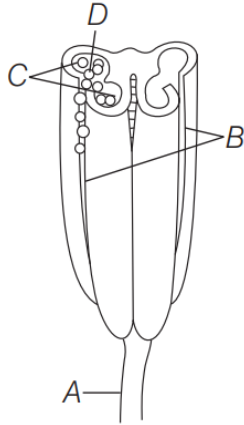


## SEXUAL REPRODUCTION INFLOWERING PLANTS

1. Identify A to D in the following diagram.



- (A) A – Filament (stalk) , B – Pollen sac, C – Pollen grain, D – Line of dehiscence
- (B) A – Filament (stalk), B – Pollen sac, C – Line of dehiscence, D – Pollen grain
- (C) A – Line of dehiscence, B – Filament (stalk) , C – Pollen sac, D – Pollen grains
- (D) A – Filament (stalk), B – Line of dehiscence, C – Pollen sac, D – Pollen grains

2. The lengthwise running groove on anther which separate theca is called

- (A) rupture line
- (B) line of dehiscence
- (C) suture of anther
- (D) None of the above

3. Number of microsporangia in an angiospermic anther is

- (A) 1
- (B) 2
- (C) 3
- (D) 4

4. Microsporangium develops into

- (A) pollens
- (B) microgametes
- (C) megagametes
- (D) pollen sac

5. The innermost layer of microsporangium is
- (A) tapetum
  - (B) endothecium
  - (C) middle layer
  - (D) epidermis
6. Centre of each microsporangium is occupied by
- (A) sporogenous tissue
  - (B) tapetum
  - (C) central tissue
  - (D) microspore mother cell
7. The outermost wall layer of microsporangium in anther is
- (A) endothecium
  - (B) tapetum
  - (C) middle layer
  - (D) epidermis
8. Which of the following perform microsporogenesis?
- (A) Microspore mother cell
  - (B) Pollen mother cell
  - (C) Both (a) and (b)
  - (D) None of these
9. Microspore tetrad (pollen grains) is the result of
- (A) mitotic cell division
  - (B) meiotic cell division
  - (C) Both (a) and (b)
  - (D) None of these
10. Dehiscence of anther in mesophytes is caused by
- (A) hydration of anthers
  - (B) dehydration of anthers
  - (C) mechanical injury
  - (D) None of these

11. Pollens have two prominent walls which are ...A... and ...B... . Here A and B refers to

- (A) (a) A–intine, B–protein coat
- (B) (b) A–exine, B–intine
- (C) (c) A–sporopollenin, B–intine
- (D) (d) A–sporopollenin, B–exine

12. Intine is made up of

- (A) (a) cellulose
- (B) (b) pectin
- (C) (c) Both (a) and (b)
- (D) (d) protein

13. Exine of pollen is made up of

- (A) (a) sporopollenin
- (B) (b) sporogenous tissue
- (C) (c) spongiform tissue
- (D) (d) inorganic material

14. The sporopollenin is non-degradable because

- (A) (a) it can withstand strong acids
- (B) (b) it is resistant at very high temperature
- (C) (c) no enzyme degrade it
- (D) (d) All of the above

15. The functions of germ pore is/are

- (A) (a) emergence of radicle
- (B) (b) absorption of water for seed germination
- (C) (c) initiation of pollen tube
- (D) (d) All of the above

16. When the pollen grain is mature, it contains two cells, the ... A ... and ... B ....

- (A) A–generative cell, B–spore mother cell

- (B) A—vegetative cell, B—spore mother cell
- (C) A—spore mother cell, B—male gamete
- (D) A—vegetative cell, B—generative cell

17. 60% of the angiosperms shed their pollens at the

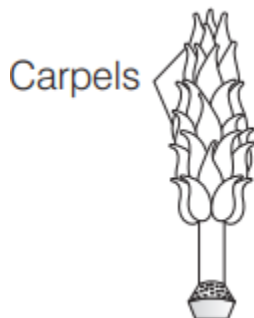
- (A) 2-celled stage
- (B) 3-celled stage
- (C) 4-celled stage
- (D) 1-celled stage

18. Identify the type of pistil in the diagram.



- (A) Multicarpellary, apocarpous
- (B) Multicarpellary, syncarpous
- (C) Multicarpellary, pistillate
- (D) Monocarpellary, apocarpous

19. Identify the type of pistil in the diagram alongside.



- (A) Monocarpellary, syncarpous
- (B) Monocarpellary, apocarpous

- (C) Multicarpellary, syncarpous
- (D) Multicarpellary, apocarpous

20. An ovule is a

- (A) differentiated megasporangium
- (B) dedifferentiated megasporangium
- (C) integumented megasporangium
- (D) redifferentiated megasporangium

21. Chalazal pole is present

- (A) opposite to micropyle
- (B) at the origin of integuments
- (C) opposite to nucellus
- (D) near the embryo sac

22. Mass of cells enclosed by integuments is called

- (A) nucellus
- (B) embryo
- (C) ova
- (D) pollen

23. Embryo sac is also called

- (A) female gamete
- (B) synergids
- (C) female gametophyte
- (D) egg of angiosperm

24. Megasporogenesis is

- (A) formation of fruits
- (B) formation of seeds
- (C) formation of megaspores
- (D) Both (b) and (c)

25. Megaspore mother cell is found near the region of

- (A) micropyle
- (B) chalaza
- (C) nucellus
- (D) integuments

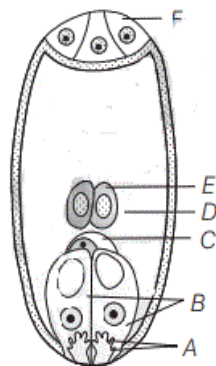
26. Single megasporic development is called

- (A) singlesporic
- (B) unisporic
- (C) monosporic
- (D) disporic

27. In embryo sac, the number of synergid → egg cell → central cell → antipodal cell follows the order

- (A) 1–1–2–3
- (B) 2–1–3–2
- (C) 2–1–1–3
- (D) 3–2–1–2

28. Identify A to F in the diagram given below.



- (A) A–Egg, B–Filiform apparatus, C–Synergid, D–Antipodals, E–Polar nuclei, F–Central cell
- (B) A–Egg, B–Synergid, C–Filiform apparatus, D–Antipodals, E–Central cell, F–Polar nuclei
- (C) A–Central cell, B–Egg, C–Synergid, D–Antipodals, E–Filiform apparatus, F–Polar nuclei

- (D) A–Filiform apparatus, B–Synergid, C–Egg, D–Central cell, E–Polar nuclei, F–Antipodals

29. Filiform apparatus are

- (A) special cellular thickenings at antipodal cell
- (B) special cellular thickenings at the micropylar end
- (C) special cellular thickenings at synergid cells
- (D) special cellular thickenings at nuclear end

30. Autogamy stands for

- (A) pollination in same flower
- (B) pollination between different plants
- (C) pollination in two flowers of same plant
- (D) division in embryo

31. Cleistogamous flowers are strictly autogamous because they remain

- (A) always open
- (B) always close
- (C) always fragrance
- (D) are brightly coloured

32. In chasmogamy pollination takes place in

- (A) open flower
- (B) closed flower
- (C) large flower
- (D) geitonogamy flower

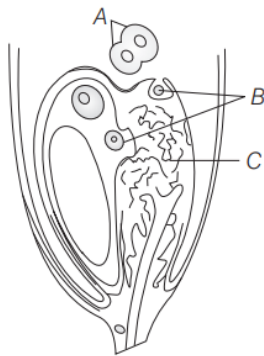
33. The most common abiotic pollinating agency in flowering plant is/ are

- (A) water
- (B) wind
- (C) Both (a) and (b)
- (D) None of these

34. Characteristic of wind pollinated pollens is, they are

- (A) non-sticky
- (B) light
- (C) produced in large number
- (D) All of the above

35. Diagram showing discharge of gametes in the egg apparatus. Identify A, B and C.



- (A) A–Polar nuclei, B–Female gametes, C–Synergid cell
- (B) A–Male gametes, B–Synergid cell, C–Polar nuclei
- (C) A–Synergid cell, B–Male gametes, C–Polar nuclei
- (D) A–Polar nuclei, B–Male gametes, C–Synergid cell

36. Double fertilisation is

- (A) fusion of two male gametes with one egg
- (B) fusion of one male gamete with two polar nuclei
- (C) fusion of two male gametes of pollen tube with two different eggs
- (D) syngamy and triple fusion



## Answer Key

1	(D)	2	(B)	3	(D)	4	(D)	5	(A)
6	(A)	7	(D)	8	(C)	9	(B)	10	(B)
11	(B)	12	(C)	13	(A)	14	(D)	15	(C)
16	(D)	17	(A)	18	(B)	19	(D)	20	(C)
21	(A)	22	(A)	23	(C)	24	(C)	25	(A)
26	(C)	27	(C)	28	(D)	29	(C)	30	(A)
31	(B)	32	(A)	33	(B)	34	(D)	35	(D)
36	(D)								

## HINTS & EXPLANATIONS

2. (b) The dehiscence (release of pollen grain) of anther occurs through the line of dehiscence which is the running groove on anther longitudinally. It separates the theca of anther.
3. (d) A typical angiosperm anther is bilobed with each lobe having two theca. The anther is a four-sided (tetragonal) structure consisting of four microsporangia located at the corner with two in each theca.
4. (d) Microsporangium develops further and becomes pollen sac. It is like a sac in which pollen develops. It is called pollen sac at the time of maturity.
6. (a) Sporogenous tissue occupies the centre of each microsporangium. Each cell of this tissue is a potential pollen mother cell and can give rise to microspore tetrad.
7. (d) Microsporangium is surrounded by four wall layers. The outermost layer is epidermis which is followed by endothecium, the middle layer and the innermost layer called tapetum. The three outer layers of microsporangium perform the function of protection and help in dehiscence of anther to release pollen.
8. (c) Microspore mother cell and pollen mother cell are the same terms and form male gametes (pollens) by the process called microsporogenesis.
10. (b) As the anthers of angiospermic mesophytic plants mature and dehydrate, the line of dehiscence ruptures releasing the microspores in atmosphere. These microspores dissociate from each other and develop into pollen grains.
12. (c) The inner layer of pollen grain is called intine. It is a continuous and thin layer made up of cellulose and pectin.
15. (c) The germ pores are apertures in the exine layer of a pollen grain which help in the initiation of pollen tube and the release of the male gametes during fertilisation. There are usually three germ pores in dicots (tricolpate) and one in monocots (monocolpate).
16. (d) When a pollen grain is mature it contains two cells, a vegetative cell and generative cell. The vegetative cell is bigger, has abundant food reserve and a large irregularly shaped nucleus. The generative cell is small and floats in the cytoplasm of the vegetative cell. It is spindle-shaped with dense cytoplasm and a nucleus.

17. (a) 60% of angiosperms shed their pollens at 2-celled stage and in rest 40%, the pollens are shed at 3-celled stage.
18. (b) The diagram represents the multicarpellary, syncarpous pistil of Papaver. The gynoecium of this plant consists of more than one pistil, showing multicarpellary condition. These pistils are fused together and hence are called syncarpous.
19. (d) The diagram shows the multicarpellary, apocarpous pistil of Michelia. The gynoecium of this ovary consists of more than one pistil (multicarpellary) which are free (apocarpous).
20. (c) An ovule is an integumented megasporangium found in angiosperms, which develops into seeds after fertilisation.
21. (a) Chalazal pole is present just opposite to the micropylar end and represents the basal part of the ovule.
22. (a) Integuments enclose a mass of cells called the nucellus. Cells of the nucellus have abundant reserve food materials.
23. (c) Embryo sac is also called the female gametophyte. In flowering plants, it is formed by the division of the haploid megaspore nucleus and acts as the site of fertilisation and development of the embryo.
25. (a) Megaspore Mother Cell (MMC) is found in the micropylar region of the nucellus. It is a large cell containing dense cytoplasm and prominent nucleus.
27. (c) The functional megaspore develops into the embryo sac containing 2 synergids, 1 egg cell, 1 central cell and 3 antipodal cells. Thus, option (c) gives the correct number of different cells in an embryo sac.
31. (b) Cleistogamous flowers are strictly autogamous because they always remain close for ensuring self-pollination. In these flowers, there is no chance of cross-pollination.
- 34 (d) Wind pollinated pollens are non-sticky and light so that they can go far away in wind currents. These are produced in large numbers, because there is a lot of wastage of pollens.
36. (d) Double fertilisation is the fusion of two male gametes to two different cells of the same female gametophyte. It consists of the following two events
- Syngamy is the fusion of the egg nucleus with one male gamete.

- Triple fusion is the fusion of second male gamete and polar nuclei of central cell.