

Chapter 2 Sexual Reproduction in Flowering Plants

1. How many microspore mother cells are required to produce 1000 microspores/pollen grains?

- (a) 100
 - (b) 150
 - (c) 200
 - (d) 250
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2. Which of the following represents the female gametophyte in angiosperms?

- (a) Embryo
 - (b) Embryo sac
 - (c) Synergid
 - (d) Endosperm
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3. In a breeding experiment, the selected male parent is diploid and the female parent is tetraploid. What will be the ploidy level of the endosperm that will develop after double fertilisation?

- (a) Diploid
 - (b) Triploid
 - (c) Tetraploid
 - (d) Pentaploidy
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4. The development of fruits without fertilisation of the ovary, is called

- (a) parthenogenesis
 - (b) parthenocarpy
 - (c) agamospermy
 - (d) apomixis
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5. When the pollen of a flower is transferred to the stigma of another flower on the same plant, the process is known as

- (a) autogamy
 - (b) geitonogamy
 - (c) xenogamy
 - (d) cleistogamy
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6. The number of meiotic divisions, required to produce 400 seeds in a pea plant, is

- (a) 100
 - (b) 200
 - (c) 400
 - (d) 500
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7. A dicotyledonous plant bears flowers but never produces fruits and seeds. The most probable cause for the above situation is [NCERT Exemplar]

- (a) plant is dioecious and bears only pistillate flowers.
 - (b) plant is dioecious and bears both pistillate and staminate flowers.
 - (c) plant is monoecious.
 - (d) plant is dioecious and bears only staminate flowers.
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8. Autogamy can occur in a chasmogamous flower if [NCERT Exemplar]

- (a) pollen matures before maturity of ovule.
 - (b) ovules mature before maturity of pollen.
 - (c) both pollen and ovules mature simultaneously.
 - (d) both anther and stigma are of equal lengths.
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9. Choose the correct statement from the following. [NCERT Exemplar]

- (a) Cleistogamous flowers always exhibit autogamy.
 - (b) Chasmogamous flowers always exhibit geitonogamy.
 - (c) Cleistogamous flowers exhibit both autogamy and geitonogamy.
 - (d) Chasmogamous flowers never exhibit autogamy.
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10. From among the situations given below, choose the one that prevents both autogamy and geitonogamy. [NCERT Exemplar]

- (a) Monoecious plant bearing unisexual flowers.
 - (b) Dioecious plant bearing only male or female flowers.
 - (c) Monoecious plant with bisexual flowers.
 - (d) Dioecious plant with bisexual flowers.
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11. In a fertilised embryo sac, the haploid, diploid and triploid structures are: [NCERT Exemplar]

- (a) Synergid, zygote and primary endosperm nucleus.
 - (b) Synergid, antipodal and polar nuclei.
 - (c) Antipodal, synergid and primary endosperm nucleus.
 - (d) Synergid, polar nuclei and zygote.
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12. In an embryo sac, the cells that degenerate after fertilisation are: [NCERT Exemplar]

- (a) Synergids and primary endosperm cell.
 - (b) Synergids and antipodals.
 - (c) Antipodals and primary endosperm cell.
 - (d) Egg and antipodals.
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13. Which of the following floral parts forms the pericarp after fertilisation?

- (a) Nucellus
- (b) Outer integument

- (c) Ovary wall
- (d) Inner integument

14. The stalk of the ovule is called _____ .

15. The outer integument of the ovule develops into _____ after fertilisation.

16. The exine of pollen grains is made up of _____ .

17. The outermost layer of endosperm in a maize grain is known as _____ .

18. A bisexual flower that never opens, is called _____ .

19. In the grass family, the single cotyledon is called _____ .

20. The hollow foliar structure that encloses the leaf primordia in a grass embryo, is called _____ .

21. In apple, the _____ also contributes to fruit formation and becomes edible.

22. Occurrence of more than one embryo in a seed, is known as _____ .

23. Dehydration and _____ of mature seeds are crucial for storage of seeds.

24. Match the terms in Column I with the descriptions in Column II.

Column I	Column II
A. Pericarp	1. Cotyledon in the seeds of grasses.
B. Pollen grains of Vallisneria	2. Remains of nucellus in a seed.
C. Perisperm	3. Mucilaginous covering.
D. Scutellum	4. Wall of the true fruit.

25. Match the terms in Column I with the descriptions in Column II.

Column I	Column II
A. Syncarpous ovary	1. Occurrence of more than one embryo in a seed.
B. Polyembryony	2. Carpels in a flower are fused together.
C. Apomixis	3. Removal of Stamens from the bisexual flower bud.
D. Emasculation	4. Formation of seeds without fertilisation.
	5. Development of ovary into fruit without fertilisation.

26. Sepals and petals or perianth are inconspicuous in entomophilous flowers. [True/False]

27. In *Zostera*, the pollen grains are long and ribbon-like and released inside the water. [True/False]

28. Embryo sac → Nucellus → Integuments, is the correct sequence of parts in the ovule of an angiosperm. [True/False]

29. Conidia are formed endogenously while zoospores are formed endogenously. [True/False]

30. Meiosis does not occur in the organisms showing haplontic life cycle. [True/False]

Directions (Q31 to Q35): Mark the odd one in each of the following groups.

31. Antipodal cells, Synergids, Zygote, Female gamete

32. Zygote, Endosperm, Embryo, Persperm

33. Radicle, Plumule, Endosperm, Scutellum

34. Mango, Apple, Strawberry, Cashew

35. Epidermis, Endothecium, Middle layers, Sporogenous tissue.

36. How many microsporangia are present in a typical anther of an angiosperm? [Foreign 2013]

37. Name the innermost and outermost wall layers of a microsporangium in an angiosperm anther. [Foreign 2013]

38. An anther with malfunctioning tapetum often fails to produce viable male gametophyte. Give any one reason. [Delhi 2013,10; HOTS]

39. How many microspore mother cells would be required to produce one hundred pollen grains in a pollen sac? And why? [Foreign 2013]

40. A bilobed dithecous anther has 100 microspore mother cells per microsporangium. How many male gametophytes can this anther produce? [Delhi 2010; HOTS]

41. What are germ pores?

42. Give an example of a plant which came into India as a contaminant and is a cause of pollen allergy. [AI 2014]

43. Mention two environmental factors that affect pollen viability. [Delhi 2011C]

44. How are different varieties of pollen grains stored for long period of time in pollen banks? [AI 2017C]

or

Mention any one application of a pollen bank [Delhi 2011C]

45.

Refer book diagrams

These pictures show the gynoecium of (A) Papaver and (B) Michelia flowers.

Write the difference in the structure of their ovaries. [Delhi 2015C]

46. What represents the (a) basal part and (b) female gametophyte of the ovule?

47. How many megaspore mother cell(s) become(s) differentiated in an ovule?

48. When does cell wall formation start, in the organisation of the embryo sac?

49. Of the eight nuclei formed in the embryo sac, six become organised into cells.

(a) What term is given to the other two nuclei?

(b) Name the cell in which they are present.

50. What is filiform apparatus?

51. State the function of filiform apparatus found in mature embryo sac of an angiosperm.

[Foreign 2014]

52. Describe the structure of the cell (s) that guide (s) the pollen tube to enter the embryo sac.

[AI 2014C]

53. State the significance of pollination.

54. Why are cleistogamous flowers invariably autogamous?

55. How is it possible in *Oxalis* and *Viola* plants to produce assured seed-sets even in the absence of pollinators? [Foreign 2012: HOTS]

Or

Pea flowers produce assured seed-sets. Give a reason. [AI 2010; HOTS]

56. Give the technical term for the type of pollination

(a) which ensures genetic recombination.

(b) between different flowers of the same plant

57. The following statements describe the wind-pollinated plants. Which one of these statements is incorrect? [CBSE Sample Paper 2013]

(a) The pollen grains are sticky.

(b) Stamens are well-exposed.

(c) Flowers often have single ovule.

58. Mention the pollinating agent of an inflorescence of small dull-coloured flowers with well-exposed stamens and large feathery stigmas. Give any one characteristic of pollen grains produced by such flowers.

59. Name the part of the flower, which the tassels of the com cob represent. [A t 2014]

60. Why do com cobs have long tassels? [AI 2010C; HOTS]

61. Name two groups of plants where water is the medium for transport of male gametes. [AI 2010C; HOTS]

62. How do the pollen grains of Vallisneria protect themselves? [AI 2012]

63. The following statements (i), (ii) and (iii) . seem to describe the water-pollinated submerged plants. Which one of these statements is incorrect?

(i) The flowers do not produce nectar.

(ii) The pollen grains have mucilaginous covering.

(iii) The brightly-coloured female flowers have long stalks to reach the surface.

64. How do flowers of Vallisneria get pollinated? [Foreign 2013]

65. Why do the pollen grains of Vallisneria have a mucilaginous covering?[Delhi 2010C; HOTS]

66. Mention the pollinating agents for aquatic plants, Vallisneria and water lily, respectively. [AI 2010C]

67. What are nectar/pollen robbers?

68. What is meant by 'self-pollen'?

69. How is fertilisation by a self-incompatible pollen prevented?

70. What is pollen-pistil interaction and how is it mediated? [Foreign 2014]

71. The meiocyte of rice has 24 chromosomes.

Write the number of chromosomes in its endosperm. [Delhi 2013C; HOTS]

72. What happens to the endosperm in seeds like castor?

73. Fill in the blanks a and b

Zygote → a → Globular embryo → b → Mature embryo.

74. Identify 'A' in the figure showing a stage of embryonic development in a dicot plant and mention its function. [AI 2016C]

75. Mention the common function that cotyledons and nucellus perform.

Or

Mention the common function that endosperm and perisperm perform.

76. Name the part of the flower that contributes to fruit formation in strawberry and guava respectively.

77. Why is banana referred to as a parthenocarpic fruit? [AI 2013C]

Or

Why is banana considered a good example of parthenocarpy? [AI 2012; HOTS]

78. Banana produces fruits, but is propagated only by vegetative means. Why is it so? [Foreign 2012: HOTS]

79. Given below is a section of a maize grain. Identify 'A' and state its function. [AI 2016C]

80. Mention two advantages of seeds to man,

81. How does a farmer use the dormancy of seeds to his advantage?

82. Name the seeds that have retained their viability for thousands of years.

83. Name two parasitic species of plants that produce many minute seeds in a fruit.

84. Name the mechanism responsible for the formation of seed without fertilisation in angiosperms. Give an example of a species of flowering plants with such seed formation. [Delhi 2010C]

85. Normally one embryo develops in one seed, but when an orange seed is squeezed, many embryos of different shapes and sizes are seen. Mention how it has happened. [Delhi 2011]