

SEXUAL REPRODUCTION IN FLOWERING PLANTS

- 1 Apomixis can be defined as
 - 1) sexual reproduction
 - 2) reproduction that does not involve meiosis and fertilization
 - 3) reproduction where seeds are formed but without meiosis and fertilization
 - 4) multiplication of plants simply by vegetative methods

- 2 If the queen bee has a chromosome number of 32, and arises as a result of normal fertilization, the parthenogenetically developed male bee has a chromosome number of
 - 1) 32
 - 2) 16
 - 3) 64
 - 4) 18

- 3 Which of the following cell gives rise to two male gametes in the male gametophyte of angiosperms?
 - 1) Vegetative cell
 - 2) Generative cell
 - 3) Archegonium
 - 4) None

- 4 If the endosperm of an angiosperm has 24 chromosomes what would be the number of chromosomes in the MMC of the same plant?
 - 1) 8
 - 2) 16
 - 3) 24
 - 4) 32

- 5 To produce 100 pollen grains how many PMC are required?
 - 1) 100
 - 2) 75
 - 3) 50
 - 4) 25

- 6 Identify the **incorrect** statement.
 - 1) One megaspore mother cell undergo meiotic division and produce linear tetrad of four megaspores
 - 2) Three megaspores present towards chalaza gradually degenerate
 - 3) only one megaspore which is present towards chalaza remains functional
 - 4) the process of development of female gametophyte is called megagametogenesis

- 7 Match the following.

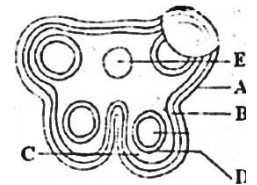
	Type of Ovule		Example
a	Orthotropous	w	Pea
b	Anatropous	x	Ranunculus
c	Amphitropous	y	Betel
d	Campylotropous	z	Brassica

- 1) a-y, b-z, c-x, d-w
 - 2) a-y, b-w, c-x, d-z
 - 3) a-z, b-w, c-x, d-y
 - 4) a – w, b-y, c-x, d-z
-
- 8 Type of pollination seen in Vallisneria is
 - 1) Entomophily
 - 2) Epihydrophily
 - 3) Hypohydrophily
 - 4) Anemophily

 - 9 Emasculation is performed during hybridization to
 - 1) Avoid undesirable pollination
 - 2) Support undesirable pollination
 - 3) Facilitate controlled artificial pollination
 - 4) Both 1 and 3

 - 10 Innermost wall layer of microsporangium nourishing the developing pollen grains is known as
 - 1) Endodermis
 - 2) Endothecium
 - 3) tapetum
 - 4) sporogenous tissue

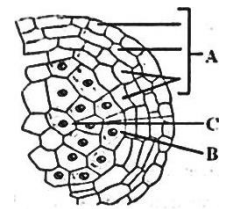
- 11 Scutellum observed in a grain of wheat or maize is comparable to which part of the seed in other monocotyledons?
 1) Plumule 2) Cotyledon 3) Endosperm 4) Aleurone layer
- 12 How many nuclei take part in the complete process of double fertilization?
 1) 2 2) 3 3) 4 4) 5
- 13 The point where funicle joins with the body of ovule, is known as:
 1) Hilum 2) chalaza 3) Integument 4) micropyle
- 14 Egg apparatus of ovule consists of
 1) egg and antipodal cells 2) Egg and secondary nucleus 3) Egg and two synergids 4) Egg and one synergid
- 15 Wind pollinated flowers are
 1) Large, white and without scent 2) small, coloured and scented 3) small, coloured and without scent 4) small, white and without scent
- 16 Commelina produces
 1) Chasmogamous flowers only 2) Cleistogamous flowers only 3) Chasmogamous as well as cleistogamous flowers 4) None
- 17 In the following diagram of T.S. of anther different parts have been labelled in alphabets. Mark the correct option which indicates parts correctly.



- | | | | | | |
|----------------|---------------|---------------|------------|------------|--|
| A | B | C | D | E | |
| 1. Epidermis | Endothecium | Middle layers | Tapetum | Connective | |
| 2. Epidermis | Endothecium | Middle layers | Connective | Tapetum | |
| 3. Endothecium | Epidermis | Middle layers | Tapetum | Connective | |
| 4. Epidermis | Middle layers | Endothecium | Connective | Tapetum | |

- 18 Identify the functions of A, B and C in the following diagram of single microsporangium of an anther

- | | | |
|-------------------------|-------------------------|--------------------------|
| A | B | C |
| 1. Dehiscence of anther | Forms spore tetrad | Nourishes developing PMC |
| 2. Dehiscence of anther | Forms spore tetrad | Protection |
| 3. Dehiscence of anther | Nourishes pollen grains | Forms spore tetrad |
| 4. Dehiscence of anther | Nourishes pollen grains | Protection |

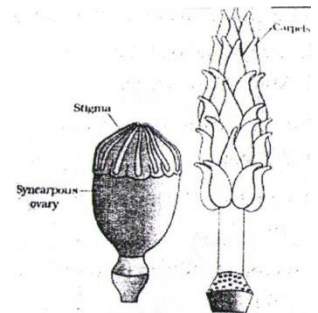


- 19 The cells of the sporogenous tissue form microspore tetrad
 1) mitotic division only 2) Meiotic division only 3) Mitotic division followed by meiosis 4) Meiotic division followed by mitosis

- 20 Microsporogenesis refers to
- 1) Formation of microspore mother cells
 - 2) Formation of microspores by mitotic division of sporogenous tissue
 - 3) Formation of microspores by meiotic division of tapetum
 - 4) Formation of microspores by meiotic division of pollen mother cells/PMC
- 21 Read the following statements carefully and mark the correct option given below.
- a. Sporopollenin is the hardest/resistant material found in exine
 - b. Sporopollenin is resistant to temperature, strong acids and alkali
 - c. Pollen grains are well preserved as fossils due to the presence of sporopollenin
 - d. Intine is the inner layer of pollen wall and is made up of cellulose and pectin
- 1) a, b and c are correct and d is incorrect
 - 2) a and b are correct and c and d is incorrect
 - 3) a is correct and b, c and d is incorrect
 - 4) All are correct
- 22 Viability of pollen grains means
- 1) Ability of pollen grain to germinate on stigma
 - 2) Ability of spore tetrad to form pollen grain
 - 3) Ability of pollen grain to fertilize with ovule of another flower
 - 4) Ability of pollen grain to produce male gametes

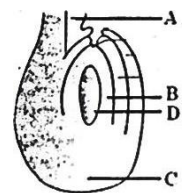
23 The diagrams given below are the gynoecium/pistils of _ and _ respectively

- 1) Papaver and Hibiscus
- 2) Papavar and Michelia
- 3) Michelia and Papavar
- 4) Papavar and Mango

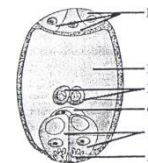


24 Given below is a diagrammatic sketch of an anatropous ovule. Select the correct set of names of parts labelled A, B, C and D.

- | | | | |
|-------------|------------|-----------|------------|
| A | B | C | D |
| 1. Nucellus | Embryo sac | Chalaza | Funicle |
| 2. Funicle | Nucellus | Micropyle | Embryo sac |
| 3. Funicle | Nucellus | chalaza | Embryo sac |
| 4. Funicle | Nucellus | chalaza | Micropyle |



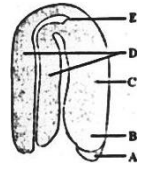
25 In the following diagram of mature embryo sac identify the parts labelled in alphabets.



	A	B	C	D	E	F
1	Filiform apparatus	Synergids	Egg	Central cell	Polar nuclei	Antipodals
2	Synergids	Filiform apparatus	Egg	Central cell	Polar nuclei	Antipodals
3	Filiform apparatus	Synergids	Central cell	Egg	Polar nuclei	Antipodals
4	Filiform apparatus	Synergids	Central cell	Egg	Antipodals	Polar nuclei

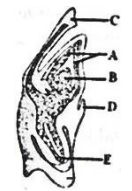
- 26 Find the mismatch.
- Autogamy: Pollination within the same flower
 - Geitonogamy : Pollination between two flowers of two different plants of same species
 - Xenogamy : Pollination between two flowers on the same plant
- 1) a and b 2) b and c 3) c and a 4) All these

- 27 Given below id diagram of a typical dicot embryo. In which of the following all the parts labelled in alphabets are correctly matched?



A	B	C	D	E
1. Root cap	Radicle	Hypocotyl	Cotyledons	Plumule
2. Radicle	Root cap	Hypocotyl	Cotyledons	Plumule
3. Root cap	Radicle	Cotyledons	Hypocotyl	Plumule
4. Root cap	Radicle	Cotyledons	Plumule	Hypocotyl

- 28 In the following diagram of L.S of grass embryo (monocot embryo) identify scutellum and Epiblast



Scutellum	Epiblast
1. A	D
2. C	E
3. C	D
4. D	E

- 29 Double fertilization is the process in angiosperms which involves
- Syngamy only
 - Syngamy and triple fusion
 - Fusion of male gametes with egg and antipodals
 - Fusion of polars and then polars with male gametes

- 30 Perisperm i.e., residual persistent Nucellus is seen in
- Black pepper
 - Beet
 - Castor
 - Both 1 and 2

- 31 Find the mismatch.
- False fruit: Other than ovary, thalamus taking part in fruit formation
 - Parthenocarpic fruits: fruits developed without fertilization
 - True fruit: Fruit develops from the ovary
 - Seeds: Developed from the ovary

- 32 Polyembryony is seen in
- Citrus
 - Mango
 - Apple
 - Both 1 and 2

- 33 The ability of a seed to retain its germination capacity is called
- Viability
 - Dormancy
 - Apomixis
 - Amphimixis

- 34 The oldest (1000 year old) viable seed excavated from arctic tundra is of
 1) Phoenixdactylifera 2) Lupinus arcticus 3) Annona squamosa 4) Saraca asoca
- 35 A few statements describing certain features of reproduction are given below; Select the options that are true for both asexual and sexual reproduction from the options given below.
 i. Gametic fusion takes place
 ii. Transfer of genetic material takes place
 iii. Reduction division takes place
 iv. Progeny have some resemblance with parents
 1) i and ii 2) ii and iii 3) ii and iv 4) i and iii
- 36 The number of chromosomes in the shoot tip cells of a maize plant is 20. The number of chromosomes in the microspore mother cells of the same plant shall be
 1) 20 2) 10 3) 40 4) 15
- 37 From among the situations given below, choose the one that prevents both autogamy and geitonogamy.
 1) Monoecious plant bearing unisexual flowers 3) Monoecious plant with bisexual flowers
 2) Dioecious plant bearing only male or female flowers 4) Dioecious plant with bisexual flowers
- 38 In a fertilized embryo sac, the haploid, diploid and triploid structures are
 1) Synergid, zygote and primary endosperm nucleus 3) Antipodal, synergid and primary endosperm nucleus
 2) Synergid, antipodal and polar nuclei 4) Synergid, polar nuclei and zygote
- 39 While planning for an artificial hybridization programme involving Dioecious plants, which of the following steps would not be relevant
 1) Bagging of female flower 2) Dusting of pollen on stigma 3) Emasculation 4) Collection of pollen
- 40 In the embryos of a typical dicot and a grass, true homologous structures are:
 1) Coleorhiza and coleoptiles 3) Cotyledons and scutellum
 2) Coleoptile and Scutellum 4) Hypocotyl and radicle
- 41 The phenomenon observed in some plants wherein parts of the sexual apparatus is used for forming embryos without fertilisation is called
 1) Parthenocarpy 2) Apomixis 3) Vegetative propagation 4) Sexual reproduction
- 42 In a flower, if the megaspore mother cell forms megaspore without undergoing meiosis and if one of the megaspores develops into an embryo sac, its nuclei would be
 1) Haploid 2) Diploid 3) A few haploid and a few diploid 4) With varying ploidy
- 43 The phenomenon wherein, the ovary develops into a fruit without fertilisation is called
 1) Parthenocarpy 2) Apomixis 3) Asexual reproduction 4) Sexual reproduction

44 Match the following and choose the correct option.

Column I		Column II	
A	Zoophily	I	Pollination by birds
B	Ornithophily	II	Pollination by insects
C.	Entomophily	III.	Pollination by bats
D.	Chiropterophi	IV.	Pollination by animals.

1) A-III, B- II, C-I, D-IV 2) A-I, B-II, C-III, D-IV

3) A-I, B-II, C-III, D-IV 4) A-IV, B-I, C-II, D-III

45 Milky water of green coconut is

1) liquid chalaza 2) liquid nucellus 3) liquid endosperm 4) liquid female gametophyte

46. Function of suspensor of embryo is

1) Absorption of nourishment. 2) Push the embryo into nutritive endosperm region.
3) Formation of secondary embryos. 4) All of the above.

47. The phenomenon of floral parts acting as a barrier to self-pollination is

1) heterostyly 2) dichogamy 3) dicliny 4) herkogamy

48. Germ pore/germinal furrow present on the surface of pollen grain represents.

1) Area where exine is thin or absent. 2) Specialized thickening of exine.
3) Specialized thickening of intine. 4) Area where tapetum is absent.

49. Which of the following processes necessary for the complete development of male gametophyte?
- 1) One meiotic and two mitotic divisions.
 - 2) One meiotic cell division and one mitotic cell division.
 - 3) Two meiotic cell divisions and one mitotic cell division.
 - 4) Two mitotic cell divisions.
50. The endosperm found in angiosperm seed is different from that of gymnosperms in the sense that, in the former
- 1) It is formed before fertilization while in the latter it is formed after fertilization.
 - 2) It is formed after fertilization.
 - 3) It is cellular while in the latter it is nuclear.
 - 4) It is nutritive while in the latter it is protective.