

Botany

Chapterwise Practise Problems (CPP) for NEET

Chapter - Sexual Reproduction in Flowering Plants

- Pollen viability period for Rosaceae family members is about
 - 30 minutes
 - 30 seconds
 - Several months
 - 30 days
- Apomixis is common in
 - Fabaceae
 - Solanaceae
 - Sunflower family and grass family
 - Mustard family
- In majority of angiosperms, embryo sac is
 - Trisporic
 - Bisporic
 - Tetrasporic
 - Monosporic
- Read the given statements and select the **correct** option
 - Hanging drop method requires 10% Sugar solution with boric acid, Ca, Mg and K salts
 - Growth of pollen tube starts in microsporangium
 - Both the statements A and B are correct
 - Statement A is correct while B is incorrect
 - Statement A is incorrect while B is correct
 - Both the statements A and B are incorrect
- Choose **odd** one with respect to double fertilization and triple fusion
 - First studied by Nawaschin in *Lilium* and *Papaver*
 - It includes syngamy and triple fusion
 - Total five nuclei are involved
 - It is key character of angiosperms
- During dicot embryogeny, suspensor cell cuts towards (i) and embryonal cell towards (ii) region.
Correct words for (i) and (ii), respectively are
 - Antipodal and Micropyle
 - Chalazal and Micorpyle
 - Micropyle and Antipodal
 - Chalazal and Antipodal
- Select the ploidy level of tissues like aleurone layer, endosperm and cotyledon in maize seed
 - 2n, 3n, 2n
 - 2n, 3n, n
 - 3n, 3n, 2n
 - 3n, 2n, 3n
- Which are is correct ?
 - Seeds are produced sexually
 - Seeds can be produced asexually
 - Seeds are found in gymnosperms
 - More than one option is correct
- In all of the following plants, both cleistogamous and chasmogamous flowers are found, **except**
 - Viola*
 - Commelina*
 - Oxalis*
 - Salvia*
- Which of the following show hydrophily ?
 - Yucca*
 - Salvia*
 - Ficus*
 - Zostera*
- Label the points a, b and c of the figure given below and select the option accordingly

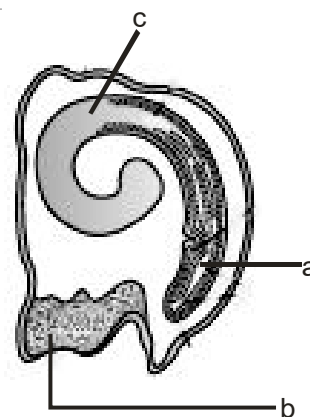


Fig.- Onion seed

- a-Plumule, b-Endosperm, c-Cotyledon
- a-Hypocotyl, b-Seed coat, c-Plumule
- a-Hypocotyl, b-Endosperm, c-Cotyledon
- a-Coleorrhiza, b-Plumule, c-Cotyledon

12. Find the feature(s) which is/are **true** for hydrophilous flower
 - (1) Unwettable pollen grain
 - (2) Pollens with mucilage covering
 - (3) Large, feathery stigma
 - (4) Both (1) and (2)
13. Endosperm is completely consumed by the developing embryo in
 - (1) Pea
 - (2) Beans and groundnut
 - (3) Both (1) and (2)
 - (4) Castor
14. Which one is **not** a structure associated with monocot embryo?
 - (1) Nucellus
 - (2) Coleoptile
 - (3) Coleorhiza
 - (4) Root cap
15. Seeds form the basis of our agriculture as they show
 - (1) Dormancy
 - (2) Dehydration
 - (3) Haploidy
 - (4) Both (1) and (2)
16. Choose the **odd** one out with respect to asexual reproduction
 - (1) Syngamy
 - (2) Recurrent agamospermy
 - (3) Adventive embryony
 - (4) Sporophytic budding
17. In grass family, the cotyledon is called
 - (1) Hypocotyl
 - (2) Epicotyl
 - (3) Epiblast
 - (4) Scutellum
18. Find the **mismatched** pair with respect to endosperm nature
 - (1) Proteinaceous endosperm – Maize
 - (2) Chitinous endosperm – Date palm
 - (3) Starchy endosperm – Wheat
 - (4) Oily endosperm – Castor
19. The remains of second cotyledon in some grasses is called
 - (1) Epiblast
 - (2) Hypocotyl
 - (3) Scutellum
 - (4) Epicotyl
20. In cross hybridisation experiments, emasculation is required in
 - (1) *Zea*
 - (2) *Phoenix*
 - (3) *Pisum*
 - (4) *Carica*
21. Find out number of meiosis to form 50 seeds in a typical flowering plant
 - (1) 200
 - (2) 100
 - (3) 63
 - (4) 13
22. The most common insect pollinators are
 - (1) Ants
 - (2) Aphids
 - (3) Wasps
 - (4) Bees
23. Shield shape cotyledon situated lateral side of embryonal axis in maize is called
 - (1) Epiblast
 - (2) Scutellum
 - (3) Coleoptile
 - (4) Coleorhiza
24. In majority of the aquatic plants
 - (1) Hydrophily occurs
 - (2) Anemophily and entomophily occurs
 - (3) Malacophily occurs
 - (4) Pollination is absent
25. Choose **correct** matching
 - (1) *In vitro* pollen – Hanging drop method germination
 - (2) Natural hybridisation – Emasculation
 - (3) Double fertilization – Nawaschin in *Papaver* and triple fusion
 - (4) Outbreeding device – Bisexuality
26. Read the statements carefully and find how many is/are **correct**
 - (a) Pre-fertilisation involves gametogenesis
 - (b) Gamete mother cells may be haploid or diploid
 - (c) Gametogenesis involves mitosis or meiosis
 - (d) Water is always needed for gamete transfer
 - (1) 4
 - (2) 3
 - (3) 2
 - (4) 1
27. Which plant can **not** cause air borne allergies?
 - (1) *Chenopodium*
 - (2) *Parthenium*
 - (3) *Vallisneria*
 - (4) *Amaranthus*
28. Majority of the flowering plants produce
 - (1) Bisexual flowers
 - (2) Hermaphrodite flowers
 - (3) Both (1) and (2)
 - (4) Unisexual flowers
29. Match the following columns and choose the correct option with respect to development of embryosac and select the **correct** option

I	II
(a) Monosporic	(i) Chalazal end
(b) Bisporic	(ii) 4 megaspore nuclei take part in formation of embryosac
(c) Tetrasporic	(iii) Two megaspore nuclei form single embryosac
(d) Functional megaspore	(iv) One out of 4 megaspore forms embryosac

 - (1) a(ii),b(iii),c(iv),d(i)
 - (2) a(iv),b(iii),c(ii),d(i)
 - (3) a(iv),b(iii),c(i),d(ii)
 - (4) a(ii),b(iii),c(i),d(iv)

30. The problems of using hybrid seeds can be solved by using apomictic seeds, because:

- (1) Apomictic seeds often develop from diploid cells, so chance of segregation is not possible
- (2) Apomictic seeds develop from fertilised eggs
- (3) Apomixis is not genetically controlled
- (4) Hybrid seeds are not resistant to pathogens

31. Which one is **incorrect** with respect to antipodals?

- (1) They are located in micropylar end of embryo sac
- (2) In most of the plants, they are three in numbers
- (3) They are haploid
- (4) They are vegetative cells

32. In a plant species, female plant is tetraploid and male plant is diploid. The ploidy of egg and PEN will respectively be

- (1) n and $3n$
- (2) $2n$ and $2n$
- (3) $2n$ and $5n$
- (4) n and $5n$

33. Mass of undifferentiated cells cover radicle and root cap in grass is called

- (1) Coleoptile
- (2) Coleorrhiza
- (3) Scutellum
- (4) Epiblast

34. Self incompatibility

- (1) Is not genetically controlled
- (2) Promotes cross pollination
- (3) Promotes self pollination
- (4) Is absent in angiosperms

35. Megasporophyll is morphologically equivalent to

- (1) Stamen
- (2) Inflorescence
- (3) Ovule
- (4) Carpel

36. Synergids

- (1) Are haploid
- (2) Possess cellular thickenings
- (3) Degenerates finally
- (4) More than one option is correct

37. Find **odd** one out with respect to entomophily

- (1) *Salvia*
- (2) *Yucca*
- (3) *Ficus*
- (4) Maize

38. Innermost wall layer of anther helps in

- (1) Providing protection
- (2) Dispersal of pollens
- (3) Providing nourishment to the developing pollen grains
- (4) Formation of pollen grain

39. The given plant shows all adaptations for pollination, **except**



- (1) Light and non-sticky pollen
- (2) Well exposed stamens
- (3) Presence of nectaries
- (4) Flowers packed into inflorescence

40. The pollens of which of the following plants have the viability period about 30 minutes?

- (1) Rice
- (2) Pea
- (3) Bean
- (4) Brinjal

41. **Statement A** : Only a small proportion of plants use abiotic agents.

Statement B : Pollen grains coming in contact with stigma is a chance factor in both wind and water pollination

- (1) Only statement A is correct
- (2) Only statement B is correct
- (3) Both statements A and B are correct
- (4) Both statements A and B are incorrect

42. The numbers of egg cell, helper cell and central cell in a normal embryo sac of a typical dicot plant are respectively

- (1) 1, 2 and 2
- (2) 1, 2 and 1
- (3) 2, 3 and 1
- (4) 2, 2 and 2

43. Match Column-I with Column - II and select the **correct** option

Column - I

Column - II

- | | |
|----------------|---------------------------|
| a) Coleorrhiza | (i) Fruit wall |
| b) Scutellum | (ii) Covering of radicle |
| c) Pericarp | (iii) Persistent nucellus |
| d) Perisperm | (iv) Single cotyledon |
- (1) a(ii), b(iv), c(iii), d(i)
 - (2) a(iv), b(ii), c(i), d(iii)
 - (3) a(ii), b(iv), c(i), d(iii)
 - (4) a(iii), b(iv), c(i), d(ii)

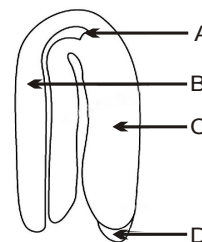
44. Choose **incorrect** match with respect to development

- (1) Fertilized egg cell → Embryo
- (2) Ovule → Seed
- (3) Two polar nucleus + male gamete → PEN
- (4) Synergid → Perisperm

45. α -cellulosic fibrous bands are associated with which of the anther wall layer ?
 (1) Epidermis (2) Endothecium
 (3) Middle layer (4) Tapetum
46. Which of the following features are associated with tapetum?
 (A) Polyploidy
 (B) Polyteny
 (C) Sporopollenin secretion
 (D) Compatibility proteins secretion
 (1) A and C only (2) A and B only
 (3) A, B and C only (4) All A, B, C and D
47. Development of female gametophyte in angiosperms
 (1) Is *in-situ*
 (2) Occurs within the ovule
 (3) Both (1) and (2)
 (4) Is *ex-situ*
48. Vegetative cell of pollen grain
 (1) Is diploid
 (2) Possess irregular shaped nucleus
 (3) Lacks food matter
 (4) Is smaller than generative cell
49. Pollen allergy is commonly caused by the pollen grains of
 (1) *Parthenium* (2) *Rosa*
 (3) *Brassica* (4) *Pisum*
50. Entry of pollen tube inside the ovule in most of the flowering plants is through
 (1) Micropyle (2) Chalaza
 (3) Integument (4) Funicle
51. The most common type of endosperm in angiosperm is
 (1) Cellular type (2) Nuclear type
 (3) Acellular type (4) Both (1) and (3)
52. Syncarpous condition is found in
 (1) *Michelia*
 (2) *Papaver* and *Hibiscus*
 (3) *Papaver* and *Michelia*
 (4) *Hibiscus* and *Michelia*
53. Find **odd** one out with respect to secretions from tapetum
 (1) Compatibility proteins (2) Pollenkitt
 (3) Sporopollenin (4) Callose
54. Which of the following family lose their pollen viability within 30 minutes?
 (1) Poaceae (2) Leguminosae
 (3) Rosaceae (4) Solanaceae
55. Perispermic seeds are present in
 (1) Beet and black pepper
 (2) Apple and pear
 (3) Banana and beet
 (4) Black pepper and gram
56. Self incompatibility
 (1) Prevents cross pollination
 (2) Allows pollen grains of other flowers of the same plant to fertilise the ovule
 (3) Is a genetically controlled mechanism
 (4) Does not allow the germination of pollen grains of other species on the stigma
57. Two celled male gametophyte of angiosperms
 (1) Is formed by *in situ* development of pollen grain
 (2) Includes tube cell and one male gamete
 (3) Includes two generative cells
 (4) Is a result of post pollination development
58. Select the **incorrect** statement with respect to apomixis
 (1) Production of seed without fertilisation
 (2) Mimics asexual reproduction
 (3) Present in some species of Asteraceae and grasses
 (4) Genetically controlled
59. The outbreeding device where pollen release and stigma receptivity are not synchronised is
 (1) Prepotency (2) Incompatibility
 (3) Dicliny (4) Dichogamy
60. How many total nuclei participate in double fertilization?
 (1) Three (2) Two
 (3) Five (4) Ten
61. Unisexuality of flowers in monoecious plant prevents
 (1) Autogamy, but not geitonogamy
 (2) Both geitonogamy and xenogamy
 (3) Both autogamy and geitonogamy
 (4) Geitonogamy, but not xenogamy

62. Select the functions associated with tapetum
- Nutrition to the developing microspores
 - Pollen kit synthesis
 - Sporopollenin and compatibility protein secretion
- (i) & (ii) only
 - (ii) only
 - (i) & (iii) only
 - All (i), (ii) & (iii)
63. In *Oenothera lamarckiana*, an angiosperm, the endosperm cells are
- Haploid
 - Diploid
 - Triploid
 - Tetraploid
64. The moisture content of dormant seed decreases by mass up to
- 10 – 15%
 - 20 – 50%
 - 50 – 70%
 - 1 – 2%
65. The most common type of ovule found in 82% of angiosperm is
- Orthotropous
 - Anatropous
 - Amphitropous
 - Hemi-anatropous
66. Entry of pollen tube into the ovule takes place through
- Micropyle
 - Chalaza
 - Integument
 - More than one option is correct
67. The **correct** polarity of nucleus and central vacuole in the egg is
- Nucleus towards chalazal end and central vacuole towards micropylar end
 - Nucleus towards micropylar end and central vacuole towards chalazal end
 - Nucleus and central vacuole both towards micropylar end
 - Nucleus and central vacuole both towards chalazal end
68. In coconut, the nature of endosperm is
- Starchy
 - Oily
 - Cellulosic
 - Hemicellulosic
69. During the embryogeny in dicot plants, embryonal cell (terminal cell) is situated towards the
- Micropylar end
 - Antipodal region
 - Chalazal end
 - Both (2) and (3)
70. Find out the **incorrect** statement
- Carpel is a type of megasporophyll
 - Corolla is a non-essential whorl of flower
 - Ovule is a non-integumented microsporangium
 - Flower is a modified shoot

71. Find the **incorrect** match
- Tapetal cell – Low DNA content
 - Polyembryony – *Citrus*
 - Cleistogamy – *Commelina*
 - Perisperm – Persistent nucellus
72. Which wall layer of pollen sac has wall thickening of α -cellulosic fibrils ?
- Epidermis
 - Endothecium
 - Middle layer
 - Tapetum
73. Examine the figure given below and select the **correct** option w.r.t the four part A, B, C and D correctly.



- | A | B | C | D |
|---------------|-----------|-----------|----------|
| (1) Plumule | Hypocotyl | Cotyledon | Radicle |
| (2) Hypocotyl | Plumule | Cotyledon | Root Cap |
| (3) Hypocotyl | Cotyledon | Hypocotyl | Radicle |
| (4) Plumule | Cotyledon | Hypocotyl | Root Cap |
74. If hybrids are made into apomicts, there is
- Segregation of characters in the offsprings
 - No segregation of characters in the hybrid progeny
 - Chance of cross fertilisation
 - Negligible seed production
75. Select the **odd one** w.r.t. outbreeding device
- Unisexuality
 - Dichogamy
 - Homogamy
 - Self-incompatibility
76. Flowers secreting foul odours are pollinated by
- Birds
 - Beetles
 - Water
 - Snakes
77. Read the following statements and choose the option which is **true** for them
- (A) Hydrophily is limited to about 30 genera, mostly dicots
- (B) Presence of a single ovule in each ovary is an adaptation of anemophily
- Both A and B are correct
 - A is correct and B is incorrect
 - A is incorrect and B is correct
 - Both A and B are incorrect

78. Which of the following combination are diploid?

- (1) Integument, funicle, nucellus
- (2) Antipodals, PEN, integument
- (3) PEN, funicle, nucellus
- (4) Nucellus, antipodals, integument

79. When a diploid male plant is crossed with a tetraploid female plant of the same angiospermic species, the ploidy level of endosperm cells in the resulting seed is

- (1) Pentaploid
- (2) Tetraploid
- (3) Diploid
- (4) Triploid

80. The intine of pollen grain is made up of A and B

Select the **correct** option for A and B

- (1) A – Cellulose, B – Sporopollenin
- (2) A – Cellulose, B – Hemicellulose
- (3) A – Cellulose, B – Pectin
- (4) A – Sporopollenin, B – Pectin

81. Disadvantage of cross pollination is

- (1) Wasteful process in terms of pollen loss
- (2) Undesirable traits may be introduced
- (3) Pollination is a chance factor
- (4) More than one option is correct

82. The middle layer of a microsporangium

- (1) Is always single layered
- (2) Remains intact for over
- (3) Is triploid
- (4) Helps in anther dehiscence

83. Select the **correct** match :

- (1) Epihydrophily – *Zostera*
- (2) Entomophily – Maize
- (3) Free nuclear endosperm – Coconut
- (4) Perisperm – Groundnut

84. The feature(s) that help(s) in storage of seed and also to raise crops in the next season is/are

- (1) Dormancy
- (2) Dehydration
- (3) Inviability
- (4) Both (1) and (2)

85. Match the given columns and select the **correct** option

Column I	Column II
(A) <i>In-vitro</i> pollen germination	(i) Vegetative fertilisation
(B) Artificial hybridisation	(ii) Emasculation and Bagging
(C) Triple fusion	(iii) Sporophytic budding
(D) Adventitious embryony	(iv) Hanging drop method

(1) A-(iv); B-(ii); C-(i); D-(iii)

(2) A-(iv); B-(ii); C-(iii); D-(i)

(3) A-(ii); B-(iv); C-(iii); D-(i)

(4) A-(iv); B-(iii); C-(ii); D-(i)

86. Which one is **correct** ?

(A) Pollen tube ruptures inside one of the synergids

(B) Antipodal cell nucleus gets transformed into primary endosperm nucleus (PEN)

(1) Both **A** and **B** are correct

(2) Both **A** and **B** are incorrect

(3) Only **A** is correct

(4) Only **B** is correct

87. Identify the following statements as **true (T)** or **false (F)**

I. All aquatic plants are pollinated by water

II. Wind pollination is quite common in grasses

III. Flowers of animal pollinated plants are often specifically adapted for a particular species of animal

IV. Majority of plants use abiotic agents for pollination

I	II	III	IV
(1) T	F	T	T
(2) F	T	T	F
(3) F	F	F	T
(4) T	F	F	F

88. In a flowering plant a tetraploid male plant is cross pollinated with a diploid female plant of the same angiospermic species. What would be the ploidy of endosperm and embryo developed respectively?

(1) 5n and 2n

(2) 4n and 3n

(3) 3n and 3n

(4) 3n and 2n

89. Monoecious condition of plants having unisexual flowers favours

(1) Autogamy

(2) Cleistogamy

(3) True self pollination

(4) Geitonogamy

90. Find the **incorrect** match
- (1) Monosporic embryo sac – *Oenothera*
 - (2) Free nuclear endosperm – Coconut
 - (3) True fruit – Apple
 - (4) Perispermic seed – Beet
91. Which one is **not** the adaptive features of entomophilous flower ?
- (1) Winged pollen grain
 - (2) Colourful and scented flower
 - (3) Presence of nectaries
 - (4) Floral reward for insects
92. Which one is **correct** developmental sequence for dicot embryo ?
- (1) Octant → Mature embryo → Heart shaped
 - (2) Heart shaped → Globular → Mature embryo
 - (3) Globular → Heart shaped → Mature embryo
 - (4) Globular → Octant → Heart shaped
93. which of the following is wrong ?
- (1) Pollen grains are about 25 μm in diameter
 - (2) Exine is the outer layer of pollen
 - (3) Intine is made of sporo pollenin
 - (4) Generative cell is spindle shaped
94. Choose the **odd** one with respect to plants causing pollen allergy
- | | |
|------------------------|-----------------------|
| (1) <i>Chenopodium</i> | (2) <i>Amaranthus</i> |
| (3) <i>Viola</i> | (4) <i>Parthenium</i> |
95. Which of the following is **correct** for double fertilisation ?
- (1) Only two gametes are involved
 - (2) Syngamy occurs twice
 - (3) It results in the formation of two diploid cells
 - (4) Characteristic feature of both dicots and monocots
96. Which of the following adaptations of flowers/plant promote inbreeding depression ?
- (1) Self incompatibility, heterostyly
 - (2) Homogamy, bisexuality, cleistogamy
 - (3) Bud pollination, dichogamy
 - (4) Dioecy, Protandry, herkogamy
97. Sporopollenin is
- (1) Present in exine
 - (2) Non degradable inorganic compound
 - (3) Released from sporogenous cells
 - (4) Produced by pollen grains on the stigma
98. Find out the **correct** developmental sequence in the life cycle of flowering plants
- (1) Pollen mother cell → megaspore tetrad
 - (2) Nucellus → Megaspore mother cell
 - (3) Secondary nucleus → PEN
 - (4) Both (2) and (3)



ANSWERS

1.	(3)	2.	(3)	3.	(4)	4.	(2)	5.	(1)	6.	(3)	7.	(3)
8.	(4)	9.	(4)	10.	(4)	11.	(3)	12.	(4)	13.	(3)	14.	(1)
15.	(4)	16.	(1)	17.	(4)	18.	(2)	19.	(1)	20.	(3)	21.	(3)
22.	(4)	23.	(2)	24.	(2)	25.	(1)	26.	(2)	27.	(3)	28.	(3)
29.	(2)	30.	(1)	31.	(1)	32.	(3)	33.	(2)	34.	(2)	35.	(4)
36.	(4)	37.	(4)	38.	(3)	39.	(3)	40.	(1)	41.	(3)	42.	(2)
43.	(3)	44.	(4)	45.	(2)	46.	(4)	47.	(3)	48.	(2)	49.	(1)
50.	(1)	51.	(2)	52.	(2)	53.	(4)	54.	(1)	55.	(1)	56.	(3)
57.	(1)	58.	(2)	59.	(4)	60.	(3)	61.	(1)	62.	(4)	63.	(2)
64.	(1)	65.	(2)	66.	(4)	67.	(1)	68.	(2)	69.	(4)	70.	(3)
71.	(1)	72.	(2)	73.	(4)	74.	(2)	75.	(3)	76.	(2)	77.	(3)
78.	(1)	79.	(1)	80.	(3)	81.	(4)	82.	(4)	83.	(3)	84.	(4)
85.	(1)	86.	(3)	87.	(2)	88.	(2)	89.	(4)	90.	(3)	91.	(1)
92.	(3)	93.	(3)	94.	(3)	95.	(4)	96.	(2)	97.	(1)	98.	(4)