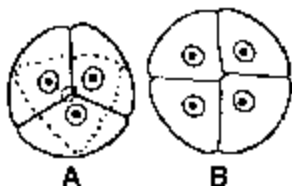


## SEXUAL REPRODUCTION IN FLOWERING PLANTS

1. Name the cell of the pollen grain which is small and with dense cytoplasm  
 (a) Vegetative cell      (b) Generative cell  
 (c) Tube cell              (d) All of these
2. Which of the following is incorrect for cleistogamous flowers?  
 (a) The anther and stigma lie close to each other  
 (b) When anthers dehisce in the flower, pollen grain come in contact with the stigma  
 (c) Presence of mechanical barrier between anther and stigma  
 (d) Maturation of anther and stigma at same time
3. The polar nuclei / secondary nuclei are situated below the egg apparatus in the large cell called  
 (a) Central cell              (b) Microspore  
 (c) Antipodal cell          (d) Synergid
4. Match the following  
 a. Ornithophily              (i) *Bambusa*  
 b. Malacophily              (ii) *Santalum*  
 c. Anemophily                (iii) *Bombax*  
 d. Ophiophily                (iv) *Arisaema*  
 (a) a(iii), b(iv), c(i), d(ii)  
 (b) a(iii), b(iv), c(ii), d(i)  
 (c) a(iv), b(iii), c(i), d(ii)  
 (d) a(iii), b(ii), c(iv), d(i)
5. The ploidy of endothecium, microspore mother cell, microspore and generative cell is  
 (a) n, n, n, n respectively  
 (b) 2n, 2n, n, n respectively  
 (c) 2n, 2n, 2n, n respectively  
 (d) n, 2n, n, 2n respectively
6. The ovary wall develops into \_\_\_\_\_ after fertilisation  
 (a) Perisperm                  (b) Placenta  
 (c) Pericarp                  (d) Plumule
7. Find the incorrect statement w.r.t. male gametophyte  
 (a) It is 3 celled structure  
 (b) It is derived from microspore or pollen grain  
 (c) Remains of male gametophyte disintegrates after fertilisation  
 (d) It remains permanently embedded inside the microsporangium
8. The plant group(s) which undergoes double fertilisation and triple fusion is  
 (a) Spermatophytes  
 (b) Angiosperms  
 (c) Vascular cryptogams  
 (d) All vascular plants
9. Gamopetalae members have \_\_\_\_\_ and \_\_\_\_\_ type of ovule  
 (a) Crassinucellate and unitegmic  
 (b) Tenuinucellate and unitegmic  
 (c) Crassinucellate and Bitegmic  
 (d) Tenuinucellate and Bitegmic
10. Ektexine of the microspores is divided into  
 (a) Sexine and tectum  
 (b) Baculum and foot layer  
 (c) Tectum, baculum and foot layer  
 (d) Sexine and nexine
11. The number of meiotic divisions required to form 14 male gametes in *Cyperus* is  
 (a) 25                              (b) 14  
 (c) 7                                (d) 50

- |  |   |
|--|---|
| <p>12. Which of the following embryological feature is not found in monocots?</p> <p>(a) Presence of isobilateral tetrad of microspores</p> <p>(b) Pollen grains are monocolpate</p> <p>(c) Presence of crassinucellate ovule</p> <p>(d) Ovules are bitegmic</p> <p>13. Carbohydrates are required for pollen grain germination</p> <p>(a) They act as respiratory substrates and maintains osmotic pressure</p> <p>(b) They help in translocation of solutes</p> <p>(c) Promotes synthesis of enzymes</p> <p>(d) Counterpart the toxic effect of other minerals by ion balancing</p> <p>14. The development of embryo in flowering plants is</p> <p>(a) Endoscopic and meroblastic</p> <p>(b) Endoscopic and holoblastic</p> <p>(c) Exoscopic and meroblastic</p> <p>(d) Exoscopic and holoblastic</p> <p>15. Which of the following type of pollination brings genetically different types of pollen grain to the stigma?</p> <p>(a) Geitonogamy</p> <p>(b) Autogamy</p> <p>(c) Xenogamy</p> <p>(d) Acrogamy</p> <p>16. Apomixis within the seed is</p> <p>(a) Agamospermy</p> <p>(b) Vegetative propagation</p> <p>(c) Cleavage polyembryony</p> <p>(d) More than one are correct</p> | <p>17. Number of meiotic divisions required for formation of 100 male gametes from microspore mother cell</p> <p>(a) 50 (b) 100</p> <p>(c) 25 (d) 13</p> <p>18. The female gametophyte in flowering plants is</p> <p>(a) Nucellus (b) Embryosac</p> <p>(c) Endosperm (d) Perisperm</p> <p>19. Vegetative fertilization is</p> <p>(a) Fusion of one male gamete and the polar nuclei</p> <p>(b) Fusion of one male gamete and the definite nuclei</p> <p>(c) Fusion of one male gamete and the secondary nuclei</p> <p>(d) All of these</p> <p>20. What will be the ploidy of endosperm and zygote if the cross is made between and <i>Oenothera</i> plant?</p> <p>(a) <math>11n, 7n</math> (b) <math>7n, 7n</math></p> <p>(c) <math>11n, 11n</math> (d) <math>8n, 6n</math></p> <p>21. Circinotropous ovule is characteristic feature of</p> <p>(a) Solanaceae (b) Malvaceae</p> <p>(c) Orchidaceae (d) Cactaceae</p> <p>22. Find the incorrect statement (w.r.t. the development of monocot embryo)</p> <p>(a) Suspensor is single celled</p> <p>(b) The middle cell gives rise to hypocotyl and radicle</p> <p>(c) Radicle and plumule develop covering sheaths called coleoptile and coleorhiza respectively</p> <p>(d) The single cotyledon is terminal and shield shaped</p> |
|--|---|

23. The microspore tetrads in Fig 'A' and Fig 'B' are



- (a) Tetrahedral, Isobilateral  
(b) Decussate and T-shaped  
(c) Linear, Tetrahedral  
(d) More than one is correct
24. The inability of certain gametes, even from genetically similar plant species to fuse with each other is called
- (a) Intra-specific incompatibility  
(b) Self-sterility  
(c) Self incompatibility  
(d) All of these
25. The most common endosperm development is
- (a) Nuclear  
(b) Cellular  
(c) Helobial  
(d) Polygonum
26. The female gametophyte in angiosperm is equivalent to
- (a) Embryosac  
(b) Endosperm  
(c) Megasporangium  
(d) Megasporophyll
27. Which of the following condition of flowers is an adaptation for autogamy?
- (a) Cleistogamous  
(b) Chasmogamous  
(c) Heterostyly  
(d) Dichogamous

28. The distribution of some bryophytes and pteridophytes is limited

- (a) Dependence of their antherozoid on water for transport  
(b) Gametophytic generation is dominant over sporophytic generation  
(c) Are cryptogams  
(d) Dependence of male and female gamete on water transport

29. Which one of the following is related to pollinium structure?

- (a) Gynostegium  
(b) Gynandromorph  
(c) Gyno-androphore  
(d) Translator

30. Match the following

**Column I**

**Column II**

- |                        |                          |
|------------------------|--------------------------|
| a. <i>Aristolochia</i> | (i) Lever mechanism      |
| b. <i>Ficus</i>        | (ii) Trap door mechanism |
| c. <i>Salvia</i>       | (iii) Pseudo copulation  |
| d. <i>Ophrys</i>       | (iv) Pitfall mechanism   |

- (a) a(iv), b(ii), c(i), d(iii)  
(b) a(iv), b(ii), c(iii), d(i)  
(c) a(ii), b(iv), c(iii), d(i)  
(d) a(iv), b(iii), c(i), d(ii)

31. The ploidy of the nucellus, megaspore mother cell, functional megaspore and female gametophyte is

- (a)  $2n$ ,  $2n$ ,  $n$ ,  $n$  respectively  
(b)  $2n$ ,  $2n$ ,  $2n$ ,  $n$  respectively  
(c)  $n$ ,  $n$ ,  $n$ ,  $n$  respectively  
(d)  $2n$ ,  $2n$ ,  $2n$ ,  $2n$  respectively

32. The coconut milk is \_\_\_\_\_ endosperm and the surrounding white kernel is \_\_\_\_\_ endosperm  
 (a) Free-nuclear, cellular respectively  
 (b) Cellular and free-nuclear respectively  
 (c) Both are free-nuclear  
 (d) Both are cellular
33. Find the incorrect statement w.r.t. female gametophyte  
 (a) It is generally 7 celled structure  
 (b) It is derived from functional megaspore  
 (c) It does not remain permanently embedded inside the megasporangium  
 (d) Endosperm and embryo are formed after fertilization
34. Angiosperms exhibit double fertilisation because  
 (a) They are the most advanced plant group  
 (b) Two fusion events occur in each embryo sac  
 (c) Presence of polysiphonous condition  
 (d) Different abiotic and biotic agents helps in pollination and ultimately fertilization
35. Hypophysis is a part of \_\_\_\_\_ and forms the \_\_\_\_\_  
 (a) Embryonal cell, stem apex  
 (b) Embryonal cell, root apex  
 (c) Suspensor, stem apex  
 (d) Suspensor, root apex
36. How many meiotic and mitotic divisions are required for the formation of *Polygonum* type of embryo sac?  
 (a) 1, 1 respectively  
 (b) 1, 2 respectively  
 (c) 2, 2 respectively  
 (d) 1, 3 respectively
37. The number of meiotic divisions required to form 25 *Cyperus* seeds is  
 (a) 25 (b) 50  
 (c) 100 (d) 125
38. Choose the incorrect one  
 (a) Campylotropous – Leguminosae  
 (b) Amphitropous – Ranunculaceae  
 (c) Circinotropous – Cactaceae  
 (d) Anatropous – Solanaceae
39. Ektexine of sporoderm consists of  
 (a) Tectum, Baculum, Foot layer  
 (b) Endexine and Tectum only  
 (c) Endexine only  
 (d) Tectum, Intine
40. Which of the following feature is not found in Malvaceae?  
 (a) Pollen grains are polysiphonous  
 (b) Anther consists of two lobes  
 (c) Bisporangiate  
 (d) Tetrahedral tetrad of microspores
41. Germinating pollen grain requires boron for  
 (a) Enzyme formation  
 (b) Maintaining water balance inside the pollen tube  
 (c) Translocation of solutes  
 (d) All of these
42. Choose the correct sequence of different stages of embryo development  
 (a) Pro-embryo, globular-shaped, heart-shaped, mature-embryo  
 (b) Pro-embryo, heart-shaped, globular-shaped, mature-embryo  
 (c) Pro-embryo, heart-shaped, mature-embryo, globular-shaped  
 (d) Pro-embryo, mature-embryo, heart-shaped, globular-shaped

43. The reduced second cotyledon (epiblast) is the feature of  
 (a) Poaceae (b) Papilionaceae  
 (c) Asteraceae (d) Liliaceae
44. Ploidy level of endosperm in gymnosperms is  
 (a)  $n$  (b)  $2n$   
 (c)  $3n$  (d)  $5n$
45. Which of the following is not a feature of *Polygonum*?  
 (a) Ovule is orthotropous  
 (b) Presence of monosporic embryo sac  
 (c) Has 7 celled 8 nucleated embryo sac  
 (d) Presence of 2 co-operative cells towards chalazal end
46. The number of nuclei and gametes involved in double fertilization are  
 (a) 3, 5 respectively (b) 3, 3 respectively  
 (c) 5, 3 respectively (d) 5, 5 respectively
47. The term spermoderm is used to represent  
 (a) Testa and Tegmen (b) Tegmen only  
 (c) Intine and Exine (d) Testa only
48. Generative fertilization is  
 (a) Fusion of one male gamete and the female gamete  
 (b) Fusion of one male gamete and the polar nuclei  
 (c) Fusion of one male gamete and the secondary nuclei  
 (d) Fusion of one male gamete and the definitive nucleus
49. Find out the incorrect statement (w.r.t. suspensor)  
 (a) It is formed by vertical divisions of the basal cell and is 6-10 celled  
 (b) The terminal cell of the suspensor is the vesicular cell which acts as haustorium  
 (c) The proximal cell of the suspensor is hypophysis  
 (d) Suspensor pushes the developing embryo into the endosperm
50. When tetraploid flowering plant is pollinated by hexaploid flowering plant, then the ploidy of endosperm and embryo would be  
 (a)  $5n$  and  $7n$  respectively  
 (b)  $10n$  and  $7n$  respectively  
 (c)  $7n$  and  $5n$  respectively  
 (d)  $5n$  and  $10n$  respectively

### ANSWERS KEY

<b>1.</b>	<b>2</b>	<b>11.</b>	<b>3</b>	<b>21.</b>	<b>4</b>	<b>31.</b>	<b>1</b>	<b>41.</b>	<b>4</b>
<b>2.</b>	<b>3</b>	<b>12.</b>	<b>3</b>	<b>22.</b>	<b>3</b>	<b>32.</b>	<b>1</b>	<b>42.</b>	<b>1</b>
<b>3.</b>	<b>1</b>	<b>13.</b>	<b>1</b>	<b>23.</b>	<b>1</b>	<b>33.</b>	<b>3</b>	<b>43.</b>	<b>1</b>
<b>4.</b>	<b>1</b>	<b>14.</b>	<b>1</b>	<b>24.</b>	<b>4</b>	<b>34.</b>	<b>2</b>	<b>44.</b>	<b>1</b>
<b>5.</b>	<b>2</b>	<b>15.</b>	<b>3</b>	<b>25.</b>	<b>1</b>	<b>35.</b>	<b>4</b>	<b>45.</b>	<b>4</b>
<b>6.</b>	<b>3</b>	<b>16.</b>	<b>1</b>	<b>26.</b>	<b>1</b>	<b>36.</b>	<b>1</b>	<b>46.</b>	<b>3</b>
<b>7.</b>	<b>4</b>	<b>17.</b>	<b>4</b>	<b>27.</b>	<b>1</b>	<b>37.</b>	<b>2</b>	<b>47.</b>	<b>1</b>
<b>8.</b>	<b>2</b>	<b>18.</b>	<b>2</b>	<b>28.</b>	<b>1</b>	<b>38.</b>	<b>2</b>	<b>48.</b>	<b>1</b>
<b>9.</b>	<b>2</b>	<b>19.</b>	<b>4</b>	<b>29.</b>	<b>4</b>	<b>39.</b>	<b>1</b>	<b>49.</b>	<b>1</b>
<b>10.</b>	<b>3</b>	<b>20.</b>	<b>2</b>	<b>30.</b>	<b>1</b>	<b>40.</b>	<b>2</b>	<b>50.</b>	<b>3</b>