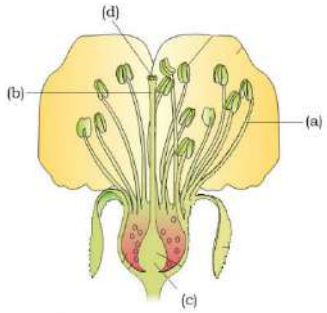
# 13 Sexual reproduction in flowering plant

1. The end products of sexual reproduction is / are –
   A) Fruit B) Seeds
   C) Flower D) A & B both
   **Page No.-20, Easy**

## 2.1 Flower

2. Floriculture deals with –
   A) Flower B) Seed culture
   C) Fruit D) Both B & C
   **Page No.-20, Easy**
3. 


| | a | b | c | d |
|---|---|---|---|---|
| A | Style | Filament | Stigma | Ovary |
| B | Filament | Style | Ovary | Stigma |
| C | Filament | Style | Thalamus | Anther |
| D | Style | Filament | Stigma | Ovule |

**Page No.-20, Easy**

## 2.2.2 The pistil, Megasporangium (Ovule) and Embryosac

4. Choose incorrect statement –
   A) Several hormonal & structural changes are initiated which lead to redifferentiation and further development of the floral primordium.
   B) Inflorescences are formed which bear the floral buds and then the flower
   C) In the flower male and female reproductive structures, the androecium and the gynoecium differentiate and develop
   D) None of these
   **Page No.-20, Easy**
5. Reproductive organ of flower doesnot comprises-
   A) Androecium B) Stamen
   C) Gynoecium D) Tepals
   **Page No.-21, Easy**

## 2.2.1 Stamen, Microsporangium & Pollen grains

6. A typical angiosperm anther is _____ with each lobe having _____ theca i.e. they are _____
   A) Bilobed, two, dithecous
   B) Dithecous, two, bilobed
   C) Bilobed , four, dithecous
   D) Dithecous, four, bilobed
   **Page No.-21, Easy**
7. Often theca is separated by
   A) Transverse groove
   B) Longitudinal groove
   C) Diagonal groove
   D) All of these
   **Page No.-21, Easy**
8. The dithecous consist of _____ microsporangia located at the corners, _____ in each lobe.
   A) Two, one B) Two, two
   C) Four, two D) Both A & C
   **Page No.-21, Easy**
9. Arrange microsporangial wall in sequence of outside to inside
   A) Epidermis, middle layer, endothecium, tapetum
   B) Epidermis, endothecium, middle layer, tapetum
   C) Epidermis, middle layer, tapetum, endothecium
   D) Endothecium, middle layer, tapetum, epidermis
   **Page No.-21, Easy**
10. How many of microsporangial wall perform function of protection and help in dehiscence of anther to release pollen
    A) 1 B) 2
    C) 3 D) 4
    **Page No.-21, Easy**
11. _____ is responsible for nourishment of pollen grain.
    A) Tapetum B) Endothecium

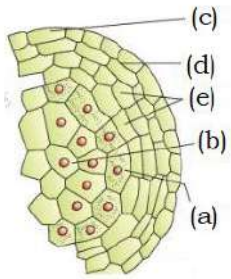
C) Epidermis D) Middle layer

**Page No.-21, Easy**

12. Which of the following undergo meiotic division to form microspore tetrad
    A) Sporogenous tissue
    B) Generative tissue
    C) Microspore
    D) A & B

**Page No.-21, Easy**

13.




| | a | b | c | d | e |
|---|---|---|---|---|---|
| A | Tapetum | Microspore mother cell | endothecium | epidermis | Middle layer |
| B | Tapetum | Microspore mother cell | epidermis | endothecium | Middle layer |
| C | Tapetum | Middle layer | Microspore mother cell | endothecium | epidermis |
| D | epidermis | Middle layer | Microspore mother cell | endothecium | Tapetum |

**Page No.-22, Medium**

14. Microsporogenesis –
    A) Process of formation of microspore
    B) Development of pollen grain from pollen mother cell
    C) It involve meiosis
    D) All of these

**Page No.-22, Easy**

15. Pollen grain represents –
    A) Male gametophyte
    B) Male sporophyte
    C) Female gametophyte
    D) Female sporophyte

**Page No.-22, Easy**

16. Choose correct about pollen grain wall-
    i) It has two layered prominent wall
    ii) Hard outer layered prominent wall
    iii) Exine is composed of sporopollenin
    iv) Sporopollenin form continuous exine
    A) i, ii, iii, iv B) i, ii, iii
    C) i, iii D) i & iv

**Page No.-22, Medium**

17. Sporopollenin is absent in –
    A) Intine B) Germpore
    C) Exine D) A & B both

**Page No.-23, Medium**

18. Pollen grains are well preserved as fossil because of
    A) Presence of intine
    B) Presence of germpore
    C) Presence of sporopollenin
    D) All of these

**Page No.-23, Medium**

19. Sporopollenin is degraded by –
    A) Engyme
    B) High temperature
    C) Strong acid & alkali
    D) None of these

**Page No.-23, Medium**

20. Inner wall of pollen grain is –
    A) Intine, made up of cellulose & lignin
    B) Thin discontinuous intine
    C) Both A & B
    D) None of these

**Page No.-23, Medium**

21. When pollen grain mature –
    A) It consist of two cell that are two male gamete only.
    B) It consist of two cell that are generative & vegetative cell
    C) It consist of two cell that are two male gamete arise from vegetative cell and one generative cell
    D) It consist of three cell that are two male gamete develop meiotically from generative cell and one vegetative cell

**Page No.-23, Easy**

22. Choose incorrect statement among following:
    A) In over 60% of angiosperm, pollen grains are shed at 3 – cell stage

B) In over 60% of angiosperm, pollen grains are shed at 2 – cell stage
C) Both A & B
D) None of these

**Page No.-23, Easy**

23. Pollen allergy is not correlated with-
A) Cause of parthenium
B) Cause chronic respiratory disorder
C) Carrot grass that come into india as a contaminant with imported rice
D) None of these

**Page No.-24, Easy**

24. Pollen grain of rice is viable upto-
A) 30 min
B) Several month
C) Same as in sonaceae
D) Both B & C

**Page No.-24, Easy**

25. Which temperature is correct to store semen for artificial insemination-
A) 196°C B) -196°C
C) 34°C D) 4°C

**Page No.-24, Easy**

## 2.2 Pre – fertilization : structure & events:

26. Papaver show-
i) Multicarpellary
ii) Apocarpous
iii) Syncarpous
iv) Monocarpellary
A) i, ii B) i, iii
C) iv, ii D) iv, iii

**Page No.-24, Easy**

27. Given diagram is of –

A) Multicarpellary apocarpous gynoecium of michelia
B) Multicarpellary synocarpous gynoecium of michelia
C) Multicarpellary synocarpous gynoecium of papaver
D) Multicarpellary apocarpous gynoecium of papaver

**Page No.-25, Easy**

28. Which of following serves as a landing platform for pollen grain?
A) Stigma B) Style
C) Anther D) Filament

**Page No.-25, Easy**

29. Choose correct statement:
A) Inside the ovary is the ovarian cavity, also known as lodicule
B) Megasporangia is commonly called ovules
C) The placenta is located outside ovarian cavity
D) A & C both

**Page No.-25, Easy**

30. Choose incorrect statement –
A) The number of ovules in an ovary is one in paddy
B) The number of ovules in an ovary is many in papaya
C) The number of ovules in an ovary is one in orchid
D) Wheat mango consist of one ovule

**Page No.-25, Easy**

31. Ovule is attached to placenta by –
A) Funicle B) Integument
C) Hilum D) Nucellus

**Page No.-25, Easy**

32. Hilum represents the junction between
A) Ovule & ovary
B) Ovule & funicle
C) Ovule & integument
D) None of these

**Page No.-25, Easy**

33. Chalaza end represent –
A) Basal part of ovule
B) Apical part of ovule
C) Basal part of ovary
D) Apical part of ovary

**Page No.-25, Easy**

34. Female gametophyte of angiosperm represented by –
    A) Nucellus B) Embryosac
    C) Integument D) Both A & B

**Page No.-25, Easy**

35. An ovile generally has _____ embryo sac formed from a megaspore through _____ division
    A) Single, equational
    B) Single, reductional
    C) Four, meiotic
    D) Four, mitotic

**Page No.-25, Easy**

36. Megasporogenesis is not related to –
    A) Formation of megaspore from megaspore mother cell
    B) MMC undergoes meiotic division for megaspore
    C) Formation of microspore
    D) Both A & C

**Page No.-25, Easy**

37. Ovules generally differentiate a single megaspore mother cell in –
    A) Chalazal end B) Micropylar region
    C) Both A & B D) Integument

**Page No.-25, Easy**

38. In a majority of flowering plants
    A) One of the megaspore is functional while other three degenerate
    B) All four megaspore can developes into female gametophyte in almost all angiosperm
    C) Three megaspore is functional while other one degenerated
    D) Both A & B

**Page No.-26, Easy**

39. Monosporic embryo development involve –
    A) One functional megaspore
    B) One haploid cell formed in egg apparatus
    C) Four functional megaspore
    D) None of these

**Page No.-26, Easy**

40. Choose correct statement –
    A) The nucleus of the functional megaspore divides mitotically to form two nuclei which move to the opposite poles, forming the 2-nucleate embryo sac
    B) Two more sequential mitotic nuclear division in 2-nucleate embryo sac result in formation of 4- nucleate
    C) Mitotic division in embryo sac formation upto 8-celled is strictly free nuclear
    D) All of these

**Page No.-26, Medium**

41. How many of eight nuclei of typical embryosac is surrounded by cell wall
    A) 2 B) 4
    C) 6 D) 7

**Page No.-26, Medium**

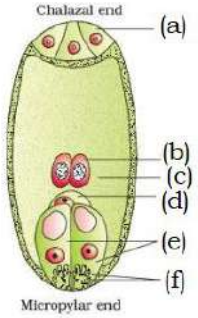
42. Central cell of typical embryosac is situated –
    A) Below egg apparatus
    B) Above egg apparatus
    C) At chalazal end
    D) None of these

**Page No.-26, Easy**

43. Choose the correct about egg apparatus of typical embryosac
    A) Situated at micropylar end
    B) Consist of three cells
    C) Both A & B
    D) Consist of all cells having special cellular thickening at micropylar tip
44. Typical embryo-sac of angiosperm at maturity is –
    A) 8 celled, 8 nucleate
    B) 7 celled, 8 nucleate
    C) 8 celled, 7 nucleate
    D) 7 celled, 7 nucleate

**Page No.-26, Easy**

45.



| | a | b | c | d | e | f |
|---|---|---|---|---|---|---|
| A | Antipodal | Polas nuclei | Central cell | Egg | Synergid | Filiform apparatus |
| B | Antipodal | Polas nuclei | Embryo sac | Egg | Synergid | Filiform apparatus |
| C | Antipodal | Polas nuclei | Egg | Embryo sac | Filiform apparatus | Synergid |
| D | Antipodal | Central cell | Polar nuclei | Egg | Filiform apparatus | Synergid |

**Page No.-26, Easy**

## 2.2.3 Pollination

46. Pollination is-
    A) transfer of motile pollen to stigma
    B) transfer of non-motile anther to stigma
    C) transfer of motile anther to stigma
    D) transfer of non-motile pollen to stigma
    **Page No.-27, Easy**
47. Transfer of pollen from anther to stigma of same flower is called-
    A) Autogamy B) Geitonogany
    C) Xenogeny D) None of these
    **Page No.-27, Easy**
48. Read the given statements-
    (i) Autogamy cannot occur in open flower.
    (ii) Geitonogany cannot occur in closed flower.
    Choose the appropriate answer-
    A) (i) is correct but (ii) is wrong
    B) (i) is wrong but (ii) is correct
    C) (i) and (ii) are both correct
    D) (i) and (ii) are both wrong
    **Page No.-28, Easy**
49. Complete autogamy is rare in-
    A) Closed flower
    B) Open flower
    C) Both open and closed flower
    D) Neither open nor closed flower
    **Page No.-28, Easy**
50. Flowers that do not open at all are called
    A) Chasmogamous B) Polygamous
    C) Cleistogamous D) Xenogamous
    **Page No.-28, Easy**
51. Oxalis produce-
    A) Cleistogamous flowers
    B) Chasmogamous flowers
    C) Both (A) and (B)
    D) Can't say
    **Page No.-28, Easy**
52. How many of the given characters are necessarily present in cleistogamous flower.
    (i) Anthex and stigma lie close to each other.
    (ii) There is synchrony in pollen release and stigma receptivity.
    (iii) Lengths of anther and stigma are very different.
    (iv) Flower is necessarily dioecious.
    (v) Assured seed-set even without pollinators.
    A) 1 B) 2
    C) 3 D) 4
    **Page No.-28, Easy**
53. Geitonogamy is-
    A) Functionally self-pollination and genetically cross-pollination
    B) Genetically self-pollination and functionally cross-pollination
    C) Cross-pollination both genetically and functionally
    D) Self-pollination both genetically and functionally
    **Page No.-28, Easy**
54. Xenogamy is-
    A) Functionally self-pollination and genetically cross-pollination
    B) Genetically self-pollination and functionally cross-pollination
    C) Cross-pollination both genetically and functionally
    D) Self-pollination both genetically and functionally
    **Page No.-28, Easy**
55. Autogamy is-
    A) Functionally self-pollination and genetically cross-pollination
    B) Genetically self-pollination and functionally cross-pollination

C) Cross-pollination both genetically and functionally
D) Self-pollination both genetically and functionally

**Page No.-27, Easy**

56. Genetically different type of pollen is brought to stigma by-
A) Atutogamy only
B) Geitonogamy only
C) Xenogamy only
D) More than one options

**Page No.-28, Easy**

57. (a) Pollination by abiotic agents is a chance factor.
(b) Pollen is produced in enormous amount as compared to number of ovules.
Choose the best answer.
A) a and b are correct and b is the reason for a
B) a and b are correct and a is the reason for b
C) a is incorrect and b is correct
D) b is incorrect and a is correct

**Page No.-28, Easy**

58. Which is more common abiotic agent for pollination-
A) Wind B) Insect
C) Water D) Animal

**Page No.-28, Easy**

59. The pollen grains in wind pollinated plants should be-
A) Heavy and sticky
B) Heavy and non-sticky
C) Light and sticky
D) Light and non-sticky

**Page No.-28, Easy**

60. Wind pollinated flowers often have ____ in each ovary and flowers are after ____.

| | **(i)** | **(ii)** |
|---|---|---|
| A) | Single | Single |
| B) | Multiple | Single |
| C) | Single | packed in inflorescence |
| D) | multiple | packed in inflorescence |

**Page No.-28, Easy**

61. The tassels in corn cob are-
A) Filaments of anthers
B) Stigma and style
C) Reduced leaf
D) Stalk of ovule

**Page No.-28, Easy**

62. Match the columns.

| **Column-I** | | **Column-II** | |
|---|---|---|---|
| (i) | Wind pollination | (a) | Maize |
| (ii) | Water pollination | (b) | Hydrilla |
| (iii) | Biotic pollination | (c) | Monocots |
| (iv) | Freshwater pollination | (d) | Amorphophallus |

A) (i)-d, (ii)-b, (iii)-d, (iv)-c
B) (i)-c, (ii)-d, (iii)-a, (iv)-b
C) (i)-a, (ii)-c, (iii)-d, (iv)-b
D) (i)-b, (ii)-a, (iii)-c, (iv)-d

**Page No.-28, Easy**

63. (a) Distribution of some bryophytes & pteridophytes is limited.
(r) Transport of male gamete in bryophytes & pteridophyte is dependent on water.
Choose the correct options.
A) a and r are correct but r is correct explanation for a
B) a and r are correct but r is not correct explanation for a
C) Both a and r are incorrect
D) a is correct but r is incorrect

**Page No.-29, Easy**

64. Aquatic plants pollinated by water are given, except-
A) Zostera
B) Hydrilla
C) Water hyacinth
D) More than one option

**Page No.-29, Easy**

65. Pollination in water lily occurs by-
A) Water B) Wind
C) Insects D) Both B and C

**Page No.-29, Easy**

66. Choose the correct statements for pollination in sea grasses-
(i) Female flower reach surface of water.
(ii) Female flower remain submerged.

(iii) Pollen released on water surface.
(iv) Pollen release inside water.
(v) Pollen grains are carried passively by water.
(vi) Pollen grains are carried actively in water.
(vii) Most of the pollen reach stigma.
(viii) Some of the pollen reach stigma.
A) (i), (iii), (v), (vii)
B) (ii), (iv), (vi), (vii)
C) (ii), (iv), (v), (vii)
D) (ii), (iv), (v), (viii)

**Page No.-29, Easy**

67. Choose correct statements for pollination in vallisneria-
(i) Female flower reach surface of water.
(ii) Female flower remain submerged.
(iii) Pollen released on water surface.
(iv) Pollen release inside water.
(v) Pollen grains are carried passively by water.
(vi) Pollen grains are carried actively in water.
(vii) Most of the pollen reach stigma.
(viii) Some of the pollen reach stigma.
A) (i), (iii), (v), (vii)
B) (ii), (iv), (vi), (vii)
C) (i), (iii), (v), (viii)
D) (ii), (iv) (v), (viii)

**Page No.-29, Easy**

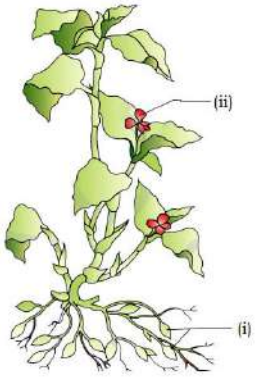
68. Requirement for pollen of water pollinated plants are-
(i) Light pollen
(ii) Pollen with mucilagenous cover
(iii) Non-sticky pollen
(iv) Long ribbon-like pollen
A) (i) and (iii) B) (iii) and (iv)
C) (i) and (ii) D) (ii) and (iv)

**Page No.-29, Easy**

69. Majority of angiosperms use ____ for pollination-
A) Wind B) Water
C) Animals D) Both A and B

**Page No.-28, Easy**

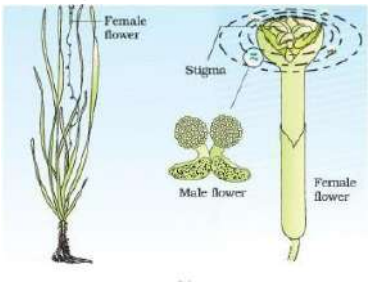
70. Identify the given labels-




| | (i) | (ii) |
|---|---|---|
| A) | Chasmogamous, autogamy | Cleistogamous, allogamy |
| B) | Chasmogamous, allogamy | Cleistogamous, autogamy |
| C) | Cleistogamous, autogamy | Chasmogamous, allogamy |
| D) | Cleistogmous, allogamy | Chasmogamous, autogamy |

**Page No.-28, Easy**

71. The figure shows-




A) Wind pollination in freshwater Vallisnaria
B) Water pollination in marine Hydrilla
C) Water pollination in marine Lostera
D) Water pollination in freshwater Vallineria

**Page No.-29, Easy**

72. Dominant biotic pollinating agents are-
A) Bees B) Birds
C) Butterflies D) Ants

**Page No.-29, Easy**

73. How many of the following may act as pollinators-?
Bees, butterflies, wasps, beetles, leopard, bats, pigeon
A) 5 B) 4
C) 3 D) 2

74. Insect-pollinated flowers are-
A) Large, colourful, rich in nectar
B) Large, colourless, rich in nectar
C) Small, clustered, fragrant, sticky
D) More than one option is correct
**Page No.-30, Easy**

75. Floral rewards are-
A) Nectar B) Pollen grains
C) Both B and A D) None of these
**Page No.-30, Easy**

76. Floral reward in Amorphophallus is-
A) Nectar
B) Safe place to lay-eggs
C) Colourful petals
D) Fragrance to attract insects
**Page No.-31, Easy**

77. Which of the statements is true about (a) Pronuba moth and (b) Yucca plant?
A) (a) is dependent on (b) for life cycle but the opposite is not true
B) (b) is dependent on a for life cycle but the opposite is not true
C) Both (a) and (b) are interdependent on each other for their life cycle
D) Both (a) and (b) are independent of each other for life cycle
**Page No.-30, Easy**

78. Outbreeding devices are used to prevent-
A) Self-fertilization
B) Cross-pollination
C) Both self and cross pollination
D) Xenogamy
**Page No.-31, Easy**

79. Inbreeding depression is a result of-
A) Self-fertilization followed by cross-fertilization
B) Cross-fertilization followed by self-fertilization
C) Continued cross-fertilization
D) Continued self-fertilization
**Page No.-31, Easy**

80. Self-pollination can be prevented by separation of anther and stigma in-
A) time (maturity) B) place (position)
C) none of these D) both of these
**Page No.-31, Easy**

81. Self-incompatibility is not-
A) Genetic mechanism
B) Positional separation of anther and stigma
C) Prevention for geitonogamy
D) More than one option
**Page No.-31, Easy**

82. Production of unisexual flowers on a plant assures prevention of-
A) Autogamy only
B) Autogamy and geitonogamy
C) Geitonogamy only
D) Autogamy and Xenogamy
**Page No.-31, Easy**

83. Monoecious plants assures-
A) no autogamy
B) no autogamy and geitonogamy
C) no autogamy and xenogamy
D) no geitonogamy and xenogamy
**Page No.-31, Easy**

84. Dioecious plants assures-
A) no autogamy
B) no autogamy and geitonogamy
C) no autogamy and xenogamy
D) no geitonogamy and xenogamy
**Page No.-31, Easy**

85. If a wrong pollen (from other species or self-incompatible) lands on stigma-
A) Pollen germinates but pollen tube cannot grow in style
B) Pollen germinates, grows in style but cannot enter ovary
C) Does not germinate at all
D) Both A and C
**Page No.-31, Easy**

86. When pollen grain germinates and produce pollen tubes
A) Content of pollen grain is distributed uniformly
B) Content of pollen grain move into pollen tube
C) Content of pollen grain is distributed non-uniform, more in pollen grain
D) Content of pollen grain is distributed non-uniformly, more in pollen tube
**Page No.-31, Easy**

87. Filiform apparatus is present at-
A) Micropylar part of synergid

B) Chalazal part of synergid
C) Micropylar part of antipodal
D) Chalazal part of antipodal

**Page No.-32, Easy**

88. Emasculation is done in-
A) Male parent
B) Female parent
C) Both male and female parent
D) Depends on the project

**Page No.-33, Easy**

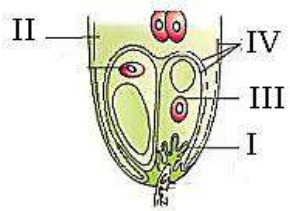
89. The emasculated flowers are bagged to-
A) Protect flower from strong sunlight
B) Protect flower from rain
C) Protect flower from unwanted pollen
D) Protect flower from insects

**Page No.-33, Easy**

90. If female parent produces unisexual flowers, there is-
A) no need of emasculation & bagging
B) need of emasculation & bagging
C) no need of emasculation but bagging is needed
D) no need of bagging but emasculation is needed

**Page No.-33, Easy**

91. Identify the filiform apparatus in given figure-




A) I B) II
C) III D) IV

**Page No.-32, Easy**

## 2.3 Double Fertilization

92. Pollen tube release male gametes into-
A) Cytoplasm of Egg cell
B) Nucleus of Egg cell
C) Cytoplasm of Synergids
D) Cytoplasm of Antipodals

**Page No.-34, Easy**

93. Which of the following is incorrect about double fertilization?
A) One male gamete fuses with nucleus of egg cell
B) Syngamy results into dyad of cells
C) Second male gamete move toward polar nuclei
D) Triple fusion results into PEN

**Page No.-34, Easy**

94. Triple fusion is-
A) Fusion of third male gamete with polar nuclei
B) Fusion of three haploid cells
C) Fusion of second male gamete with egg cell
D) Fusion of three haploid nuclei

**Page No.-34, Easy**

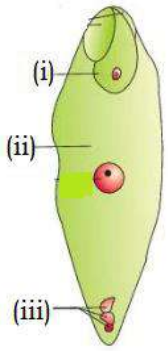
95. Which of these is correct?
A) Syngamy = Triple fusion + Double fertilization
B) Double fertilization = Syngamy + Triple fusion
C) Triple fusion = Double fertilization – Syngamy
D) More than one option is correct

**Page No.-34, Easy**

96. Central cell after double fertilization becomes-
A) Zygote B) PEN
C) PEC D) Embryo

**Page No.-34, Easy**

97. Identify the correct labels.

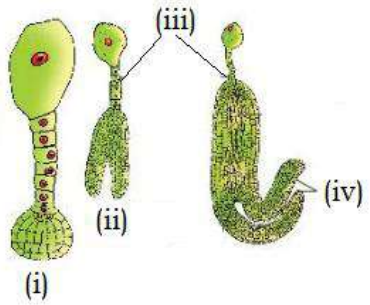



| | (i) | (ii) | (iii) |
|---|---|---|---|
| A) | Zygote | PEN | Degenerating antipodals |
| B) | Zygote | PEC | Degenerating antipodals |
| C) | Zygote | PEN | Degenerating synergids |

| | | | |
|---|---|---|---|
| D) | Zygote | PEC | Dengenerating synergids |

**Page No.-34, Easy**

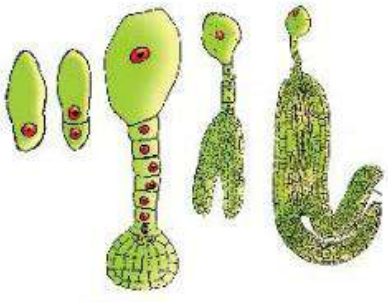
98. Identify the correct labels.




| | (i) | (ii) | (iii) | (iv) |
|---|---|---|---|---|
| A | Globular embryo | Heart-shaped embryo | Suspensor | Cotyledon |
| B | Heart-shaped embryo | Globular embryo | Cotyledon | Suspensor |
| C | Globular embryo | Heart-shaped embryo | Cotyledon | Suspensor |
| D | Heart-Shaped embyro | Globular embryo | Suspensor | Cotyledon |

**Page No.-34, Easy**

99. The figure shows stages in-



A) Embryo development in dicot
B) Embryo development in monocot
C) Embryo development in gymnosperm
D) Both A and B

**Page No.-34, Easy**

## 2.4 Post Fertilization : Structure and Events

100. Post fertilization includes how many of the following events-
(i) endosperm development
(ii) zygote formation
(iii) embryo development
(iv) seed formation
(v) fruit formation
A) 5 B) 4
C) 3 D) 2

**Page No.-34, Easy**

### 2.4.1 Endosperm

101. Select correct statement-
A) Endosperm development proceeds embryosac development
B) Endosperm development precedes embryo development
C) Embryo development precedes endosperm development
D) More than one option is correct

**Page No.-35, Easy**

102. Endosperm tissue is-
A) Haploid B) Diploid
C) Triploid D) Tetraploid

**Page No.-35, Easy**

103. In free-nuclear endosperm-
A) PEN undergoes successive nuclear divisions
B) PEC undergoes successive cellular divisions
C) PEN undergoes successive cellular divisions
D) More than one option is correct

**Page No.-35, Easy**

104. Cells of endosperm tissue are filled with-
A) reserve food materials for plant cells
B) reserve food material for embryo
C) reserve food material for developing zygote
D) more than one option is correct

**Page No.-35, Easy**

105. Coconut water from tender coconut is ____ and white kernel is ____.

| | (i) | (ii) |
|---|---|---|
| A) | Cellular endosperm | Free-nuclear endosperm |
| B) | Free nuclear endosperm | Cytoplasmic endosperm |
| C) | Free-nuclear endosperm | Cellular endosperm |

| | | |
|---|---|---|
| D) | Cytoplasmic endosperm | Cellular endosperm |

**Page No.-35, Easy**

106. Endosperm is completely consumed by developing embryo before seed maturation in-
A) Groundnut B) Castor
C) Coconut D) All of these

**Page No.-35, Easy**

107. Endosperm persists in mature seeds in-
A) Castor
B) Pea
C) Beans
D) More than one option is correct

**Page No.-35, Easy**

## 2.4.2 Embryo

108. Embryo develops at
A) micropylar end
B) chalazal end
C) either micropylar or chalazal end
D) neither microplar nor chalazal end

**Page No.-35, Easy**

109. Choose the correct order of embryo development in dicots-
(i) Zygote
(ii) Heart-shaped embryo
(iii) Mature embryo
(iv) Proembryo
(v) Globular embryo
A) i-iv-ii-v-ii B) i-iv-ii-v-iii
C) i-iv-iii-ii-v D) ii-iv-v-ii-iii

**Page No.-35, Easy**

110. How many of the given parts are present in dicot embryo-
Embryonal axis, Cotyledons, Scutellum, Hypocotyl, Root cap
A) 5 B) 4
C) 3 D) 2

**Page No.-35, Easy**

111. How many of the given parts are present in monocot embryo-
Cotyledon, scutellum, Coleoptile, Radicle, Root cap
A) 5 B) 4
C) 3 D) 2

**Page No.-35, Easy**

112. Hypocotyl terminates in-
A) Plumule
B) Radicle
C) Root tip
D) More than one option is correct

**Page No.-35, Easy**

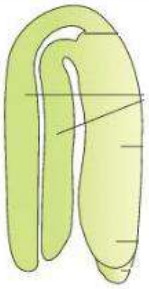
113. (i) In dicot embryo, root tip is covered by root cap.
(ii) In dicot embryo, scutellum is situated towards one side of embryonal axis.
(iii) Cylindrical portion below the level of cotyledons is hypocotyl in dicots embryo.
(iv) In dicot embryo, epicotyl terminates with stem tip.
How many of the above statements is incorrect?
A) Zero B) One
C) Two D) Three

**Page No.-35, Easy**

114. In grass family, the scutellum is-
A) Cotyledon B) Root tip
C) Epiblast D) Shot tip

**Page No.-35, Easy**

115. Identify the given figures-



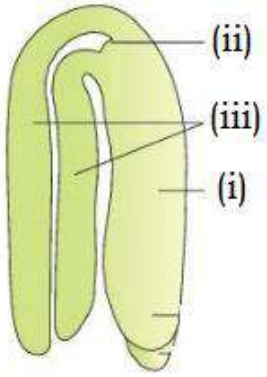
(i)

(ii)

A) (i) is embryo of grass
B) (ii) is embryo of dicots
C) (ii) is embryo of monocot
D) More than one option is correct

**Page No.-35, Easy**

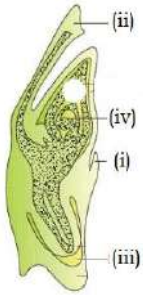
116. Identify the correct labels-




| | (i) | (ii) | (iii) |
|---|---|---|---|
| A) | Cotyledon | Plumule | Hypocotyl |
| B) | Radicle | Cotyledon | Plumule |
| C) | Hypocotyl | Plumule | Cotyledon |
| D) | Cotyledon | Plumule | Epicotyl |

**Page No.-35, Easy**

117. Identify the correct labels-




| | (i) | (ii) | (iii) | (iv) |
|---|---|---|---|---|
| A | Epiblast | Scutellum | Coleoptile | Root cap |
| B | Scutellum | Epiblast | Shoot apex | Radicle |
| C | Epiblast | Scutellum | Root cap | Shoot apex |
| D | Scutellum | Epiblast | Radicle | Coleoptile |

**Page No.-35, Easy**

118. Coleoptile is-
A) hollow structure
B) solid structure
C) sometimes hollow and sometimes solid structure
D) semi-solid

**Page No.-35, Easy**

119. Coleorhiza is-
A) hollow structure
B) foliar structure
C) undifferentiated sheath
D) more than one option is correct

**Page No.-36, Easy**

## 2.4.3 Seed

120. Read the following statements-
(i) Seed is final product of sexual reproduction is plant.
(ii) Seed is fertilized ovule.
(iii) Seed is formed inside fruit.
(iv) Seed consists of seed coat(s), cotyledon(s) and embryo axis.
How many of the statements is incorrect?
A) Zero B) One
C) Two D) Three

**Page No.-36, Easy**

121. Non-albuminous seeds-
A) have residual endosperm
B) retain a part of endosperm
C) is found in castor
D) None of these

**Page No.-36, Easy**

122. Groundnut is-
A) Albuminous
B) Non-albuminous
C) Has residual endosperm in mature seed
D) More than one option is correct

**Page No.-36, Easy**

123. Perisperm is-
A) Persistent nucleus
B) Found in beet
C) Residual endosperm
D) More than one option

**Page No.-36, Easy**

124. Integument of ovules mature into-
A) Ovary wall B) Pericarp
C) Seed coat D) Perisperm

**Pag** Micropyle is- **No.-36, Easy**

125. Micropyle is-
A) Absent in seed
B) Present inside seed
C) Present on surface of seed
D) Present on seed coat

**Page No.-36, Easy**

126. Micropyle plays role of-
A) Stalk for seed
B) Scar of stalk
C) Facilitating entry of water into seed
D) Facilitating escape of seed metabolites
**Page No.-36, Easy**

127. Mature seed has-
A) More water content and more metabolism
B) Less water content and more metabolism
C) Less water content and less metabolism
D) More water content and more metabolism
**Page No.-36, Easy**

128. The embryo in a mature seed-
A) Germinates essentially
B) May enter dormancy
C) Always enters dormancy first, followed by germination
D) Both B and C
**Page No.-36, Easy**

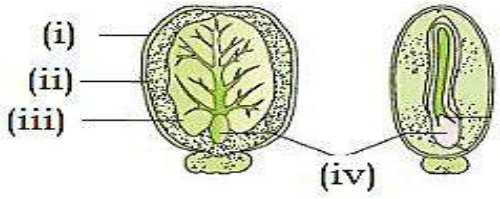
129. Choose the correct match regarding the maturing of flower into fruit-
A) Wall of ovule – pericarp
B) Nucellus – periderm
C) Ovary – seed
D) None of these
**Page No.-36, Easy**

130. Fleshy fruit is-
A) Mustard B) Groundnut
C) Guava D) More than one
**Page No.-36, Easy**

131. In false fruits, select incorrect statement-
A) Floral parts other than ovary are involved
B) Thalamus may contribute to fruit formation
C) Examples include apple, cashew, groundnut
D) Fruit does not develop from ovary
**Page No.-36, Easy**

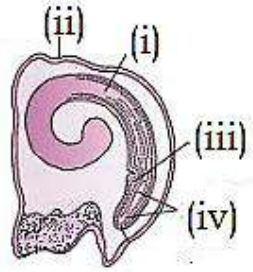
132. Which of these is incorrect about parthenocarpy-
A) Plant formed without fertilization
B) Banana is example
C) Induced by application of growth harmones
D) Such fruits are seed less
**Page No.-36, Easy**

133. Identify the endosperm in the given figure –



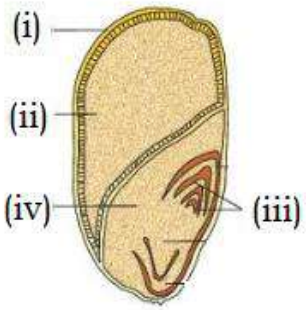

A) I B) II
C) III D) IV
**Page No.-37, Easy**

134. Identify cotyledon in the given figure of seed



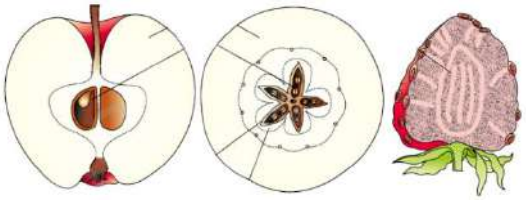

A) I B) II
C) III D) IV
**Page No.-37, Medium**

135. Identify scutellum in the given figure –




A) I B) II
C) III D) IV
**Page No.-37, Medium**

136. The given figure shows –



A) Eucarp of apple and lithi
B) Pseudocarp of apple litchi
C) Eucarp of apple and strawberry
D) Pseudocarp of apple and strawberry

**Page No.-37, Medium**

137. In angiosperm, pollination and fertilization are –
A) Both independent of water
B) Both dependent of water
C) Only pollination is essentially on water
D) Only fertilization is dependent on water

**Page No.-37, Medium**

138. For storage of seeds –
A) Dehydration is important
B) Dormancy is important
C) Neither dehydration nor dormancy is needed
D) Both dehydration and dormancy are crucial

**Page No.-37, Easy**

139. The oldest yet viable seed found is –
A) Lupinus from arctic tundra
B) Phoenix from arctic tundra
C) Lupinus from king herod's palace
D) Phoenix from king herod's palace

**Page No.-37, Easy**

140. *Phoenix dactylifera* is commonly known as –
A) Fig
B) Coconut
C) Cashew
D) None of these

**Page No.-37, Easy**

## 2.5 Apomixis and Polyenbryony

141. Apomixis is –
A) Fruit without fertilization
B) Seed without fertilization
C) Plant without fertilization
D) More than one option

**Page No.-38, Easy**

142. Apomixis is –
A) A form of sexual reproduction that mimics asexual reproduction
B) A form of asexual reproduction that mimics sexual reproduction
C) Both of the above
D) None of these

**Page No.-38, Easy**

143. Apomixis is found in –
A) Solanaceae
B) Liliaceae
C) Asteraceae
D) Brassicaceae

**Page No.-38, Easy**

144. Mango contains –
A) Multiple ovaries in a flower
B) Multiple ovules in an ovary
C) Multiple embryo in an ovule
D) More than one option is correct

**Page No.-38, Easy**

145. What is the major constraint associated with hybrides?
A) Hybrides are not accepted by farmers
B) Hybrides are costly
C) Hybrid seeds have to be produced every year and the seeds from hybrid cannot be sown
D) More than one option is correct

**Page No.-38, Easy**

146. What is the problem with sowing seeds from hybrid plant?
A) Seeds will not germinate (low germination rate)
B) Progeny will be unhealthy
C) Hybrid characters will be lost due to segregation
D) All of these

**Page No.-38, Easy**

# Answer Key

## SEXUAL REPRODUCTION IN FLOWERING PLANT

| Q | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| **Ans** | **D** | **A** | **B** | **A** | **D** | **A** | **B** | **C** | **B** | **C** |
| **Q** | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| **Ans** | **A** | **A** | **B** | **D** | **A** | **B** | **D** | **C** | **D** | **D** |
| **Q** | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| **Ans** | **B** | **A** | **C** | **A** | **B** | **B** | **A** | **A** | **B** | **C** |
| **Q** | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| **Ans** | **A** | **B** | **A** | **B** | **B** | **C** | **B** | **A** | **A** | **D** |
| **Q** | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| **Ans** | **C** | **A** | **C** | **B** | **A** | **D** | **A** | **A** | **B** | **C** |
| **Q** | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| **Ans** | **C** | **C** | **B** | **C** | **D** | **C** | **B** | **A** | **D** | **C** |
| **Q** | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| **Ans** | **B** | **C** | **A** | **C** | **D** | **D** | **D** | **C** | **C** | **C** |
| **Q** | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| **Ans** | **D** | **A** | **A** | **D** | **C** | **B** | **C** | **A** | **D** | **D** |
| **Q** | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| **Ans** | **B** | **A** | **A** | **B** | **D** | **B** | **A** | **B** | **C** | **C** |
| **Q** | 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
| **Ans** | **A** | **C** | **B** | **D** | **D** | **C** | **B** | **A** | **A** | **B** |
| **Q** | 101 | 102 | 103 | 104 | 105 | 106 | 107 | 108 | 109 | 110 |
| **Ans** | **B** | **C** | **A** | **D** | **C** | **A** | **A** | **A** | **D** | **B** |
| **Q** | 111 | 112 | 113 | 114 | 115 | 116 | 117 | 118 | 119 | 120 |
| **Ans** | **B** | **D** | **B** | **A** | **C** | **C** | **C** | **A** | **C** | **A** |
| **Q** | 121 | 122 | 123 | 124 | 125 | 126 | 127 | 128 | 129 | 130 |
| **Ans** | **D** | **B** | **B** | **C** | **D** | **C** | **C** | **B** | **D** | **C** |
| **Q** | 131 | 132 | 133 | 134 | 135 | 136 | 137 | 138 | 139 | 140 |
| **Ans** | **A** | **A** | **B** | **A** | **D** | **D** | **A** | **D** | **A** | **D** |
| **Q** | 141 | 142 | 143 | 144 | 145 | 146 | | | | |
| **Ans** | **B** | **B** | **C** | **C** | **D** | **C** | | | | |