of megaspores from MMC. Meiotic division in both Microsporogenesis causes the formation of pollen grains while megasporogenesis causes the formation of megaspores.

4. Differentiate between microsporogenesis and megasporogenesis.

Ans: Below given are the differences between microsporogenesis and megasporogenesis:

Microsporogenesis	Megasporogenesis
From the diploid microspore mother cell, haploid microspores or pollen grains are formed.	Megaspores are produced from the diploid megaspore mother cell.
The pollen grains are arranged in a tetrahedral tetrad.	The megaspores are arranged in a linear tetrad.
All the microspores are functional.	Only one megaspore is functional. Others degenerate.

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

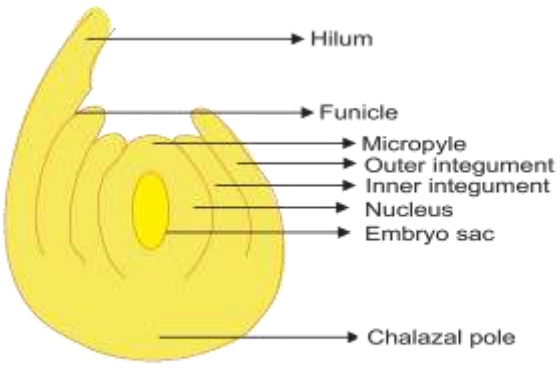
Ans: The microspore comprises a dense cytoplasm and a bigger nucleus in the center. As the microspore develops the nucleus is shifted towards the side due to the production of vacuoles in the upper end of the cytoplasm. The mitotic division causes the nucleus to produce two nuclei which separate out into 2 cells; the lower generative cell and the upper bigger vegetative cell. A mature pollen grain normally has 2 cells.

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

Ans: The nucleus of a vegetative cell of pollen grain combined with 2 polar nuclei of the central cell of the female gametophyte joins to produce the primary endosperm. This fusion is called vegetative fusion or triple fusion because it involves 3 nuclei. It happens 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 a funicle attached to the placenta. Helium is the name for the connection between the funicle and the ovule. One or more integuments might enclose the ovule, with an aperture at the tip. The opening is called the micropyle. The opposite end of the micropyle is referred to as the chalazal end, the basal part of the ovule. Within the integuments that ordinarily contain a single embryo sac is a mass of cells known as nucellus.



ANATROPOUS OVULE

8. Describe the structure of a pollen grain.

Ans: The pollen grain is normally spherical with 2 wall layers.

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

9. Enlist the advantages offered by seeds to angiosperms.

Ans: The importance of seed formation:

- Seed formation is linked with fertilization and pollination that are independent of water and therefore it is surely a more dependable process.
- Seed formation provides nutrition and protection to the budding embryo.
- Seeds are used for the multiplication of plants. Seeds are capable of perennation; they can withstand different climates.

10. Give any three advantages of sexual incompatibility.

Ans: Advantages of sexual incompatibility:

- Sexual incompatibility inhibits self-pollination.
- Sexual incompatibility has made plants outbreeders and thereby maintains the vitality and vigor of the plant's rarace.
- In sexual incompatibility, variations occur because outbreeding provides adaptability for the changes in the environment.

11. List any three differences between wind-pollinated flowers and insect-pollinated flowers.

Ans: Below given are the differences between wind-pollinated flowers and insect-pollinated flowers:-

Wind-pollinated flower	Insect-pollinated flower
Flowers are small and colorless.	Flowers are brightly colored

Flowers do not have scent or nectar	Flowers possess nectar glands.
Pollengrains are dry and unwettable.	Pollen grains are sticky or Spiny.
Stigma is a large well- exposed hairy and branched	Stigma is short and is present within the flower.

12. Trace the development of microsporocytes into mature pollen grains.

Ans: When the anther is at an early stage of development, the microsporangium has closely arranged homogenous cells which form the Sporogenous tissues.

1. Each cell of sporogenous tissue will become a Pollen mother cell (PMC) and also forms microspore tetrad or Pollen grains.
2. But Some of them lose this Potential and later get differentiated into a pollen or microspore mother cell (MMC)
3. Every microspore mother cell (MMC) undergoes meiosis and produces a bunch of four haploid cells, which is called microspore tetrad.
4. When the anther gets matured, the microspores get dissociated from the tetrad and develop into pollen grains.
5. The mitosis happens in the nucleus of microspores to produce bigger vegetative cells and smaller generative cells. They form a double-layered wall – outer exine is made up of sporopollenin

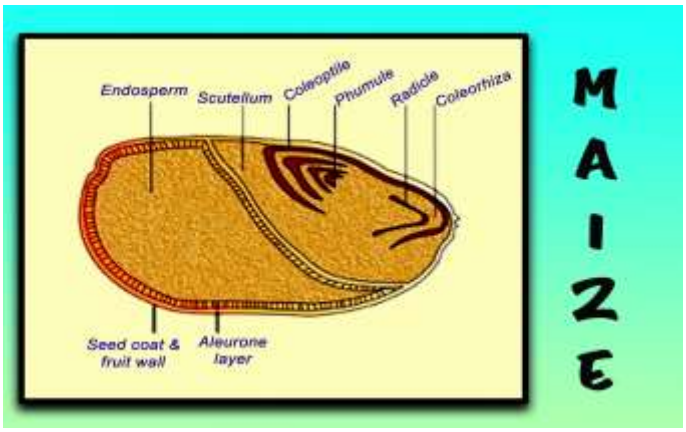
And the inner intine is made up of cellulose and pectin. Generally, the pollen grains are released at two-celled stages.

13.

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

Ans: In the grass family (eg. Maize) fruit is single-seeded where the pericarp and the seed coat are fused together to produce the husk. Just below the husk, there is a layer of cells known as the aleurone layer, this layer stores protein. There is a large endosperm that stores starch. The embryo lies on one side of the endosperm & consists of a single cotyledon called scutellum & embryonal axis. The region of the embryonal axis that points downward from the point of attachment of cotyledons is a radicle and it is covered with a protective sheath known as coleorhiza. The region

of an embryonal axis that points upward from the point of attachment of cotyledon is known as a plumule, it is covered by a foliaceous sheath called coleoptile.



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

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

14. Trace the development of megasporocytes into the mature ovule.

Ans:

(i) A single Megaspore mother cell is differentiated in the micropylar region of the 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

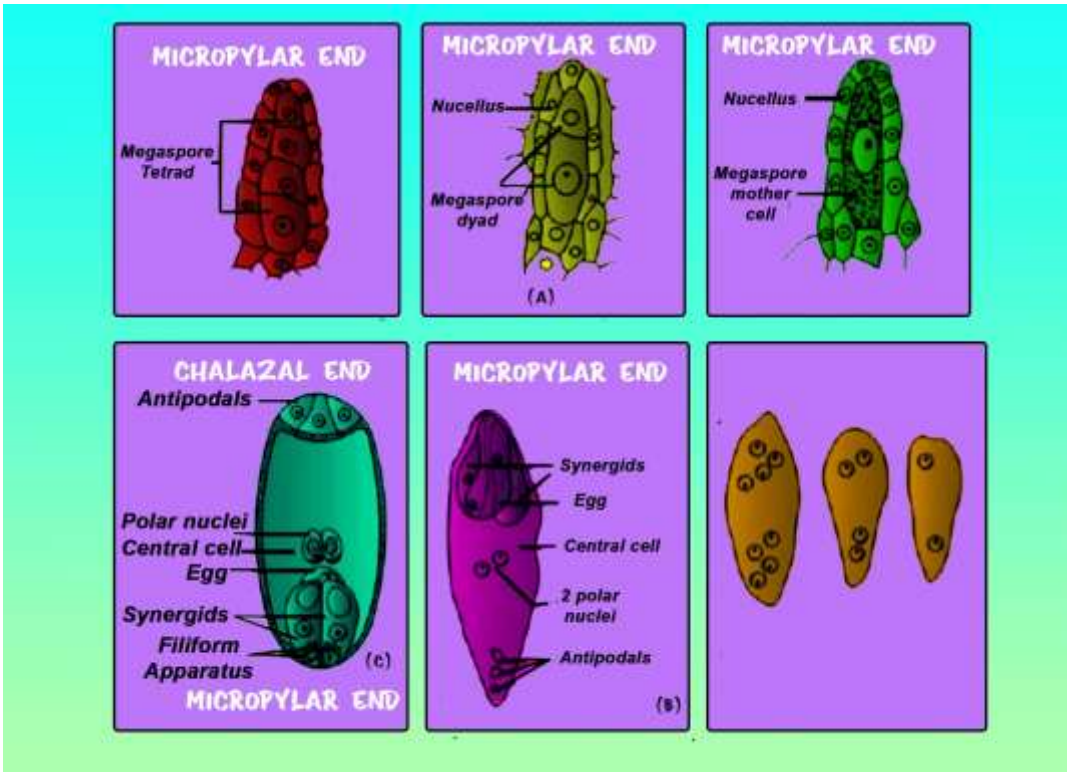
(ii) Functional megaspore enlarges to form embryo sac. Its nucleus undergoes mitotic division & two nuclei move to opposite poles forming a 2-nucleate embryo sac.

(iii) Two successive mitotic divisions in each of these two nuclei result in information of 8- nucleate embryo sac.

(iv) Three cells are grouped together at the 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 the center of the embryo sac & fuse to form the secondary nucleus. Thus a typical angiosperm embryo sac is 8-nucleate 7-celled.



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

Ans: Pollen grains of a plant species cannot germinate on the stigma of other non-related species as both the species are incompatible and the process is called pollen – pistil incompatibility. In many angiosperms plants, it is observed that pollen grains germinate on the stigma of non-related species but male gametes produced in pollen tubes cannot fertilize eggs. This is called gametic incompatibility. Self-incompatibility can be attained by utilizing any of the following ways:-

1. Pollen Stigma interaction: - In this phenomenon, pollen grains fail to germinate on Stigma because of incompatibility.
2. Pollen tube style interaction: - In this phenomenon, 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.

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

Ans: In salivia, entomophily/pollination of insects occur. The flowers of salivia are bilipped. Its upper lip consists of two petals and its lower lip consists of three petals. The lower lip is intended as a sitting pad for insects. In regular conditions, the connective stays upright. When the insect penetrates the tube of the corolla in the direction of nectar sitting on the lower lip, it pushes the sterile anther lobe which automatically brings about fertile anther to touch the backside of insects and gets the blow of the fertile lobe. Pollen grains are dusted on the back feathers and legs of insects

ADAPTATIONS EOR ENTOMOPHILY ARE :-

1. Flowers are brightly colored.

2. Flowers possess nectar glands.

3. pollen grains are usually sticky & spiny

4. flowers are large-sized & stout

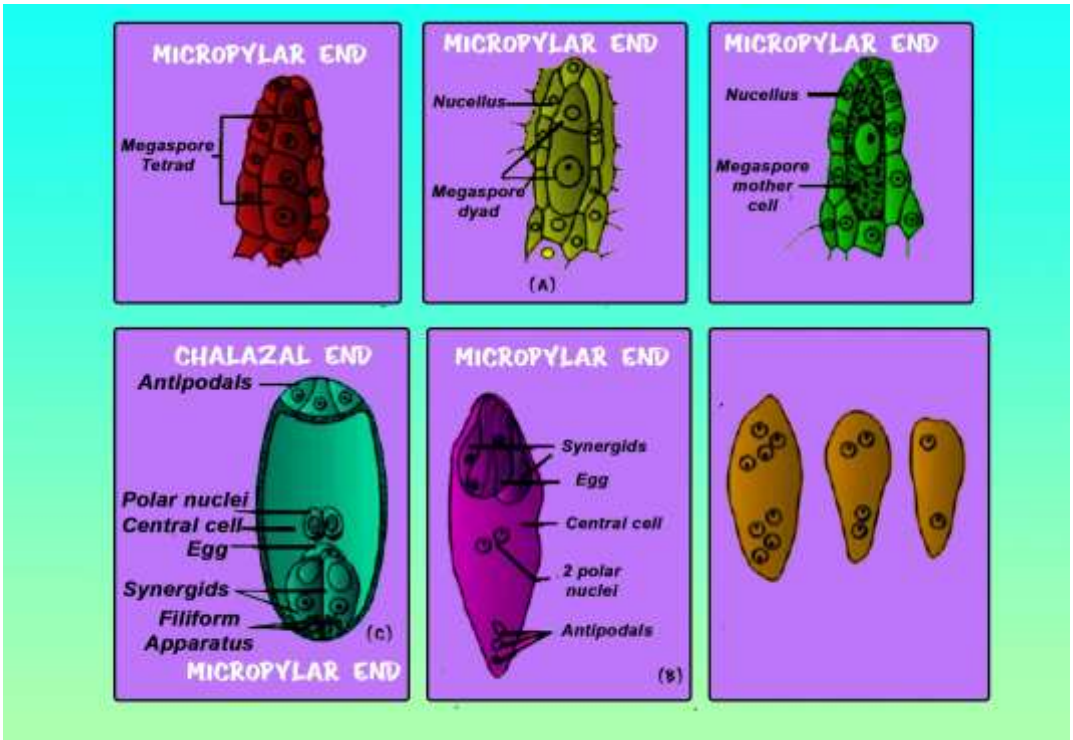
Long Answer Questions **5 Marks**

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

(a)

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

Ans:



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

Ans: Megaspore mom cell (MMC) undergoes meiotic department to provide four megaspores. Out of these, three degenerates, and one useful megaspore develops into the embryo sac. This form of improvement is known as a monosporic improvement.

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

Ans: Egg: The egg fuses with a male gamete to make a zygote or future embryo, Synergid: Absorption of nutrients, it also attracts and guides pollen tubes. The Central Cell, after fusion with the second male gamete, makes primary endosperm cell also which gives rise to the endosperm.

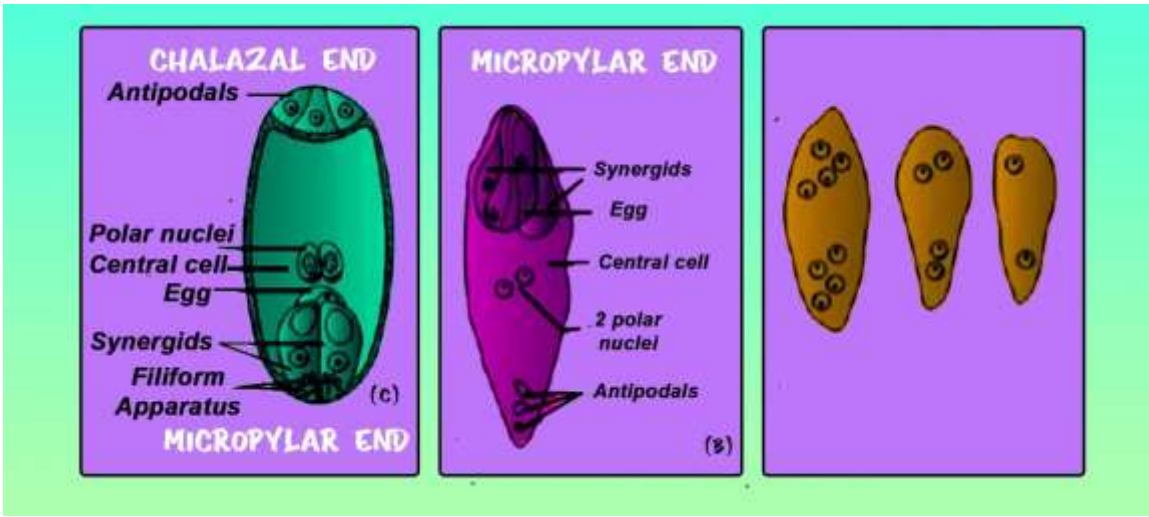
(d) Give the role of filiform apparatus

Ans: Filiform apparatus guides the entry of pollen tubes.

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

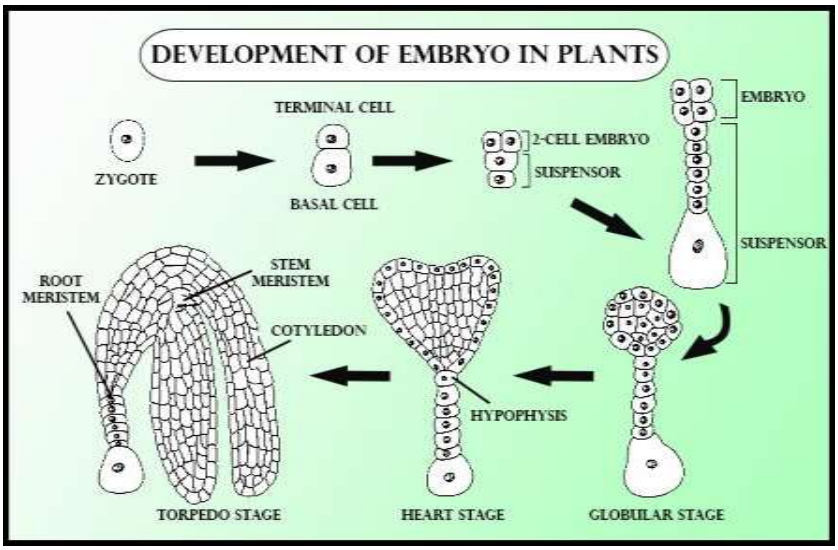
Ans: The functional megaspore becomes bigger in sisize.

- The mitotic division occurs in the nucleus to make 2 nuclei that go in direction of opposite poles.
- Every nucleus at the poles undergoes two mitotic divisions to form 4 nuclei in each pole or a total of 8 nunuclei.
- Two nuclei from each pole move to the center to produce the polar nuclei.
- The other nuclei, three at each pole, get surrounded by a bit of cytoplasm to form cells.
- The female gametophyte or the embryo sac thus has 7 cells and eight nuclei.



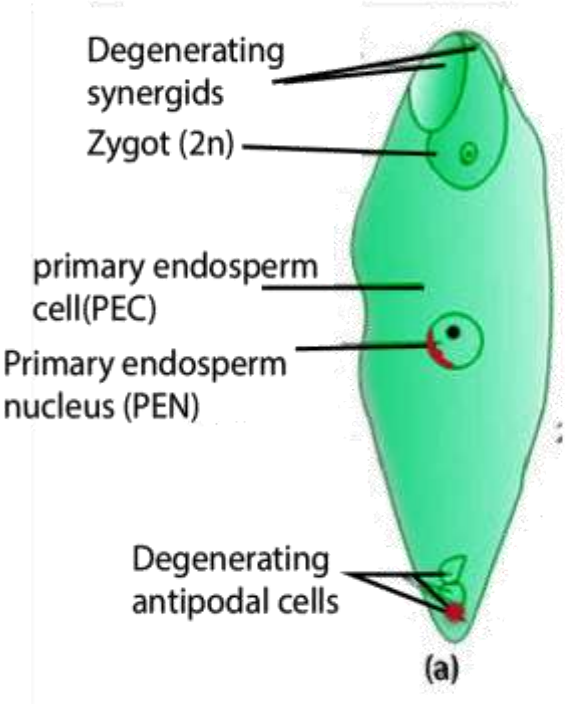
3. Explain the development of an embryo in a dicotyledonous plant with neatly labeled diagrams.

Ans: The embryo develops at the micropylar end where the zygote is located. The zygote begins developing after the particular part of the endosperm is developed to ensure nutrition to the embryo. The zygote breaks mitotically to develop several stages including pro- embryo, globular, heart-shaped, and eventually the developed embryo.



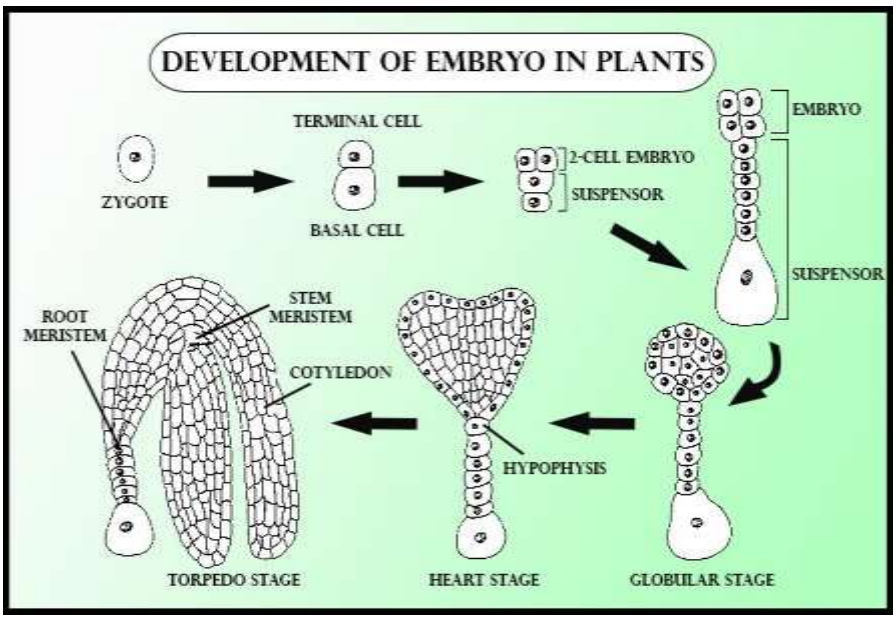
4. Describe the post-fertilization changes taking place in a flowering plant?

Ans:



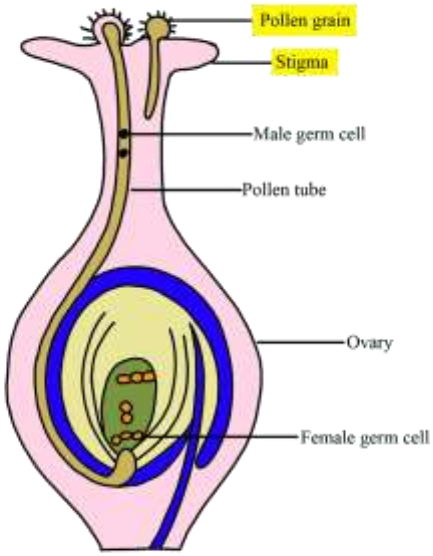
(i) DEVELOPMENT OF ENDOSPERM:- Endosperm development precedes embryo development. The most common method of endosperm development is the nuclear type where triploid endosperm (PEN) undergoes repeated mitotic divisions without cytokinesis – Subsequently cell wall formation occurs from the periphery &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

(ii) DEVELOPMENT OF EMBRYO:- The zygote divides by mitosis in a pro-embryo first. Later development causes the production of a globular and heart-shaped embryo & which ultimately becomes a horseshoe-shaped embryo with one or more than one cotyledon. In a dicot embryo, the portion of the embryonal axis about the level of attachment is epicotyl and it reduces into plumule while part of the embryonal axis below the level of attachment is hypocotyl and finally terminates into a 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.

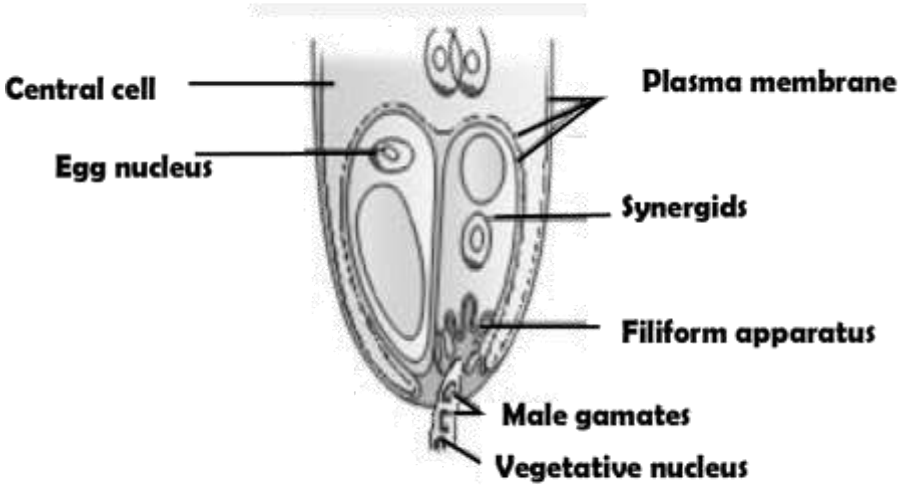
Ans:



Pollen grain germination

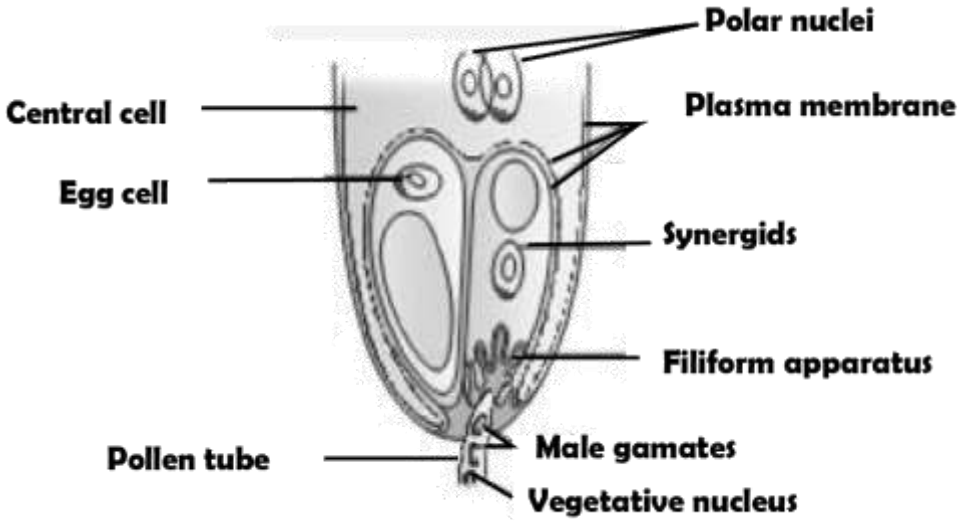
GERMINATION OF POLLEN GRAINS ON STIGMA

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



ii) Entry of pollen tube into Ovule: - The entry of pollen tube into ovule happens by the micropyle or chalaza or also by oblique sides of the ovule. Only 1 pollen tube begins inside the embryo sac of an ovule. Usually, two synergids are eliminated by the entry of a pollen tube into the embryo sac.

iii) Discharge of Mate Gametes:- Both male gametes are discharged into the embryo sac after entering the pollen tube, either by generating two pores in the pollen tube and releasing each male gamete through each pore or by the pollen tube rupturing and releasing the male gametes into the embryo sac.



(4) DEVELOPMENT OF EMBRYO:- The zygote divides by mitosis into a pro-embryo first. After development outcomes in production of heart and globular shaped embryo and also that will eventually mature into an embryo of shapes of a horseshoe with one or more than one cotyledons.

In a dicot embryo, the part of the embryonal axis about the level of addition is called epicotyl and it eliminates into plumule while a portion of the embryonal axis under the level of attachment is known as hypocotyl and it terminates into the radicle

6.

i) Why are zygotes dominant for some time in the fertilized ovule.

Ans: Zygote stays dominant for quite some time in a fertilized ovule because the embryo develops after making of endosperm so zygote forms by the formation of endosperm which supplies food material for developing embryo.

ii) What is polyembryony? Give an example.

Ans: Polyembryony is known as the presence of more than one embryo in a seed, Example- Sometimes more than one embryo is created inside an embryo sac by the splitting of an egg or by cleavage, endosperm, synergid, or antipodal.

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

a) Ovary wall

b) Outer integument

c) Inner integument

d) zygote

e) primary endosperm

f) Ovary

g) Nucellus

Ans: In fruits, the following things are formed from given parts:

a	Ovary wall	Pericarp
b	Outer integument	Testa
c	Inner integument	Tegmen
d	zygote	embryo
e	primary endosperm	endosperm
f	Ovary	fruit
g	Nucellus	perisperm.