



# CBSE Class 12 Biology

## Sexual Reproduction in Flowering Plants

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### Section 'A'

- Q.1. In angiosperms, zygote is diploid while primary endosperm cell is triploid. Explain.**
- Q.2. Why is banana considered a good example of parthenocarpy?**
- Q.3. Why is bagging of the emasculated flowers essential during hybridization experiments?**
- Q.4. A pollen grain in angiosperm at the time of dehiscence from an anther could be 2-celled or 3-celled. Explain. How are the cells placed within the pollen grain when shed at a 2-celled stage?**
- Q.5. Explain the significance of meiocytes in a diploid organism.**
- Q.6. In a young anther, a group of compactly arranged homogenous cells were observed in the centre of each microsporangium. What is the name given to these cells?**
- Q.7. A bilobed, dithecous anther has 100 microspore mother cells per microsporangium. How many male gametophytes this anther can produce?**
- Q.8. An anther with malfunctioning tapetum often fails to produce viable male gametophytes. Give any one reason.**
- Q.9. Mention the unique flowering phenomenon exhibited by *Strobilanthus Kunthiana* (neelakuranaji ).**
- Q.10. Pollen grains of water pollinated species have a special characteristics for protection from water. What is that?**

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**Q.11. In same species of Asteraceae and grasses, seed are formed without fusion of gametes. Mention the scientific term for such form of reproduction.**

**Q.12. What kind of structures is formed at the end of microsporogenesis and megasporogenesis?**

**Q.13. What is funiculus?**

**Q.14. Why is emasculation done in the process of hybridization?**

## **Section 'B'**

**Q.15. State what is apomixis. Comment on its significance. How can it be commercially used?**

**Q.16. (a) Name the organic material exine of the pollen grain is made up of. How is this material advantageous to pollen grain?**

**(b) Still it is observed that it does not form a continuous layer around the pollen grain. Give reason.**

**(c) How are 'pollen banks' useful?**

**Q.17. Name the bacterium responsible for the large holes seen in "Swiss Cheese". What are these holes due to?**

**Q.18. State one advantage and one disadvantage of cleistogamy.**

**Q.19. Draw a vertical section of a maize grain and label:**

**(i) Pericarp,**

**(ii) Scutellum,**

**(iii) Coleoptile**

**(iv) Radicle.**

**Q.20. (a) Can a plant flowering in Mumbai be pollinated by pollen grains of the same species growing in New Delhi? Provide explanations to your answer.**

**(b) Draw the diagram of a pistil where pollination has successfully occurred.**

**Label the parts involved in reaching the male gametes to its desired destination.**

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- Q.21. Explain any three advantages the seeds offer to angiosperms.**
- Q.22. Geitonogamous flowering plants are genetically autogamous but functionally cross-pollinated. Justify.**
- Q.23. In angiospermic plant before formation of microspore sporogenous tissue undergo cell division**  
**(a) Name the type of cell division.**  
**(b) What would be the ploidy of the cells of tetrad?**
- Q.24. Where is sporopollenin present in plants? State its significance with reference to its chemical nature.**
- Q.25. Why pollen grains can remain well preserved as fossils?**
- Q.26. Differentiate between albuminous and non-albruminous seeds, giving one example of each.**
- Q.27. How are the cells arranged in an embryo sac?**
- Q.28. How does the floral pattern on Mediterranean orchid *Opry's* guarantee cross pollination?**
- Q.29. State any one advantage and disadvantage of pollen grains to humans.**
- Q.30. Mention the reasons for difference in ploidy of zygote and primary endosperm nucleus in an angiosperm.**
- Q.31. What relationship exists between a species of moth and *Yucca* plant?**
- Q.32. Why is process of fertilization in flowering plants referred to as double fertilization?**
- Q.33. Where are the Leyden cells present? What is their role in reproduction?**

- Q.34. What are cleistogamous flowers? Can cross – pollination occurs in cleistogamous flowers. Give reason?**
- Q.35. Name the type of flower which favors cross pollination.**
- Q.36. The flower of brinjal is referred to as chasmogamous while that of beans is cleistogamous. How are they different from each other?**
- Q.37. Explain the stages involved in the maturation of a microspore into a pollen grain.**
- Q.38. What is triple fusion? Where does it occur?**
- Q.39. Describe the structure of a pollen grain.**
- Q.40. Enlist the advantages offered by seeds to angiosperms.**
- Q.41. A mature embryo-sac in a flowering plant may possess 7-cells, but 8-nuclei. Explain with the help of diagram only.**
- Q.42. Coconut palm is monoecious while date palm is dioecious. Why are they called so?**
- Q.43. How dose pollination takes place in salivia. List any four adaptations required for such type of pollination.**

## Section 'C'

- Q.44. (i) Write the characteristics features of anther, pollen and stigma of wind pollinated flowers.**
- (ii) How do flowers reward their insect pollinators? Explain.**
- Q.45. Make a list of any three outbreeding devices that flowering plants have Developed and explain how they help to encourage cross-pollination.**

- Q.46. Explain the function of each of the following:**
- (a) Coleorhiza (b) Umbilical cord (c) Germ pores
- Q.47. Double fertilization is reported in plants of both, castor and groundnut. However, the mature seeds of groundnut are non-albuminous and castor are albuminous. Explain the post fertilization events that are responsible for it.**
- Q.48. (a) Draw a diagrammatic sectional view of a mature anatropous ovule and label the following parts in it:**
- (i) that develops into seed coat.
- (ii) that develops into an embryo after fertilization.
- (iii) that develops into an endosperm in an albuminous seed.
- (iv) through which the pollen tube gains entry into the embryo sac.
- (v) that attaches the ovule to the placenta.
- (b) Describe the characteristic features of wind pollinated flowers.**
- Q.49. (a) Describe the endosperm development in coconut.**
- (b) Why is tender coconut considered a healthy source of nutrition?**
- (c) How are pea seeds different from castor seeds with respect to endosperm?**
- Q.50. Draw a diagram of a male gametophyte of an angiosperm. Label any four parts. why is sporopollenin considered the most resistant organic material?**
- Q.51. Draw a longitudinal section a post-pollinated pistil showing entry of pollen tube into a mature embryo - sac. Label filiform apparatus, chalazal end, Hilum, antipodals, male gametes and secondary nucleus.**
- Q.52. Draw a labelled sectional view seminiferous tubule of a human male.**
- Q.53. Fertilization is essential for production of seed, but in some angiosperms, seeds develop without fertilization.**
- (i) Give an example of an angiosperm that produces seeds without fertilization. Name the process.**
- (ii) Explain the two ways by which seeds develop without fertilization.**

- Q.54. Explain any three advantages the seeds offer to angiosperms.**
- Q.55. (a) List the three states the annuals and biennial angiosperms have to pass through during their life cycle.  
(b) List and describe any two vegetative propagules in flowering plants.**
- Q.56. Make a list of any three outbreeding devices that flowering plants have developed and explain how they help to encourage cross-pollination.**
- Q.57. State what is apomixis. Comment on its significance. How can it be commercially used?**

## Section 'D'

- Q.58. (a) Plan an experiment and prepare a flow chart of the follow steps that you would to ensure that the seeds are formed only from the desired sets of pollen grains. Name the type of experiment that you carried out.  
(b) Write the importance of such experiments.**
- Q.59. A flower of tomato plant following the process of sexual reproduction produces 240 viable seeds.  
Answer the following questions giving reasons:  
(a) What is the minimum number of pollen grains that must have been involved in the pollination of its pistil?**
- Q.60. How does the megaspore mother cell develop into 7'celled, 8 nucleate embryo sac in an angiosperm? Draw a labelled diagram of a mature embryo sac.**
- Q.61. Describe the roles of pituitary and ovarian hormones during the menstrual cycle in a human female.**
- Q.62. (a) Draw d schematic labelled diagram of a fertilized embryo sac of an Angiosperm.  
(b) Describe the stages in embryo development in a dicot plant.**
- Q.63. How does the pollen mother cell develop into a mature pollen "grain? Illustrate the stages with labelled diagrams.**

- Q.64. (a) Explain the post-pollination events leading to seed production in angiosperms.**  
**(b) List the different types of pollination depending upon the source of pollen grain.**
- Q.65. Describe in sequence the events that lead to the development of a 3-celled pollen grain from microscope mother cell in angiosperms.**
- Q.66. Read the following statement and answer the questions that follow:**  
**"A guava fruit has 200 viable seeds."**
- (a) What are viable seeds?**  
**(b) Write the total number of:**  
**(i) Pollen grains (ii) Gametes**  
**in producing 200 viable guava seeds.**  
**(c) Prepare a flow-chart to depict the post-pollination events leading to viable-seed production in a flowering plant.**
- Q.67. Give reasons why:**
- (i) most zygotes in angiosperms divide only after certain amount of endosperm is formed.**  
**(ii) ground nut seeds are exalbuminous and castor seeds are albuminous.**  
**(iii) Micropyle remains as a small pore in the seed coat of a seed.**  
**(iv) integuments of an ovule harden and the water content is highly reduced, as the seed matures.**  
**(v) apple and cashew are not called true fruits.**
- Q.68. (a) Draw a labelled diagram of L.S. of an embryo of grass (any six labels).**  
**(b) Give reason for each of the following:**  
**(i) Anthers of angiosperm flowers are described as dithecal.**  
**(ii) Hybrid seeds have to be produced year after year**
- Q.69. (a) Draw a L.S. of a pistil showing pollen tube entering the embryo-sac in an angiosperm and label any six parts other than stigma, style and ovary.**  
**(b) Write the changes a fertilized ovule undergoes within the ovary in an angiosperm plant.**



