# BIOLOGY

## BOOKS - NCERT BIOLOGY (ENGLISH)

## SEXUAL REPRODUCTION IN FIOWERING PIANTS

### Multiple Choice Questions Mcqs

**1.** Among the terms listed below, those that are not technically correct names for a floral whorl are

(i) Andrecium (ii) Carpel

(iii) Corolla (iv) Sepal,

A. androcium

B. carpel

C. corolla

D. sepal

**Answer: C**

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**2.** Embryo sac is to ovule as_____is to an anther.

A. stamen

B. filament

C. pollen grain

D. androecium

**Answer: C**

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**3.** In a typical complete, bisexual and hypogynous flower the arrangement of floral whorls on the thalamus from the outermost to the innermost is

A. calyx, corolla, androecium and gynoecium

B. calyx, corolla, gynoecium and androecium

C. gynoecium, androecium, corolla and calyx

D. androecium, gynoecium, corolla and calyx

**Answer: A**

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**4.** A dicotyledonous plant bears flowers but never produces fruits and seeds. The most probable cause for the above

situation is

A. plant is dioecidous and bears only pistillate flowers

B. plant is dioecious and bears both pistillate and staminate flowers

C. plant is monoecious

D. plant is dioecious and bears only staminate flowers

**Answer: D**

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**5.** The outermost and innnermost wall layers of microsporangium in an anther are respectively

A. Endothecium and tapetum

B. Epidermis and endodermis

C. Epidermis and middle layer

D. Epidermis and tapetum

**Answer: D**

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**6.** During microsporgenesis, meiosis occurs in

A. endothecium

B. microspore mother cells

C. microsopre tetrads

D. pollen grains

**Answer: B**

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**7.** From among the sets of terms given below, identify those that are associated with the gynoecium.

A. Stigma, ovule, embryo sac, placenta

B. Thalamus , pistil, style, ovule

C. Ovule , ovary, embryo sac, tapetum

D. Ovule, stamen, ovary , embryo sac

**Answer: A**

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**8.** Starting from the innermost part, the correct sequence of parts in an ovule are

A. egg, nucellus, embryos sac, integument

B. egg, embryo, sac, nucellus, integument

C. embryo, sac, nucellus, integument, egg

D. egg, integument, embryo sac, nucellus

**Answer: B**

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**9.** From the statements given below, choose the option that are true for a typical femal gametophyte of a flowering plant.

(i) It is 8-nucleate and 7-celled at maturity.

(ii) It is free-nuclear during the development.

(iii) It is situated inside the integument but outside the nucellus.

(iv) It has an egg apparatus situated at the chalazal end.

A. (i) and (iv)

B. (ii) and (iii)

C. (i) and (ii)

D. (ii) and (iv)

**Answer: C**

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**10.** Autogamy means

A. pollen matures before maturity of ovule

B. ovules mature before maturity of pollen

C. both pollen and ovules mature simultaneously

D. both anther and stigma are of equal lengths

**Answer: C**

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**11.** Choose the correct statement from the following.

A. Cleistogamous flowers always exhibit autogamy.

B. Clasmogamous flowers always exhibit geitonogamy .

C. Cleistogamous flowers exhibit both autogamy and geitonogamy .

D. Chasmogamous flowers never exhibit autogamy.

**Answer: A**

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**12.** A particular species of plant produces light, non-sticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by

A. insects

B. water

C. wind

D. animals

**Answer: C**

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**13.** From among the situations given below, choose the one that prevents both autogamy and geitonogamy.

A. Monoecious plant bearing unisexual flowers.

B. Dioecious plant bearing unisexual flowers.

C. Monocious plant with bisexual flowers.

D. Dioecious plant with bisexual flowers.

**Answer: B**

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**14.** In a fertilised embryo sac, the haploid, diploid and triploid structures are

A. synergid, zygote and primary endosperm nucleus

B. synergid, antipodal and polar nuclei

C. antipodal, synergid and primary endosperm nucleus

D. synergid, polar nuclei and zygote

**Answer: A**

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**15.** In an embryo sac, the cells that degenerate after fertilisation are

A. synergids and primary endosperm cell

B. synergids and antipodals

C. antipodals and primary endosperm cell

D. egg and antipodals

**Answer: B**

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**16.** While planning for an artificfal hybridisation programmme involving dioecious plants, which of the following steps would not be relevent?

A. Bagging of female flower

B. Dusting of pollen on stigma

C. Emasculation

D. Collection of pollen

**Answer: C**

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**17.** In the embryos of a typical dicot and a grass, true homologous structures are

A. coleorrhiza and coleoptile

B. coleoptile and scutellum

C. cotyledons and scutellum

D. hypocotyl and radicle

**Answer: C**

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**18.** The phenomenon observed in some plants wherein parts of the sexual apparatus is used for forming embryos without fertilisation is called

A. parthenocarpy

B. apomixis

C. vegetative propagation

D. sexual reproduction

**Answer: B**

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**19.** In a flower, if the megaspore mother cell forms megaspores without undergoing meiosis and if one of the megaspores develops into an embryo sac, its nuclei would be

A. haploid

B. diploid

C. a few haploid and a few diploid

D. with varying ploidy

**Answer: B**

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**20.** The phenomenon wherein, the ovary develops into a fruit without fertilisation is called

A. parthenocarpy

B. apomixis

C. asexual reproduction

D. sexual reproduction

**Answer: A**

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## Very Short Answer Type Questions

**1.** Name the component cells of the 'egg-apparatus' in an embryo sac.

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**2.** Name the part of gynoecium that determines the compatible nature of pollen grain.

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**3.** Name the common function that cotyledons and nucellus perform.

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**4.** Complete the following flow chart


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**5.** Indicate the stages where meiosis and mitosis occur (1, 2 or 3 ) in the flow chart.

$$\text{Megaspore mother cell} \xrightarrow{1} \text{Megaspores} \xrightarrow{2} \text{Embryo sac} \xrightarrow{3} \text{Egg}$$

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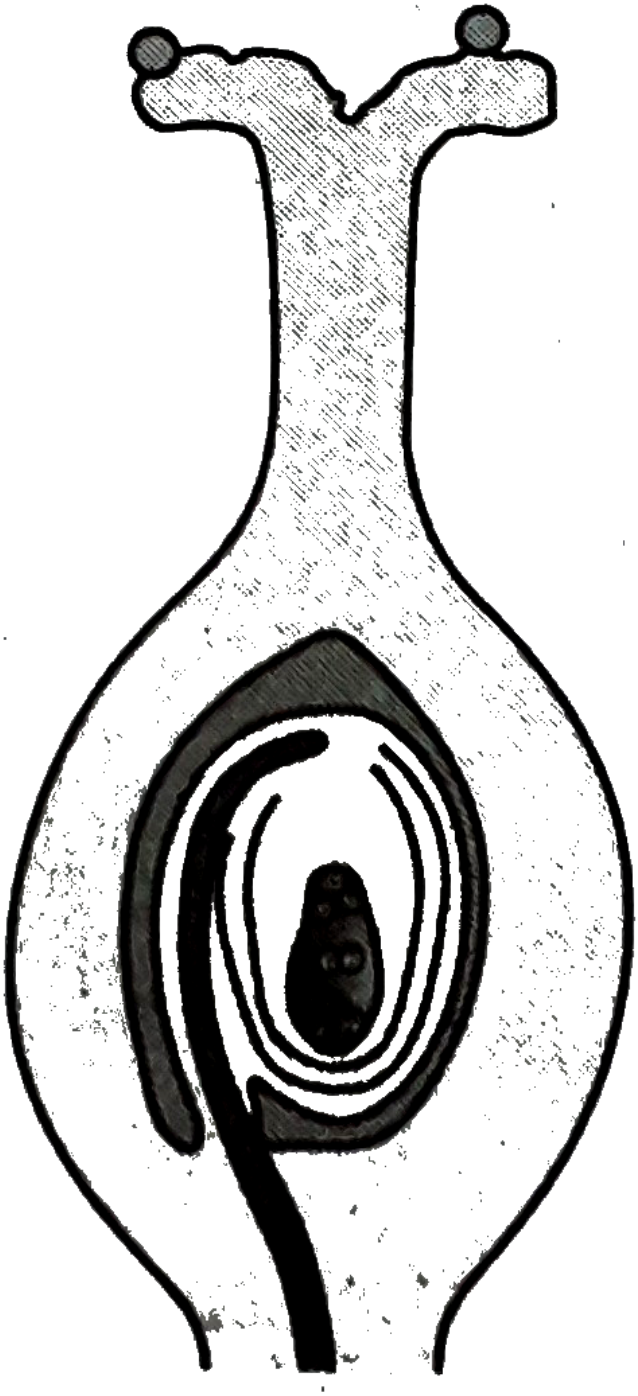
**6.** In the diagram given below, show the path of a pollen tube from the pollen on the stigma into the embryo sac, Name the

components of egg apparatus.



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**7.** Name the parts of pistil which develop into fruit and seeds.

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**8.** In a case of polyembryony if an embryo develops from the synergid and another from the nucellus, then the synergid embryo is $\underline{(i)}$ and nucellar embryo is $\underline{(ii)}$.

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**9.** Can an unfertilised, apomictic embryo sac give rise to diploid embryo ? If yes, then how ?

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**10.** The three cells found in a pollen grain when it is shed at 3-celled stage are

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**11.** What is self-incompatibility ?

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**12.** Name the type of pollination in self-incompatible plants.

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**13.** Draw the diagram of a mature embryo sac and show its eight -nucleate, seven-celled nature. Show the following parts- antipodals, synergids, egg, central cell, polar nuclei.

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**14.** Which is the triploid tissue in a fertilised ovule? How is the triploid condition achieved?

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**15.** Are pollination and fertilisation necessary in apomixis? Give reasons.

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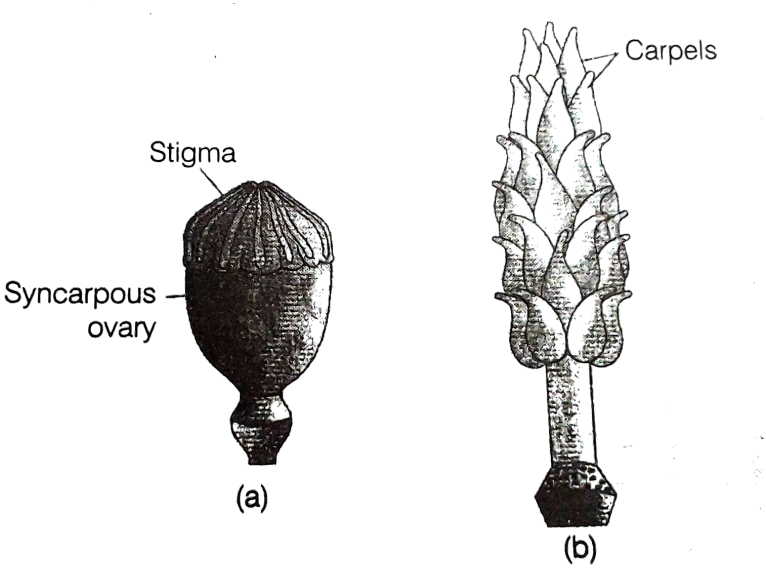
**16.** Identify the type of carpel with the help of diagrams given below

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**17.** How is pollination carried out in water plants?

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**18.** What is the function of the two male gametes produced by each pollen grain in angiosperms.

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## Short Answer Type Questions

**1.** List three strategies that a bisexual chasmogamous flower can evolve to prevent self-pollination (autogamy).

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**2.** Given below are the events that are observed in an artificial hybridisation programme. Arrange them in the correct sequential order and select the correct option.

1. Re-bagging 2.Selection of parents

3. Bagging 4. Dusting the pollen on stigma 5. Emasculation

6. Collection of pollen from male parent

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**3.** Vivipary automatically limits the number of offsprings in a litter. How?

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**4.** Does self-incompatibility impose any restrictions on autogamy? Give reasons and suggest the method of pollination in such plants.

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**5.** In the given diagram, write the names of parts shown with lines.

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**6.** What is polyembryony and how can it be commercially exploited?

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**7.** Are parthenocarpy and apomixis different phenomena ? Discuss their benefits .

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**8.** Why does the zygote begin to divide only after the division of primary Endosperm cell (PEC)?

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**9.** The generative cell of a two celled pollen divides in the pollen tube, but not in a three-celled pollen. Give reasons.

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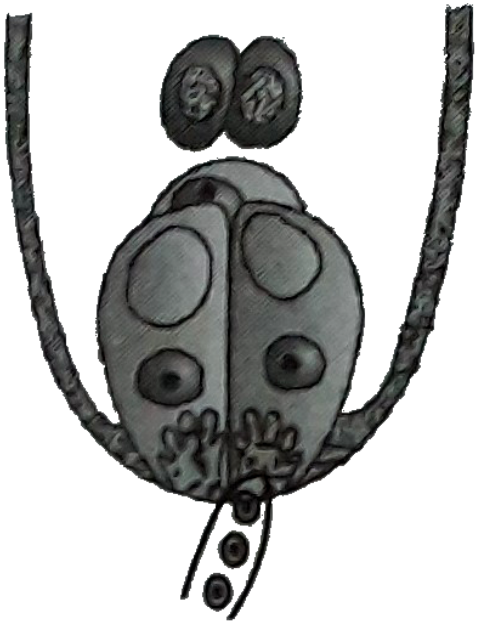
**10.** In the figure given below label the following parts-male gametes, egg cell, polar nuclei, synergid and pollen tube



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## Long Answer Type Questions

**1.** Starting with the zygote, draw the diagrams of the different stages of embryo development in a dicot.

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**2.** What are the possible types of pollinators in chasmogamous flowers. Give reasons.

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**3.** With a neat, labelled diagram, describe the parts of a mature angiosperm embryo sac. Mention the role of synergids.

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**4.** Draw the diagram of a microsporangium and lable its wall layers.Write briefly about the wall layers?

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**5.** Can an unfertilised, apomictic embryo sac give rise to diploid embryo ? If yes, then how ?