



# **BIOLOGY**

## **BOOKS - MBD BIOLOGY (ODIA ENGLISH)**

### **SEXUAL REPRODUCTION IN FLOWERING PLANTS**

**Question Bank**

1. Formation of an organiser from a single, male gamete without fusion with egg is an example of :

A. Parthenogenesis

B. Apogamy

C. Apospory

D. Parthenocarpy

**Answer: A**



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2. Adventive embryony in Citrus due to :

A. Nucellus

B. Integuments

C. Zygotic embryogenesis

D. Fertilized egg

**Answer: A**



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3. In grasses what happens in microspore mother cell for the formation of mature pollen grains :

- A. One meiotic and two mitotic divisions
- B. One meiotic and one ,mitotic divisions
- C. One meiotic and one,mitotic divisions
- D. one meiotic division

**Answer: B**



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4. Which one of the following statements is wrong ?

A. Naked seeds are seen in gymnosperms

B. Endospores are produced by  
Pteridophyta

C. Basidiocarp is fruiting body of fungus.

D. Capsule is the sporophyte of Bryophyta.

**Answer: B**



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5. Double fertilization in angiosperms was discovered by :

A. Nawaschin

B. Maxwell

C. Einstein

D. Antony Hewert

**Answer: A**



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6. Hydroponics is:

- A. Plant growth in mineral deficient ,soil
- B. Soil conservation
- C. Plant growth in liquid culture medium
- D. None of these

**Answer: D**



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7. Number of nuclei present in common embryo sac are:

A. Six

B. Eight

C. Twelve

D. Twenty four

**Answer: B**



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8. Perisperm is:

- A. Remains of nucellus
- B. Outer part of embryo sac•
- C. Degenerated synergid
- D. Degenerated secondary nucleus

**Answer: A**



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9. In a flowering plant, archesporium gives rise to :

- A. Only tapetum and sporogenous cells
- B. Only the wall and the sporogenous cells
- C. Both wall and the sporogenous cells
- D. Wall and the tapetum

**Answer: C**



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**10.** Pollen grains are able to tolerate extremes of temperature and desiccation because their exine consists of:

A. Cutin

B. Suberin

C. Sporopollenin

D. Callose

**Answer: C**



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11. The plant part which consists of two generations one with in the other is :

A. Seed

B. Germinated pollen grain

C. Embryo

D. Unfertilized ovule

**Answer: A**



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12. Pollen tube usually enters the embryo sac :

A. Between one synergid and central cell

B. By knocking of antipodal cell

C. Through one of synergids

D. Directly penetrate the egg

**Answer: A**



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**13.** A plant root cell has 16 chromosomes thus:

A. Gamete has 16 chromosomes

B. Gamete has 8 chromosomes

C. Endosperm has 16 chromosomes

D. Endosperm has 8 chromosomes

**Answer: A**



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14. Which one of the following statements is correct ?

A. Sporogenous tissue is haploid.

B. Endothecium produces the microspores.

C. Tapetum nourishes the developing pollen.

D. Hard outer layer of pollen is called intine.

**Answer: C**



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15. When a diploid female plant is crossed with a tetraploid male, the ploidy of endosperm cells in resulting seed is :

A. Tetraploidy

B. Diploidy

C. Triploidy

D. pentaploidy

**Answer: A**





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16. Which of the following represent the edible part of the fruit of litchi :

A. Pericarp

B. Mesocar

C. Juicy aril

D. Endocarp

**Answer: C**



17. Pollen tube usually enters the embryo sac :

- A. Egg cell
- B. Central cell
- C. Persistant synergid
- D. Degenerated synergid

**Answer: D**



**18.** Which one of the following represents an ovule , where the embryo sac becomes horse - shoe shaped and the funiculus and micropyle are close to each other ?

A. Circinotropus

B. Anatropous

C. Amphitropous

D. Atropous

**Answer: C**



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**19.** Why is vivipary an undesirable character for annual crop Plants?

A. It reduces the vigour of the plant

B. The seeds cannot be stored under normal conditions for the, next season

C. The seeds exhibit long dormancy.

D. It adversely affects the fertility of the plant.

**Answer: B**



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**20.** In which pair both the plants can be vegetatively propagated by leaf pieces ?

- A. Bryophyllum and Kalanchoe
- B. Chrysanthemum and Kalanchoe
- C. Agave and Kalanchoe
- D. Asparagus .and Bryophyllum

**Answer: A**



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**21.** In a, type of apomixis known as adventive embryony, embryos, develop directly from the:

A. Nucellus or integuments

B. Synergids or antipodals in an embryo sac

C. Accessory embryo sacs in the ovule

D. Zygote

**Answer: A**



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**22. Double fertilization, involves:**

A. Fertilization of the egg by two male gametes

B. Fertilization of two eggs in the same embryo sac by two sperms brought ,by

one pollen tube

C. Fertilization of the egg and the central cell by two sperms brought by different pollen tubes.

D. Fertilization of the egg and central cell by two sperms brought by the same pollen

**Answer: D**



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**23.** In some plants anthers and stigma grow and mature at same time. This phenomenon is called:

A. Homogamy

B. Syngamy

C. Allogamy

D. Fusion

**Answer: A**



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24. For the formation of tetrasporic embryo sac, how many megaspore mother cells are required ?

A. 1

B. 2

C. 3

D. 4

**Answer: B**



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25. Pollen 'sac in *Cycas* is called:

- A. Megasporophyll
- B. Megasporangium
- C. Microsporophyll
- D. Microsporangium

**Answer: D**



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26. Polygonum type of embryo sac is :

- A. 8-nucleate and 7-celled
- B. 8-nucleate and 8-celled
- C. 8-nucleate and 8-celled
- D. 7-nucleate and 8 celled

**Answer: A**



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27. In the angiosperm ovule central cell of the , embryo sac, prior to the entry of pollen tube, contains:

- A. a single haploid nucleus
- B. one diploid and one haploid nuclei
- C. two haploid polar nuclei
- D. one diploid secondary nucleus

**Answer: C**



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**28.** Xenia refer to:

A. Effect of pollen on stem

B. Effect of pollen on taste of fruit

C. Effect of pollen on vascular tissue

D. Effect of pollen on endosperm

**Answer: D**



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29. The pollination preferred by snails .

A. Entomophilous

B. Ornithophilous

C. Anemophilous

D. Malacophilous

**Answer: D**



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30. The arrangement of the nuclei in a normal embryo sac in the dicot plants is

A.  $2 + 4 + 2$

B.  $3 + 2 + 3$

C.  $2 + 3 + 3$

D.  $3 + 3 + 2$

**Answer: B**



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31. Which one of the following is surrounded by a callose wall ?

A. Male gamete

B. Egg

C. Pollen grain

D. Microspore mother cell

**Answer: D**



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32. Male gamete in angiosperm is produced by

:

A. Generative cell

B. Vegetative cell

C. • Microspore mother cell

D. Microspore

**Answer: A**



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**33.** 8-nucleate embryo sac is :

A. Always bisporic

B. Always tetrasporic

C. always monosporic

D. sometimes monosporic, sometimes  
bisporic and sometimes tetrasporic

**Answer: D**



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**34.** Double fertilization (or triple fusion) leading to initiation of endosperm in angiosperms, requires:

A. Fusion of 4 or more polar nuclei and the second male gamete only

B. Fusion of 2 pole nuclei and second male gamete only

C. Fusion of one polar nucleus and second male gamete only

D. All the above types of fusion in different types of angiosperms

**Answer: B**



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**35.** Many scientists consider viruses as living entities because these:

A. Respire

B. Can cause disease

C. ReprodUce (inside host)

D. Reproduce to tough environment

**Answer: A**



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**36.** The mode of asexual reproduction in bacteria are:

A. Formation of gametes

B. Endospore formation

C. Conjugation

D. Zoospore formation

**Answer: B**



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**37. Pollen tube usually enters the embryo sac :**

A. Egg cell

B. Central cell

C. Persistent synergid

D. Degenerated synergid

**Answer: D**



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**38.** Which one of the following represents an ovule , where the embryo sac becomes horse - shoe shaped and the funiculus and micropyle are close to each other ?

A. Circinotropous



B. Antropous

C. Amphitropous

D. Atropous

**Answer: C**



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**39.** Which of the following represent the edible part of the fruit of litchi :

A. Pericarp

B. Mesocarp

C. Juicy aril

D. Endocarp

**Answer: C**



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**40.** Study of pollen grain is called:

A. Ethmology

B. Palynology

C. Paleobotany

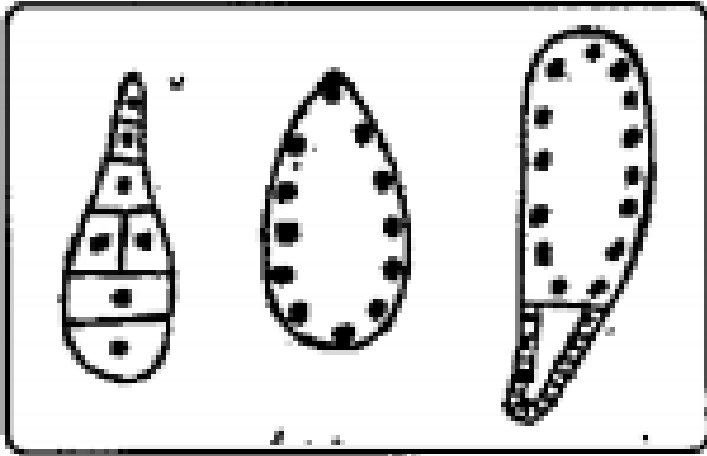
D. None of these

**Answer: B**



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**41.** Select the correct order of endosperm types:



A. cellular, helobial, free nuclear

B. cellular, free nuclear, helobial

C. free nuclear, cellular, helobial

D. free nuclear, helobial, cellular

**Answer: C**



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42. Endosperm is consumed by developing embryo in the seed of:

A. Pea

B. Maize

C. Coconut

D. Castor

**Answer: A**



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43. Nucellar polyembryony is reported in species of

A. Citrus

B. Gossypium

C. Triticiwn

D. Prassica

**Answer: A**



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**44.** The presence of filiform apparatus is the characteristic feature of

A. Suspensor

B. Egg

C. Synergid

D. Zygote

**Answer: C**



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45. What would be the number of chromosomes of the aleurone cells of a plant with 42 chromosomes in its root tip cells ?

A. 42

B. 63

C. 84

D. 21

**Answer: B**



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**46.** The gynoecium consists of many free pistils in flowers of:

A. 'Tomato

B. Papaver

C. Michelila

D. Aloe

**Answer: C**



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47. Both autogamy and geitonogamy are prevented in

A. Cucumber

B. Castor

C. Maize

D. Papaya

**Answer: D**



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**48.** An organic substance that can withstand environmental extremes and cannot be degraded by any enzyme is

A. Sporopollenin

B. Lignin

C. Cellulose

D. Cuticle

**Answer: A**



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**49.** Placentation in tomato and lemon is:

A. Free central

B. Marginal

C. Axile

D. Parietal

**Answer: C**



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50. Which of these is a condition that makes flowers invariably autogamous ?

A. Dioecy

B. Self incompatibility

C. Cleistogamy

D. Xenogamy

**Answer: C**



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## 51. Match the Column I with Column II.

Column I	Column II
A. Ionic solid	I. NaCl
B. Metallic solid	II. Fe
C. Covalent solid	III. C (Graphite)
D. Molecular solid	IV. Dry ice

Choose the correct option.

A. 1 — b, 2 c, 3 — e, 4 — d, 5—a

B. 1 — a, 2 c, 3 — b, 4 — d, 5 e

C. 1. 1 — b, 2 — d, 3 — e, 4 — a, 5 — c

D. 1 c, 2 — d, 3—e,4—a,5—b

**Answer: A**



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52. Megasporangium is equivalent to

A. Fruit

B. Nucellus

C. Ovule

D. Embryo sac

**Answer: C**



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53. Advantage of cleistogamy is :

- A. More vigorous offspring
- B. No dependence of pollinators
- C. Vivipary
- D. Higher genetic variability

**Answer: B**



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54. Perisperm differs from endosperm in

A. Having no reserve food

B. being a diploid tissue

C. Its formation by fusion of secondary nucleus with several sperms

D. being a haploid tissue

**Answer: B**



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55. Non - albuminous seed is produced in

A. Maize

B. Castor

C. Wheat

D. Pea

**Answer: D**



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**56.** An aggregate fruit is one which develops from:

- A. Multicarpellary syncarpous gynoecium
- B. Multicarpellary apocarpus gynoecium
- C. Complete inflorescence
- D. Multicarpellary superior ovary

**Answer: B**



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57. Geitonogamy involves :

A. Fertilization of a flower by the pollen  
from another flower of the same plant

B. Fertilization of a flower by the pollen  
from the same flower

C. Fertilization of a flower by the pollen  
from a flower of another plant in the  
same population

D. Fertilization of a flower by the pollen  
from a flower of another plant belonging

. To a distant population

**Answer: A**



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**58.** Pollen tablets are available in the market for :

A. In vitro fertilization

B. Breeding programmes

C. Supplementing food

D. Ex situ conservation

**Answer: C**



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**59.** Male gametophyte with least number of cells is present in

A. Preris

B. Funaria

C. Lithium

D. Pinus

**Answer: C**



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**60.** Function of filiform apparatus is to

- A. Recognize the suitable pollen at stigma
- B. Stimulate division of generative cell
- C. Produce nectar
- D. Guide the entry of pollen tube

**Answer: D**



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**61. Cotyledon of maize grain is called:**

A. Coleorhiza

B. Coleoptile

C. Scutellum

D. Plumule

**Answer: C**





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**62.** Seed formation without fertilization in flowering plants involves the process of:

- A. Budding
- B. Somatic hybridization
- C. Apomixis
- D. Sporulation

**Answer: C**



63. Double fertilization is exhibited by:

- A. Angiosperm
- B. Algae
- C. Fungi
- D. Gymnosperm

**Answer: A**



**64.** Name the innermost wall of microsporangium.



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**65.** Name the homogenous tissue in the centre of each microsporangium.



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**66.** What term is used for formation of microspores?



**Watch Video Solution**

**67.** Which structures of a flower represents male gametophyte?



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**68.** Name a prominent aperture in pollen grain exine.



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**69.** What term is used for inner wall of the pollen grain?



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70. Which part of flower serves as landing platform of pollen grain?



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71. What term is used for formation of megaspores?



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**72.** What term is used for removal of anther from a flower?



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**73.** The grass family cotyledon is called what?



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**74.** Rapid propagation of plants by tissue culture methods.



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**75.** Fill in the blanks

In grafting, the rooted plant is called stock and stem cutting of donor plant is called .....



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**76.** The plant part used for tissue culture is



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77. The outer wall of the pollen grain is called

.....



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78. Transfer of pollen grains from anther to stigma of the same flower.



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**79.** State the condition where male and female flowers are borne on the same plant.



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**80.** Process of formation of seed (embryo) directly from the egg without fertilization.



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**81.** Pollination by wind.



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**82.** Inability of gametes to fuse with each other in particular combinations.



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**83.** In ....., pollen tube enters through micropyle into the ovule.



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**84.** Development of fruit without fertilization is called:



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**85.** Fusion of egg with male gamete is called :



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**86.** Process of formation of pollen grains is the anther.





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**87.** Asexual reproduction in plants is also called\_\_\_\_\_.



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**88.** A type of vegetative propagation where the lower branches of the plant are bent down and covered with soil is called\_\_\_\_\_.



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**89.** In grafting, the root system used is called\_\_\_\_\_.



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**90.** Air layering is also called\_\_\_\_\_.



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**91.** Exine is formed of substance called .....



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92. Ovules with two integuments are called\_\_\_\_\_.



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93. A typical female gametophyte of angiosperms contains\_\_\_\_\_number of nuclei.



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94. Egg and two synergide constitute the\_\_\_\_\_.



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95. State the condition when stamens mature earlier than carpels.



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96. Seeds with enlarged and persistent endosperm are called\_\_\_\_\_.





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97. In some cases the nucellus persists in the form of a food-storing thin layer called\_\_\_\_\_.



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98. In homogamy, flowers never open to expose their sex organs.

A. True

B. False

C.

D.

**Answer: Cleistogamy**



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**99.** Pollination by birds is called  
Chiropterophily

A. True

B. False

C.

D.

**Answer: Ornithophily**



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**100.** Chalazogamy is entry of pollen tube through micropyle.

A. True

B. False

C.

D.

**Answer: Porogamy**



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**101.** The endosperm is diploid.

A. True

B. False

C.

D.

**Answer: Triploid**



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**102.** In true fruits, thalamus contribute to fruit formation.

A. True

B. False

C.

D.

**Answer: False fruit**



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**103.** Formation of seeds without fertilization is called dormancy.

A. True

B. False

C.

D.

**Answer: Apomixis**



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**104.** Occurrence of more than one embryo in a seed is referred as polygamy.

A. True

B. False

C.

D.

**Answer: Polyembryony**



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**105.** Name the parts of an angiospermic flower in which development of male and female gametophyte take place



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**106.** Differentiate between microsporogenesis and megasporogenesis. Which type of cell division occurs during these events? Name the structures formed at the end of these two events



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**107.** Arrange the following terms in the correct developmental sequence. Pollen grain,

sporogenous tissue, microspore tetrad, pollen mother cell, male gametes.



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**108.** With a neat, labelled diagram, describe the parts of a typical angiosperm ovule.



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**109.** What is meant by monosporic development of female gametophyte?



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**110.** With the help of a neat well- labelled diagram explain the 7-celled , 8 nucleate mature of the female gametophyte .



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**111.** What are chasmogamous flowers? Can cross-pollination occur in cleistogamous flowers? Give reasons for your answer.



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**112.** Mention two strategies evolved to prevent self-pollination in flowers.



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**113.** What is self-incompatibility ? Why does self-pollination not lead to seed formation in self-incompatible species?



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**114.** What is bagging technique? How is it useful in a plant breeding programme?



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**115.** What is triple fusion ? Where and how does it take place? Name the nuclei involved in triple fusion.



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**116.** Why do you think that the zygote is dormant for some time in a fertilised ovule?



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**117.** Differentiate between : Hypocotyl and epicotyl



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**118.** Differentiate between : Coleoptille and coleorhiza



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**119.** Differentiate between : Integument and testa



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**120.** Differentiate between : Perisperm and pericarp



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**121.** Why is apple called a false fruit ? Which part (s) of the flower forms the fruit ?



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**122.** What is meant by emasculation ? When and why does a plant breeder employ this technique ?



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**123.** If one can induce parthenocarpy through the application of growth substances, which fruits would you select to induce parthenocarpy and why?



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**124.** Explain the role of tapetum in the formation of pollen grain wall.



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**125.** What is apomixis and what is its importance?



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

*Megasporophyll* or *mother cell*  $\xrightarrow{1}$

*Megasporocyte* or *sporocyte*  $\xrightarrow{2}$  *Embryosac*

$\xrightarrow{3}$  Egg



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





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



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**129.** 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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**130.** What are the possible types of pollinations in chasmogamous flowers. Give reasons.



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**131.** With a neat, labelled diagram, describe the part of a mature angiosperm embryo sac. Mention the role of Synergids.



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**132.** Draw the diagram of a microsporangium and label its wall layers. Write briefly on the role of the endothecium.



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**133.** WRITE SHORT NOTES ON : Vegetative propagation



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**134. WRITE SHORT NOTES ON : Grafting**



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**135. WRITE SHORT NOTES ON :**

**Micropropagation**



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**136. WRITE SHORT NOTES ON : Entomophily**



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**137. WRITE SHORT NOTES ON : Embryo sac**



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**138. WRITE SHORT NOTES ON : Double fertilization**



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**139. WRITE SHORT NOTES ON : Post fertilization changes**





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**140. WRITE SHORT NOTES ON : Endosperm**



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**141. WRITE SHORT NOTES ON : Syngamy**



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**142. WRITE SHORT NOTES ON : Triple fusion**



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**143. WRITE SHORT NOTES ON : Apomixis**



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**144. WRITE SHORT NOTES ON : Polyembryony**



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**145. DISTINGUISH BETWEEN Microsporogenesis and microgametogenesis**



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**146. DISTINGUISH BETWEEN Microsporogenesis and megasporogenesis**



**Watch Video Solution**

**147. DISTINGUISH BETWEEN Self-pollination and cross-pollination**



**Watch Video Solution**

**148. DISTINGUISH BETWEEN Dichogamy and herkogamy**



**Watch Video Solution**

**149. DISTINGUISH BETWEEN** Pollination and fertilization



**Watch Video Solution**

**150. DISTINGUISH BETWEEN** Syngamy and triple fusion



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**151. DISTINGUISH BETWEEN Embryo and endosperm**



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**152. With diagrams, describe the development of male and female gametophyte in angiosperms.**



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**153.** Explain the mechanism of double fertilization.



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**154.** Give an account of contrivances of self and cross pollinations.



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