

# GPLUS EDUCATION

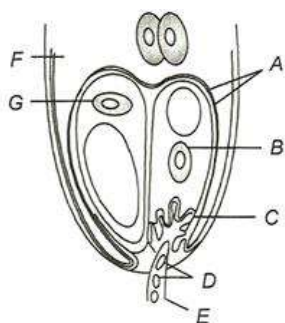
Date :  
Time :  
Marks :

BIOLOGY

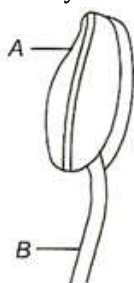
## SEXUAL REPRODUCTION IN FLOWERING PLANTS

### Single Correct Answer Type

- Parthenocarpic fruit
  - Develops from fertilization
  - Developed from fertilized ovary
  - Develops from unfertilized ovary
  - Develops from ovules
- Seed is
  - Ripened ovule
  - Plant part having two generation
  - Both (a) and (b)
  - Miniture plant
- Find out the correct statement
  - Parthenocarpic fruits are seedless
  - Parthenocarp is developed by hormones
  - Both (a) and (b)
  - Parthenocarpic seeds are developed by fertilized ovary
- Vegetative fertilization leading to the formation of endosperm refers to
  - Fusion of male gamete with diploid secondary nucleus
  - Fusion of female gamete with diploid secondary nucleus
  - Fusion of two diploid vegetative cells
  - Fusion of two male gametes
- Which of the following is the result of double fertilization?
  - Cotyledon
  - Nucellus
  - Endosperm
  - None of these
- Perisperm is found in
  - Black pepper
  - apple
  - Beet
  - Both (a) and (c)
- The 'eyes' of the potato tuber are
  - Flower buds
  - Shoot buds
  - Axillary buds
  - Root buds
- True fruit is directly derived from
  - Stem
  - Root
  - Ovule
  - None of the above
- Intine is made up of
  - Cellulose
  - Pectin
  - Both (a) and (b)
  - Protein
- The arrangement of the nuclei in a normal embryo sac in the dicot plants, is
  - 2+4+2
  - 3+2+3
  - 2+3+3
  - 3+3+2
- Pericarp is
  - Wall of ovary
  - Wall of fruit
  - Both (a) and (b)
  - wall of embryo
- The function innermost layer of pollen sac, tapetum is
  - Dehiscence
  - Nutritive
  - Mechanical
  - Protective
- Diagram showing entry of pollen tube to the embryo sac. Identify A to G in the diagram



- a) A-Synergid, B-Filiform apparatus, C-Male gamete, D-Plasma membrane, E-Central cell, F-Egg nucleus, G-Vegetative nucleus  
 b) A- Filiform apparatus, B- Central cell, C- Egg nucleus, D- Vegetative nucleus, E- Male gamete, F- Synergid, G- Plasma membrane  
 c) A- Plasma membrane, B- Synergid, C- Filiform apparatus, D- Male gamete, E- Vegetative nucleus, F- Central cell, G-Egg nucleus  
 d) A- Central cell, B- Egg nucleus, C- Vegetative nucleus, D- Male gamete, E- Synergid, F-Plasma membrane
14. The movement of pollen tube is called  
 a) Chemotropism                      b) Thermotaxis                      c) Thermonastic                      d) Hydrotropism
15. Which of the following statements is wrong?  
 a) Pollen grains remain viable for several months because their outer covering is made of sporopollenin  
 b) No enzyme can degrade sporopollenin  
 c) Pollen grains are well represented in fossil strata due to sporopollenin  
 d) Pollen wall has cavities containing proteins
16. Triple fusion in angiosperm is the fusion of second sperm with  
 a) Antipodal cell and one synergid cell                      b) Two antipodal cells  
 c) Two synergid cells                      d) Two polar nuclei
17. Identify A and B in diagram given below:

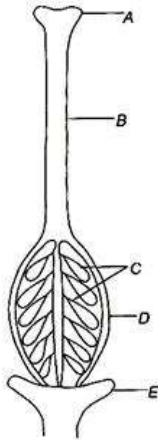


- a) A-Stamen; B-Pistil                      b) A-Filament; B-Anther  
 c) A-Anther; B-Filament                      d) A-Pistil, B-Stamen
18. 'Microspores arranged in a cluster of four cells called megaspore tetrad'.  
 The above statement is  
 a) True                      b) False  
 c) Sometimes (a) and sometimes (b)                      d) Neither (a) nor (b)
19. Insect pollinated flowers are  
 a) Nector producing                      b) Colourful                      c) Fragnance producing                      d) All of these
20. The fusion of male and female pronuclei of the gametes is called  
 a) Fertilization                      b) Conjugation                      c) Amphimixis                      d) Panmixis
21. This diagram given below depicts

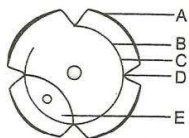


- a) Wind pollinated plant  
 c) Compact inflorescence
- b) Well exposed stamen  
 d) All of these
22. A scion is grafted to a stock. The quality of fruits produced will be determined by the genotype of  
 a) Stock                      b) Scion                      c) Both (a) and (b)                      d) Neither (a) nor (b)
23. When pollen is transferred from anther of a flower to stigma of the another of the another flower of the same plant, it is referred to as  
 a) Allogamy                      b) Xenogamy                      c) Geitonogamy                      d) Autogamy
24. False fruit is a fruit in which  
 a) Only ovary take part in fruit development  
 b) Only embryo take part an fruit development  
 c) Only chalazal cells take part an fruit development  
 d) Ovary and other floral part included in fruit
25. Synergid's filiform apparatus  
 a) Guide the pollen tube  
 b) Guide the style for development  
 c) Present near the micropylar end  
 d) Both (a) and (c)
26. Double fertilization occurs among  
 a) Algae                      b) Bryophytes                      c) Angiosperms                      d) Gymnosperms
27. Scutellum is  
 a) Cotyledon in dicots                      b) Cotyledon in gymnosperm  
 c) Monocot root                      d) Cotyledon in grass family
28. Sporopollenin is chemically  
 a) Homopolysaccharide                      b) Fatty substance  
 c) Protein                      d) Heteropolysaccharide
29. Which one of the following is not a correct explanation of cross-pollination?  
 a) The pollen grains are transferred from one flower to another flower situated on the same plant  
 b) The pollen grains are transferred from one flower to another flower, of another plant the same species  
 c) The pollen grains of male flower are transferred to the stigma of the female flower  
 d) The pollen grains of the flower are transferred to the stigma of the same flower
30. How many cells are found in female gametophyte?  
 a) 6                      b) 8                      c) 7                      d) 5
31. Identify the wrong statements regarding post-fertilization development.  
 a) The ovary wall develops into pericarp  
 b) The outer integument of ovule develops into tegmen  
 c) The fusion nucleus (triple nucleus) develops into endosperm  
 d) The ovule develops into seed
32. Two nuclei with one cell are found in  
 a) Antipodal cell                      b) Chalazal cell                      c) Central cell                      d) Synergid cell

33. 8-nucleated embryo sac are  
 a) Monosporic                      b) Bisporic                      c) Tetrasporic                      d) Any of these
34. Microspore develops into ova. This sentence is  
 a) True                                      b) False  
 c) Sometimes (a) and sometimes (b)                      d) Neither (a) nor (b)
35. Identify *A* to *E* in the following diagram

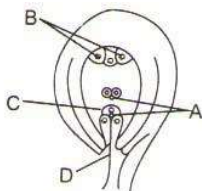


- a) A-Style, B-Stigma, C-Ovules, D-Thalamus, E-Ovary  
 b) A- Ovary, B- Thalamus, C- Ovules, D- Style, E- Stigma  
 c) A- Thalamus, B- Style, C- Stigma, D- Ovary, E- Ovules  
 d) A- Stigma, B- Style, C- Ovules, D- Ovary, E- Thalamus
36. During the formation of embryo sac, the functional megaspore undergoes  
 a) Two mitotic divisions                      b) Two meiotic divisions  
 c) Three meiotic divisions                      d) Three mitotic divisions
37. What would be the number of chromosomes in the cells of the aleurone layer in a plant species with 8 chromosomes in its synergids?  
 a) 16                      b) 24                      c) 32                      d) 8
38. In a type of apomixes known as adventive embryony, embryos develop directly from the  
 a) Nucellus or integuments                      b) Synergids or antipodals in an embryo sac  
 c) Accessory embryo sacs in the ovule                      d) Zygote
39. Name the parts A, B, C, D and E in the given diagram.



- a) A - Germ pore                      B - Generative cell  
 C - Intine                      D - Exine  
 E - Vegetation cell
- b) A - Germ pore                      B - Generative cell  
 C - Exine                      D - Intine  
 E - Vegetation cell
- c) A - Intine                      B -Exine  
 C - Germ pore                      D - Generative cell  
 E - Vegetation cell
- d) A - exine                      B -Intine  
 C - vegetation cell                      D -Germ pore  
 E-Generative cell
40. Male gametes wheather 2 celled or 3-celled are identical in genetic make up because

- a) Of mitosis                      b) Of meiosis                      c) Of amitosis                      d) Binary fission
41. Apomixis arises due to  
 a) Rapid reproduction in plants                      b) Slow reproduction in plants  
 c) Both (a) and (b)                      d) None of the above
42. Endosperm is consumed by developing embryo in the seed of  
 a) Pea                      b) Maize                      c) Coconut                      d) Castor
43. Haploid plants derived from microspore culture are preferred over diploids for mutation studies, because in haploids  
 a) Recessive mutations express immediately                      b) Mutations are readily induced  
 c) Haploid cells can be easily cultured                      d) Dominant mutations express immediately
44. Which of the following indicates correct names of A, B, C and D regions of the given diagram?



- a) A- Male gamete                      B - Antipodals  
 C - Egg cell                      D - Pollen tube
- b) A -synergids                      B - Secondary nucleus  
 C - Egg apparatus                      D - Integuments
- c) A - Antipodals                      B - Male gametes  
 C - Zygote                      D - Micropyle
- d) A - Secondary nucleus                      B - Synergids  
 C - Egg cell                      D - Integuments
45. Give the of name the cell division type at A, B, C and D
- ```

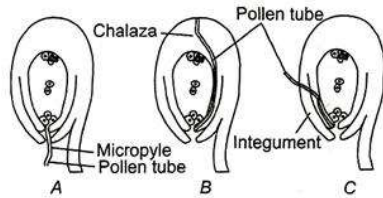
    Megasporophyll mother cell --A--> Megasporophyll dyad --B--> Megasporophyll tetrad
                                     |
                                     C
                                     v
    Functional megaspore --D--> 8 celled stage
    
```
- a) A-Meiosis-I, B-Mitosis, C-Mitosis, D-Meiosis
- b) A- Meiosis-I, B- Meiosis-II, C-No division, D- Mitosis
- c) A- Mitosis, B-No division, C- Meiosis-II, D- Meiosis-I
- d) A- Mitosis, B- Mitosis, C- Meiosis-I, D- Meiosis-I
46. The number of female nuclei involved in double fertilization is  
 a) 2                      b) 3                      c) 4                      d) 1
47. A micropyle is a  
 a) Small pore through which water enters  
 b) Small aperture where no integuments are present  
 c) Small pore needed for seed existence  
 d) All of the above
48. PEC (Primary Endosperm Cell) is formed  
 a) After triple fusion                      b) Before triple fusion  
 c) At the time of syngamy                      d) Always persisted
49. In ovule protective covering (integuments) are generally ..... in number  
 a) 3                      b) 2                      c) 4                      d) 1
50. These processes are necessary for the complete development of male gametophyte from pollen mother cell.  
 a) One meiotic and two mitotic division

- b) One meiotic cell division and one mitotic cell division
- c) two meiotic cell division and one mitotic cell division
- d) two meiotic cell division

51. Find out the ploidy nature of A, B, D, E in previous question

- a)  $1n, 2n, 3n, 4n$
- b)  $n, 2n, 3n, n$
- c)  $1n, 3n, 4n, 2n$
- d)  $2n, 3n, 1n, 4n$

52. Identify the correct modes of entry of pollen tube in the diagrams given below



- a) A-Mesogamy, B-Chalazogamy, C-Porogamy
- b) A-Chalazogamy, B-Porogamy, C-Mesogamy
- c) A-Porogamy, B-Chalazogamy, C-Monogamy
- d) A-Porogamy, B-Mesogamy, C-Chalazogamy

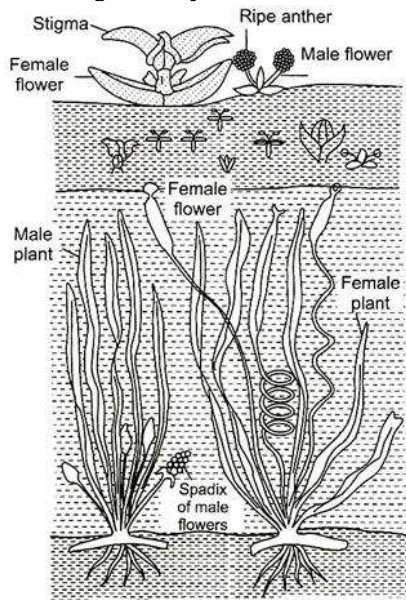
53. In previous question name out I, II and III

- a) I-Radicle, II-Suspensor, III-Cotyledon
- b) I- Suspensor, II- Radicle, III- Cotyledon
- c) I- Cotyledon II- Radicle, III- Suspensor
- d) I- Suspensor, II- Cotyledon, III- Radicle

54. Majority of plants are

- a) Biotic agent for pollination
- b) Non- biotic agent for pollination
- c) Air for pollination
- d) Animals for pollination

55. The diagram depicts



- a) Water pollination in *Vallisneria* (tape-grass)
- b) Air pollination in *Vallisneria* (tape-grass)
- c) Anemophily in *Vallisneria* (tape-grass)
- d) Zoophily in *Vallisneria* (tape-grass)

56. Individual part or segment of calyx is called

- a) Sepal
- b) Petal
- c) Tepal
- d) Corolla

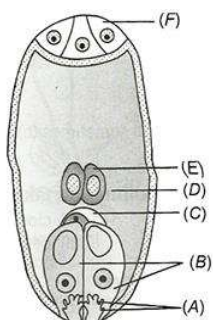
57. Pollination by insect is

- a) Entomophily
- b) Chiropterophily
- c) Anemophily
- d) Zoophily

58. Sexual reproduction leads to

- a) Genetic recombination
- b) Polyploidy

- c) Aneuploidy  
 59. A bisexual flower which never open, is known as  
 a) Autogamous                      b) Cleistogamous                      c) Homogamous                      d) Allogamous
60. Fruit and seed develops  
 a) Simultaneously                      b) First seed than fruit  
 c) First fruit than seed                      d) Both develops after endosperm formation
61. Characteristics of wind pollinated pollens is, they are  
 a) Non-sticky                      b) Light  
 c) Large number in production                      d) All of these
62. In chasmogamy pollination takes place in  
 a) Open flower                      b) Closed flower                      c) Large flower                      d) Geitonogamy flower
63. Which is most crucial for seed storage?  
 a) Dehydration and dormancy                      b) Endosperm and water  
 c) Least amount of development                      d) Endosperm in large quantity
64. Entry of pollen tube with two male gametes and tube nucleus through micropyle, is  
 a) Mesogamy                      b) Porogamy                      c) Chalazogamy                      d) None of these
65. Syngamy is the process in which  
 a) Male gamete fuses with female gamete  
 b) Pollen tube enter into the ovule through micropyle  
 c) Pollen tube enter into the ovule through chalaza  
 d) Vegetative cell and tube cell fuse
66. Pollen grains of different plants, differ in  
 a) Size and shape only                      b) Colour and design only  
 c) Size, shape and design only                      d) Size, shape, colour and design
67. Which one of the following is a reference to xenogamy ?  
 a) Ripening of androecium earlier to gynoecium  
 b) Pollen grains of one flower reaching the stigma of another flower present on the same plant  
 c) Pollen grains of one flower reaching the stigma of another flower present on a different plant of the same species  
 d) The inability of pollen tube to terminate on the stigma of the same flower
68. *Selaginella* and *Salvinia* considered to represent a significant step towards evolution of seed habit because  
 a) Female gametophyte is free and gets dispersed like seed                      b) Female gametophyte lacks archegonia  
 c) Megaspore possess endosperm and embryo surrounded by seed coat                      d) Embryo develops in female gametophyte which is retained on the parent sporophyte
69. Zygote is always  
 a) Haploid                      b) Diploid                      c) Triploid                      d) Tetraploid
70. Occurrence of more than four spores from a spore mother cell is called  
 a) Polysiphony                      b) Polyspermy                      c) Polyspory                      d) Polyembryony
71. Identify *A* to *F* in the diagram



- a) A-Egg, B-Filiform apparatus, C-Synergid, D-Antipodal cell, E-Polar nuclei, F-Central cell  
 b) A-Egg, B-Synergid, C-Filiform apparatus, D-Antipodal cell, E-Central cell, F-Polar nuclei  
 c) A-Central cell, B-Egg, C-Synergid, D-Antipodal cell, E-Filiform apparatus, F-Polar nuclei  
 d) A-Filiform apparatus, B-Synergid, C-Egg, D-Central cell, E-Polar nuclei, F-Antipodal cell

72. Identify the type of ovary in diagram



- a) Multicarpellary apocarpous  
 b) Multicarpellary syncarpous  
 c) Multicarpellary pistillate  
 d) Monocarpellary apocarpous

73. Type of pollination in *commelina* is

- a) Chasmogamy  
 b) Geitonogamy  
 c) Xenogamy  
 d) Cleistogamy

74. Pollens have two prominent walls which are ... A ... and ... B .... Here A and B refers to

- a) A-Intine B-Protein coat  
 b) A-Exine B-Intine  
 c) A-Sporopollenin B-Intine  
 d) A-Sporopollenin B-Exine

75. If there are four cells in a anther, what will be the number of pollen grains?

- a) 4  
 b) 9  
 c) 12  
 d) 16

76. Xenogamy or cross-pollination is performed by

- I. Abiotic agencies  
 II. Biotic agencies  
 III. Insects only

Select the correct option for the given question

- a) I and III  
 b) II and III  
 c) Only III  
 d) I and II

77. In wind pollination the pollens are feathery, whether it is

- a) True  
 b) False  
 c) Sometimes (a) and sometimes (b)  
 d) Neither (a) nor (b)

78. Identify the characters with reference to the plant in which eight nucleated embryo sac was first studied by strasburger.

I – Micropyle, chalaza and funiculus are arranged in the same vertical line  
 In the ovule.

II – presence of both unisexual and bisexual flowers in the same plant.

III – Filiform apparatus helps in conduction of food materials from  
 Endosperm to egg apparatus.

IV – Long funiculus coils like a watch spring around the ovule.

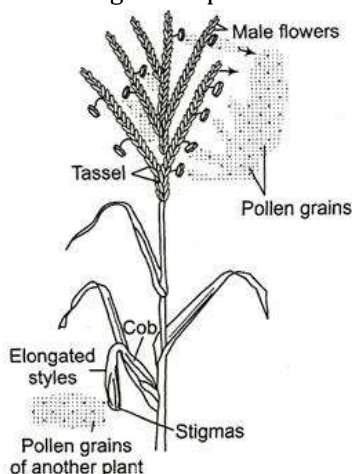
- a) I and IV  
 b) II and III  
 c) I and II  
 d) III and IV

79. Devices for self-pollination are

- a) Dicliny or unisexuality  
 b) Dichogamy



- c) Heterostyly
80. Chalazal pole is present  
 a) Opposite to micropyle  
 c) Opposite to nucellus
81. Vegetative fertilization is also called  
 a) Triple fusion  
 c) Syngamy
82. Vegetative/Asexual reproduction and apomixis are common in  
 a) Type of cell division  
 c) Both (a) and (b)
83. Xenia refers to  
 a) Effect of pollen on endosperm  
 c) Both (a) and (b)
84. Below diagram depicts

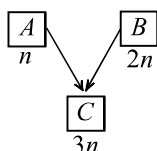


- a) Entomochily                      b) Wind pollination                      c) Myrmecophily                      d) Ornithophily
85. Long silky hairs on cob of maize are  
 a) Anthers                      b) Style                      c) Stigma                      d) Both (b) and (c)
86. The endosperm in angiosperm develops from  
 a) Zygote                      b) Secondary nucleus  
 c) Chalazal polar nucleus                      d) Micropylar polar nucleus
87. What is pollen grain?  
 a) Microspore mother cell                      b) Male gamete  
 c) Male gametophyte                      d) Partially developed embryo
88. Type of cell division takes place in apomixes is  
 a) Reductional                      b) Meiosis                      c) Both (a) and (b)                      d) Mitosis
89. Out of the following choose the post-fertilisation events  
 a) Endospermeogenesis                      b) Embryogenesis                      c) Both (a) and (b)                      d) Organogenesis
90. Apomixis is like  
 a) Sexual reproduction                      b) Fertilization  
 c) Parthenogenesis                      d) Asexual reproduction
91. *Parthenium* or carrot grass is imported with  
 a) Wheat                      b) Grass                      c) Rice                      d) Maize
92. Pollination by snail and slug is called  
 a) Ornithophily                      b) Chiropterophily                      c) Entomophily                      d) Malacophily
93. Some plant have a habit of harbouring ants to save the plants from damage by other animals which is known as

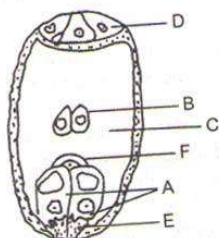
- a) Entomophily                      b) Myrmecophily                      c) Anemophily                      d) Hydrophily
94. The wall of pollen tube is made of  
a) Cellulose                      b) Pectin                      c) Both (a) and (b)                      d) None of these
95. One advantage of cleistogamy is  
a) It leads to greater genetic diversity  
b) Seed dispersal is more efficient and widespread  
c) Seed set is not dependent on pollinators  
d) Each visit of a pollinator results in transfer of hundreds of pollen grains
96. Double fertilization involves  
a) Fertilization of the egg by two male gametes  
b) Fertilization of the egg in the same embryo sac by two sperms brought by one pollen tube  
c) Fertilization of the egg and the central cell by two sperms brought by different pollen tubes  
d) Fertilization of the egg and the central cell by two sperms brought by the same pollen tube
97. Flower is a  
a) Modified male plant only                      b) Modified female plant only  
c) Modified reproductive shoot                      d) Vegetative shoot system
98. Cleistogamous flowers are strictly autogamous because they remain  
a) Always open  
b) Always close  
c) Always fragrance  
d) Are brightly coloured
99. Wind pollinated flowers often have  
a) Single ovule in each ovary                      b) Numerous flowers packed into inflorescence  
c) Both (a) and (b)                      d) None of the above
100. Continued self-pollination results in  
a) Inbreeding depression                      b) Out breeding depression  
c) Hybrid vigour                      d) Better result in offsprings
101. Wind pollinated flowers are  
a) Small, brightly coloured, producing large number of pollen grains  
b) Small, producing large number of dry pollen grains  
c) Large producing abundant nectar and pollen  
d) Small, producing nectar and dry pollen
102. Wind pollination is common in  
a) Lilies                      b) Grasses                      c) Orchids                      d) Legumes
103. 'Cells at the chalazal end are called synergid cells'. The above statement is  
a) True                      b) False  
c) Sometimes (a) and sometimes (b)                      d) Neither (a) nor (b)
104. Orthotropous ovule belongs to  
a) *Urtica*                      b) *Polygonum*                      c) *Peperomea*                      d) All of these
105. Center of each microsporangium is occupied by  
a) Sporogenous tissue  
b) Spongy tissue  
c) Central tissue  
d) Microspore mother cell
106. Which of the following plant products is the hardest?  
a) Lignin                      b) Cutin                      c) Suberin                      d) Sporopollenin
107. Functional megaspore develops into ...A... also called ...B...  
A and B in the above sentence is  
a) A-Female gametophyte; B-Embryo sac                      b) A-Embryo sac; B-Female gametophyte

- c) A-Endosperm; B-Nucellus  
d) A-Microsporangium; B-Megasporangium
108. Syngamy and triple fusion is called ...A... . The central cell becomes ...B... develops into ...C... and zygote develops into ...D...  
A, B, C, D in the above statement are  
a) A-Fusion, B-haploid, C-diploid cell, D-embryo  
b) A-double fertilization, B-PEN, C-endosperm, D-embryo  
c) A-embryo, B-endosperm, C-PEN, D-diploid cell  
d) A-PEN, B-endosperm, C-syngamy, D-fertilisation
109. Dicot embryo consists of  
a) Radicle and plumule  
b) Radicle, plumule, cotyledons and sometimes endosperm  
c) Radicle, plumule, cotyledons and tegmen  
d) Radicle, plumule, cotyledons and tegmen and testa
110. First three layers of microsporangium which does the function of protection are  
a) Epidermis, endothecium, middle layer  
b) Epidermis, mesocarp, endocarp  
c) Epidermis, middle layer, endothecium  
d) Epidermis, endocarp, mesocarp
111. Nucellar polyembryony is reported in species of  
a) *Gossypium*                      b) *Triticum*                      c) *Brassica*                      d) *Citrus*
112. Nucellus forms which of the following parts of fruit?  
a) Seed coat                      b) Perisperm                      c) Seed                      d) Raphe
113. Mesogamy is  
a) Fusion of male and female gametes  
b) Fusion of physiologically similar and morphologically different gametes  
c) Entry of pollen tube through integuments  
d) None of the above
114. Identify the correct statement.  
a) Because of marked climatic variations, plants growing near the sea shore do not produce annual rings  
b) The age of the plant can be determined by its height  
c) Healing of damaged tissue is because of the activity of sclerenchyma cells  
d) Grafting is difficult in monocot plants as they have scattered vascular bundles
115. Which of the following perform microsporogenesis?  
a) Microspore mother cell                      b) Pollen mother cell  
c) Both (a) and (b)                      d) None of these
116. Tapetum is found in  
a) Anther                      b) Microspore                      c) Male gametophyte                      d) Female gametophyte
117. Double fertilization was discovered by  
a) Nawaschin                      b) Strasburger                      c) Emerson                      d) None of these
118. Microsporangium produces  
a) Male gametes                      b) Female gametes                      c) Pollen                      d) Both (a) and (c)
119. Grafting is successful in dicots but not in monocots because the dicots have  
a) Vascular bundles arranged in a ring  
b) Cambium for secondary growth  
c) Vessels with element arranged end to end  
d) Cork cambium
120. Megaspore mother cell is found near the region of  
a) Micropyle                      b) Chalaza                      c) Nucellus                      d) Integuments
121. Ovule integument gets transformed into  
a) Seed                      b) Fruit wall                      c) Seed coat                      d) Cotyledons
122. Triple fusion in angiosperm is the fusion of second sperm with

- a) Antipodal cell and one synergid cell  
 c) Two synergid cells
- b) Two antipodal cells  
 d) Two polar nuclei
123. Which one of the following pairs of plants structures has haploid number of chromosomes?  
 a) Megaspore mother cell and antipodal cells  
 c) Nucellus and antipodal cells
- b) Egg cell and antipodal cells  
 d) Egg nucleus and secondary nucleus
124. Self-incompatibility is a device for  
 I. Ensuring cross-pollination  
 II. Preventing self-pollination  
 III. Ensuring self-fertilisation  
 IV. Genetic control for self-fertilisation
- Choose the correct statements from those given above  
 a) I, II and III  
 b) I, II, III and IV  
 c) I, III and IV  
 d) I, II and IV
125. How many number of nuclei are involved in fertilization?  
 a) 1  
 b) 2  
 c) 3  
 d) 5
126. Ovules contain many embryo in  
 a) Citrus  
 b) Orange  
 c) Mango  
 d) All of these
127. Maximum viability of rice and wheat is  
 a) 60 min  
 b) 50 min  
 c) 40 min  
 d) 30 min
128. Find out *A, B* and *C* in the flow chart given below

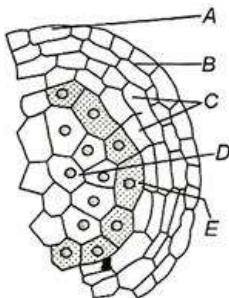


- a) A-Female gamete, B-Male gamete, C-Endosperm  
 b) A- Endosperm, B- Female gamete, C- Male gamete  
 c) A- Female gamete, B-Polar nuclei, C- Endosperm  
 d) A- Female gamete, B- Endosperm C-Male gamete
129. For a gene if AA = male plant, BB = female plant. Find out the genotype of endosperm and embryo  
 a) AAB, BBA  
 b) AAB, AB  
 c) ABB, AB  
 d) BBA, AAB
130. In the given diagram, parts labelled as A, B, C, D, E and F are respectively identified as



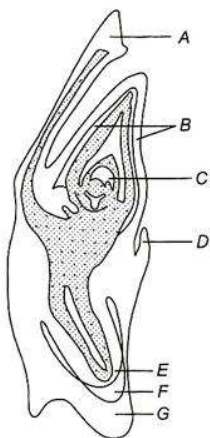
- a) Synergids, polar nuclei, central cell, filiform apparatus and egg  
 b) Polar nuclei, egg, antipodals, central cell, filiform apparatus and polar nuclei  
 c) Egg, synergids, central cell, filiform apparatus, antipodals and polar nuclei  
 d) Central cell, polar nuclei filiform apparatus, antipodals, synergids and egg
131. Micropyle helps in  
 a) Germination of pollen grain  
 c) Coming out of pollen tube from pollen grain
- b) Growth of pollen tube  
 d) Allowing entry of pollen tube
132. The ovary after fertilization is converted into  
 a) Embryo  
 b) Endosperm  
 c) Fruit  
 d) Seed
133. Which of these is not essential for allogamy?  
 a) Self-sterility  
 b) Dichogamy  
 c) Heterogamy  
 d) None of these

134. Identify A to E in the following diagram



- a) A-Tapetum, B-Microspore mother cell, C-Middle layer, D-Endothecium, E-Epidermis  
 b) A- Epidermis, B- Middle layer, C- Microspore mother cell, D- Tapetum, E- Endothecium  
 c) A- Middle layer, B- Epidermis, C- Tapetum, D- Microspore mother cell, E- Endothecium  
 d) A- Epidermis, B- Endothecium, C-Middle layer, D- Microspore mother cell, E- Tapetum
135. 'In coconut the cellular endosperm surrounds the nuclear endosperm'.  
 The above statement is  
 a) True  
 b) False  
 c) Sometimes (a) and sometimes (b)  
 d) Neither (a) nor (b)
136. Hermaphrodite flower have  
 a) Male and female on same plant  
 b) Male and female on same flower  
 c) Male and female on different flower  
 d) Male and female on difference plant
137. Unisexuality of flowers prevents  
 a) Autogamy, but not geitonogamy  
 b) Geitonogamy and xenogamy  
 c) Geitonogamy, but not xenogamy  
 d) Autogamy and Geitonogamy
138. Stalk with which ovules attached to the placenta is called  
 a) Funicle  
 b) Raphe  
 c) Hilum  
 d) Chalaza
139. Self-pollination means  
 a) Occurrence o male and female sex organs in the same flower  
 b) Germination of pollens within the anther  
 c) Transference of pollens from anther to the stigma within the same flower  
 d) Transference of pollens from one flower to another on the same plant
140. Meiotic cell division takes place during  
 a) Gametogenesis  
 b) Embryogenesis  
 c) Organogenesis  
 d) Parthenogenesis
141. The outermost layer of maize endosperm is known as  
 a) Perisperm  
 b) aleurone  
 c) Tapetum  
 d) endothelium
142. Why sometimes, even diploid offspring is produced through parthenogenesis?  
 a) When offspring is produced without fertilization of diploid egg cell  
 b) When offspring is produced through fertilization of diploid egg cell  
 c) When offspring is produced without fertilization of haploid egg cell  
 d) When offspring is produced through fertilization of haploid egg cell
143. The process in which haploid embryo is formed from haploid egg without fertilization is called  
 a) Apospory  
 b) Agamospermy  
 c) Apogamy  
 d) Vegetative reproduction
144. Which of the following floral parts forms pericarp after fertilization?  
 a) Nucellus  
 b) Outer integument  
 c) Ovary wall  
 d) Inner integument
145. Tapetal cells are characterized by  
 a) Mitotic division  
 b) Meiotic division  
 c) Endomitosis  
 d) Endomitosis as well as endopolyploidy
146. Pollen grains can cause  
 a) Bronchial afflications  
 b) Asthma  
 c) Bronchitis  
 d) All of these

147. Non-albuminous seed  
 a) Has no reserve food  
 b) Also called exalbuminous  
 c) Has thin cotyledons  
 d) All of these
148. Development of an embryo without fertilization is called as  
 a) Apomixis  
 b) Polyembryony  
 c) Parthenocarpy  
 d) Parthenogenesis
149. Non-endospermic seeds are seen in  
 a) Groundnut  
 b) Pea  
 c) Beans  
 d) All of these
150. The cylindrical portion below the cotyledons is ...A... that terminates to ...B... and tip called ...C... A, B and C here refers to  
 a) A-radicle, B-hypocotyle, C-root cap  
 b) A- root cap, B- radicle, C- hypocotyle  
 c) A- hypocotyle, B-root cap, C-radicle  
 d) A- hypocotyle, B-radicle, C-root cap
151. The type of pollination adaptation found in *calotropis* is  
 a) Dicliny  
 b) Herkogamy  
 c) Heterostyly  
 d) Dichogamy
152. Fertilization of egg takes place inside  
 a) Anther  
 b) Stigma  
 c) Pollen tube  
 d) Embryo sac
153. In figure find out coleoptile, shoot apex and epiblast



- a) A, B and C  
 b) B, C and D  
 c) D, F and G  
 d) E, F and G
154. If the number of chromosomes in egg cell is 8, then what is the number of chromosomes on endosperm?  
 a) 24  
 b) 8  
 c) 16  
 d) 12
155. Find out right statement (s)  
 I. Most common endosperm is of nuclear type  
 II. Coconut water is male gametophyte  
 III. Coconut has both nucellar and cellular type of endosperm  
 a) I, II and III  
 b) I and III  
 c) II and III  
 d) I and II
156. Number of seeds is equals to the  
 a) Number of ovules  
 b) Number of ovaries  
 c) Both (a) and (b)  
 d) None of these
157. Nuclear polyembryony is reported in  
 a) *Citrus*  
 b) *Gossypium*  
 c) *Triticum*  
 d) *Brassica*
158. A normal plant suddenly started reproducing parthenogenetically. The number of chromosomes of the second generation as compared to the parent will be  
 a) One half  
 b) One fourth  
 c) Same  
 d) Double
159. The process of transfer of pollen grains from anther to stigmatic surface with the help of water is called  
 a) Anemophily  
 b) Zoophily  
 c) Hydrophily  
 d) Ornithophily
160. Anemophily is a type of pollination found in  
 a) *Salvia*  
 b) Bottle brush  
 c) *Vallisneria*  
 d) Coconut
161. If stem has  $2n = 10$  number of chromosomes than find out  
 A – number of chromosomes in endosperm

B – number of chromosomes in egg cell

C – number of chromosomes in polar nuclei

- a) 15, 15, 20                      b) 10, 15, 20                      c) 15, 5, 10                      d) 10, 5, 15

162. I. Antipodal cell              II. Egg cell  
 III. Synergid cell              IV. Polar nuclei  
 V. Male gamete              VI. Nuclear cell

IV. Chalazal cell

Out of the seven names given above, find out haploid cells

- a) I, II, IV, V                      b) II, IV, VI, VII                      c) I, II, III, V                      d) II, IV, III, I

163. There are 10 flowers in one individual plant of *crotalaria*. In each microsporangium of every stamen of all the flowers, there are 30 microspore mother cells. How many pollen grains are formed from that plant?

- a) 4,000                      b) 10,000                      c) 24,000                      d) 48,000

164. Apomictic embryos in *Citrus* arise from

- a) Synergids                      b) Maternal sporophytic tissue in ovule  
 c) Antipodal cells                      d) Diploid egg

165. Chances of pollination in air and water are increased by increasing number of pollens. This statement is

- a) True                      b) False  
 c) Sometimes (a) and sometimes (b)                      d) Neither (a) nor (b)

166. Micropyle is formed by

- a) Absence of integuments  
 b) Absence of funicle  
 c) Absence of nucellus  
 d) Absence of embryo sac

167. In a flowering plants, megaspore develops into an embryo sac, which contains

- a) 4 cells, one of which is an egg                      b) 6 cells, one of which is an egg  
 c) 8 cells, one of which is an egg                      d) None of the above

168. What does the filiform apparatus do at the entrance into ovule?

- a) It helps in the entry of pollen tube into a synergid                      b) It prevents entry of more than one pollen tube into the embryo sac  
 c) It brings about opening of the pollen tube                      d) It guides pollen tube from a synergid to egg

169. Function of aleurone layer is to

- a) Prepare amylase                      b) Prepare proteinase                      c) Prepare peptidase                      d) Prepare food

170. Pollination by bats is called

- a) Anemophily                      b) Hydrophily                      c) Ornithophily                      d) None of these

171. Which one of the following is not a device to promote cross-pollination?

- a) Cleistogamy                      b) Heterostyly                      c) Herkogamy                      d) Dichogamy

172. Which cell is bigger and have abundant food reserve material during microsporogenesis?

- a) Generative cell                      b) Vegetative cell                      c) Vacuole                      d) Spore mother cell

173. In artificial hybridization the steps involved are

- I. Bagging  
 II. Emasculation  
 III. Rebagging

Their right arrangement is

- a) I → II → III                      b) II → I → III                      c) III → II → I                      d) II → III → I

174. In some plants, anthers and stigmas grow and mature at same time. This phenomenon is called

- a) Homogamy                      b) Syngamy                      c) Allogamy                      d) Fusion

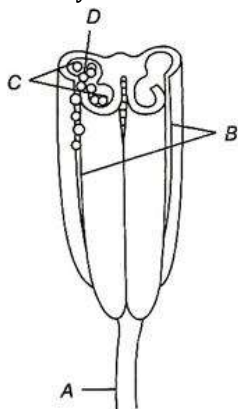
175. Double fertilization is fusion of

- a) Two eggs  
 b) Two eggs and polar nuclei



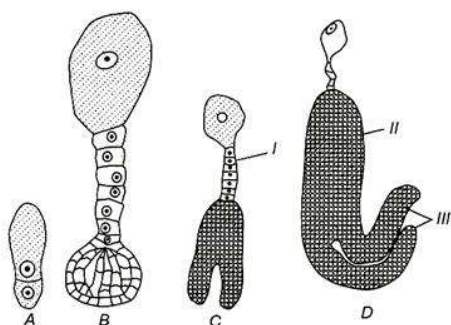


190. In the fully organized *Polygonum* type of embryo sac, what is the ratio of haploid, diploid and triploid nuclei?  
 a) 3 : 1 : 3                      b) 6 : 0 : 1                      c) 6 : 1 : 0                      d) 3 : 2 : 3
191. Megasporogenesis is  
 a) Formation of fruit                      b) Formation of seeds  
 c) Formation of megaspores                      d) Both (b) and (c)
192. Fibrous thickenings of hygroscopic nature are found in which part of the anther wall?  
 a) Epidermis                      b) Endothecium                      c) Middle layers                      d) Tapetum
193. Which one of following represents an ovule, where the embryo sac becomes horse-shoe shaped and the funiculus and micropyle are close to each other  
 a) Circinotropous                      b) Anatropous                      c) Amphitropous                      d) Atropous
194. In angiosperm functional megaspore develops into  
 a) Embryo sac                      b) Ovule                      c) Endosperm                      d) Pollan sac
195. Ornithophily refers to the pollination by which of the following?  
 a) Insects                      b) Birds                      c) Snails                      d) Air
196. Raphe is  
 a) Part of flower                      b) Funicle attached to ovule  
 c) Ridge formed by funiculus                      d) Part of nucellus
197. The pollens are liberated in *cassytha* by  
 a) Porous dehiscence                      b) Longitudinal dehiscence  
 c) Transverse dehiscence                      d) Valvular dehiscence
198. Identify A to D in the following diagram



- a) A-Filament, B-Pollen sac, C-Pollen grain, D-Line of dehiscence  
 b) A-Filament, B-Pollen sac, C-Line of dehiscence, D-Pollen grain  
 c) A-Filament, B- Line of dehiscence, C- Pollen sac, D-Pollen grains  
 d) A-Filament, B- Line of dehiscence, C- Pollen sac, D-Pollen grains
199. Pollen kit material is secreted by  
 a) Tapetum                      b) Endothecium                      c) Epidermis                      d) Endodermis
200. Wind pollinated flower have long well exposed stigma. This statement is  
 a) True                      b) False  
 c) Sometimes (a) and sometimes (b)                      d) Neither (a) nor (b)
201. Microsporangia develops in to  
 a) Pollens                      b) Microgametes                      c) Megagametes                      d) Pollen sacs
202. Pollen grains have ability to tolerate extreme temperatures because of the presence of  
 a) Sporopollenin                      b) Suberin                      c) Cubin                      d) Callose
203. An interesting modification of flower shape for insect pollination occurs in some orchids in which a male insect mistakes the pattern on the orchid flower for the female of his species and tries to copulate with it, thereby pollinating the flower. This phenomenon is called





- a) A-Two celled stage, B-Heart-shaped, C-Globular, D-Mature embryo
- b) A-Two celled stage, B-Mature embryo, C-Heart-shaped, D-Globular type
- c) A-Two celled stage, B-Globular type, C-Heart-shaped, D-Mature embryo
- d) A-Mature embryo, B-Heart-shaped, C-Globular type, D-Two celled stage

213. Tapetum is

- a) Protective
- b) Reproductive
- c) Nutritive
- d) Respiratory

214. Formation of diploid embryo sac from diploid vegetative structure, eg, nucellus or integument, etc, without meiosis is called

- a) Apospory
- b) Apomixis
- c) Diplospory
- d) Adventive polyembryony

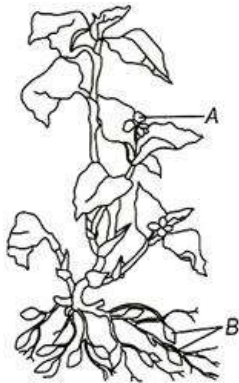
215. The terminal structure of stamen is called

- a) Pollen
- b) Filament
- c) Anther
- d) All of these

216. Generally pollen tube enters through

- a) Micropylar region
- b) Antipodal region
- c) Chalazal end
- d) Nuclear region

217. Identify the type of flower A and B



- a) A-Cleistogamous; B-Chasmogamous
- b) A-Homogamous; B-Heterogamous
- c) A-Chasmogamous; B-Cleistogamous
- d) A-Heterogamous; B-Homogamous

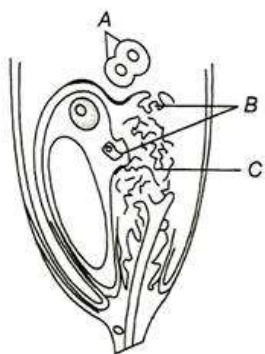
218. Water pollinated plant is

- a) *Vallisneria*
- b) *Hydrilla*
- c) *Zostera*
- d) All of these

219. Endospermic seeds are seen in

- a) Castor
- b) Coconut
- c) Both (a) and (b)
- d) None of these

220. Diagram showing discharge of gametes in the egg apparatus. Identify A, B and C



- a) A-Polar nuclei, B-Female gametes, C-Synergid cell
- b) A- Male gametes, B- Synergid cell, C- Polar nuclei
- c) A- Synergid cell, B- Male gametes, C- Polar nuclei
- d) A- Polar nuclei, B- Male gametes, C- Synergid cell

221. Parthenogenesis is a type of

- a) Sexual reproduction
- b) Asexual reproduction
- c) Budding
- d) Regeneration

222. The diagram given below represents the sectional view of



- a) Amphitropous ovule
- b) Campylotropous ovule
- c) Anatropous ovule
- d) Orthotropous ovule

223. Banana fruits are seedless, because

- a) Auxins are sprayed for rapid development of fruits
- b) Of vegetative propagation of plants
- c) Of triploid plants
- d) Fruits are artificially ripened

224. Which of the following is not true for double fertilization?

- a) Discovered by Nawaschin
- b) Male gamete and secondary nucleus fused to form endosperm nucleus
- c) endosperm nucleus is diploid
- d) endosperm nucleus nutrition to embryo

225. Mature male gametophyte is derived from a 'pollen mother cell' by

- a) Three meiotic divisions
- b) One meiotic, one mitotic division
- c) Single mitotic division
- d) Two mitotic divisions

226. Embryo sac is also known as

- a) Micro-gametophyte
- b) Mega-gametophyte
- c) Micro-sporangium
- d) Mega - sporangium

227. Albuminous seed

- a) Has no endosperm
- b) Has thick cotyledons
- c) Have food storage in cotyledons
- d) Both (b) and (c)

228. How many nuclei take part in double fertilization of flowering plants?

- a) 3
- b) 2
- c) 4
- d) 8

229. A typical dicotyledonous embryo consist of an ...A... axis and ...B... cotyledons.

The portion of embryonal axis above the level of cotyledons is ...C... which terminates with the ...D... or stem tip

A, B, C, D in the above statement are

- a) A-Plumule, B-epicotyle, C-cotyledons, D-embryonal axis
- b) A- embryonal axis, B- cotyledons, C- epicotyle, D- Plumule
- c) A- embryonal axis, B- epicotyle, C- cotyledons, D- Plumule
- d) A- embryonal axis, B- Plumule, C- cotyledons, D- epicotyle

230. Transfer of pollen grains from one flower to another flower of same plant is

- a) Geitonogamy                      b) Autogamy                      c) Allogamy                      d) Cleistogamy

231. Which one of the following statements is not true?

- a) Pollen grains are released from anthers at 2-celled state
- b) Sporogenous cell directly behaves as the megaspore mother cell
- c) Megaspore divides twice to form an eight nucleate embryo sac
- d) Egg and synergids always lie near the micropylar end of ovule

232. In embryo sac the number of → synergid → egg cell → central cell → antipodal cell follows the order

- a) 1-1-2-3                      b) 2-1-3-2                      c) 2-1-2-3                      d) 3-2-1-2

233. Choose the mis -matched option.

- a) Wind – *Cannabis* – Anemophily                      b) Water – *Zoostera* – Hydrophily
- c) Insect – *Salvia* – Entomophily                      d) Birds – *Adansonia* – Ornithophily

234. Which one of the following would not lead to formation of clones?

- a) Double fertilization                      b) Apomixis
- c) Vegetative reproduction                      d) Tissue culture

235. Apomixis is seen in

- a) Asteracea                      b) Grasses                      c) Both (a) and (b)                      d) None of these

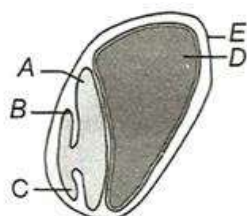
236. Ovary develops into

- a) Fruit                      b) Seed                      c) Fruit wall                      d) Embryo

237. Pollination is

- a) Shedding of pollens                      b) Maturing of anther
- c) Transfer of pollen to stigma                      d) Formation of pollen

238. Find out the type of seed and identify cotyledons epicotyle and endosperm



Monocot seed structure

- a) Monocots- A, B and C    b) Dicots-B, A and C    c) Monocots-A, B and D    d) Dicots-D, E and A

239. Approximate diameter of pollen grain is

- a) 25-50 micrometer    b) 50-75 micrometer    c) 75-100 micrometer    d) 25-35 micrometer

240. In porogamy, pollen tube enters the ovule through the

- a) Chalazal end    b) Integument    c) micropyle    d) Ovary wall

241. A seed matures if water content is reduced to ...'A' ..... If the general metabolism ...B.... The embryo enter a state called ... C ... .

Choose correct option for A,B and C

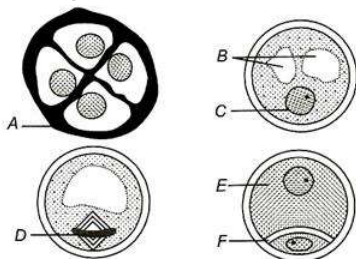
- a) A-50-60%, B-fast, C-infertile                      b) A-10-15%, B-slow down, C-dormancy
- c) A-35-50%, B-slow down, C-development                      d) A-35-60%, B-fast, C-Embryogenesis

242. What will be the gametic chromosome number of a cell, if somatic cell have 40 chromosomes?

- a) 10                      b) 20                      c) 30                      d) 40

243. Stem cutting are commonly used for the propagation of  
 a) Banana                      b) Rose                      c) Mango                      d) Cotton
244. The fertilization in which male gametes are carried through pollen tube, is known as  
 a) Syngamy                      b) Porogamy                      c) Siphonogamy                      d) Chalazogamy
245. If endosperm has 36 number of chromosomes then find out the chromosome number of male and female gamete  
 a) 18, 18                      b) 17, 18                      c) 20, 20                      d) 12, 12
246. For the formation of tetrasporic embryo sac, how many megaspore mother cells are required?  
 a) 1                      b) 2                      c) 3                      d) 4
247. The phenomenon in which, anther and stigma grow and mature at same time is called  
 a) Homogamy                      b) Syngamy                      c) Allogamy                      d) Fusion
248. Emasculation is not required in  
 a) Unisexual flower                      b) Bisexual flower                      c) Dioecious flower                      d) Both (a) and (c)
249. Testa of a seed is produced from  
 a) Ovary wall                      b) Hilum                      c) Outer integument of ovule                      d) Funicle
250. Thalamus contributes in the fruit formation in  
 a) Apple                      b) Strawberry                      c) Cashewnut                      d) All of these
251. Most oldest viable seed is of  
 a) Lupine                      b) *Ficus*                      c) Date palm                      d) Phoenix
252. Which one of the following was observed for the first time by Trenb?  
 a) Entry of the pollen tube into the ovule through the micropyle in *ottetia*  
 b) Entry of the pollen tube into the ovule through the chalaza in *casuarina*  
 c) Entry of the pollen tube into the ovule through the integuments  
 d) Formation of many pollen tube into the ovule through the grain in *hibiscus*
253. If male plant have genotypes =  $S_A S_B$  and female plant have genotypes =  $S_C S_B$ . Then the result would be  
 a) All of the pollen will germinate  
 b) All pollen will die  
 c) Fertilization doesn't occur  
 d) Half pollen die and half will germinates on stigma
254. Self incompatibility is  
 a) For incouraging self-fertilisation pollination  
 b) Genetic method for preventniig self-pollination  
 c) Both (a) and (d)  
 d) Found in unisexual flower

255. Identify the structures marked A to F in the given diagram



- a) A-Asymmetric nucleus, B-Nucleus, C-Generative cell, D-Vegetative cell, E-Pollen, F-Pollen tetrad      b) A- Pollen tetrad , B- Pollen, C-Generative cell, D- Vegetative cell, E-Asymmetric spindle, F-Nucleus
- c) A-Pollen tetrad, B-Vacuole, C-Nucleus, D- Asymmetric spindle, E-Vegetative cell, F- Generative cell      d) A-Vacuole, B-Nucleus, C-Pollen tetrad, D- Vegetative cell, E-Asymmetric spindle, F- Generative cell

256. In embryo sac,  $n$ ,  $2n$ ,  $3n$ , conditions are found respectively in

- a) Egg, antipodal, endosperm  
 b) Nucleus, endosperm, egg  
 c) Antipodal, zygote, endosperm  
 d) Endosperm, nucleus, egg

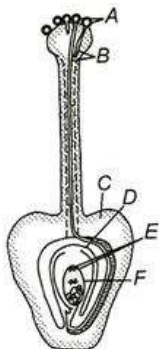
257. Which one of the following is resistant to enzyme action?

- a) Cork  
 b) Wood fibre  
 c) Pollen exine  
 d) Leaf cuticle

258. Pollens are considered as well preserved fossils due to the presence of

- a) Exine  
 b) Intine  
 c) Mexine  
 d) Protein

259. Identify A to F in the following diagram



- a) A-Pollen tube, B-Ovary, C-Ovule, D-Antipodal cell, E-Pollen grain, F-Secondary nucleus,(polar nuclei)  
 b) A-Polar nuclei (secondary nucleus), B-Antipodal cell, C-Ovule, D-Ovary, E-Pollen tube, F-Pollen grain  
 c) A-Pollen grain, B-Pollen tube, C-Ovary, D-Ovule, E-Antipodal cell, F-Secondary Nucleus (polar nuclei)  
 d) A-Antipodal cell, B-Ovule, C-Ovary, D-Secondary nucleus, E-Pollen grain, F-Pollen tube

260. Double fertilization involves

- a) Syngamy and triple fusion  
 b) Double fertilization  
 c) Development of antipodal cell  
 d) None of the above

261. Seed germination requires

- I. Light II. Temp (suitable)  
 III. Moisture IV. Oxygen

Select correct option

- a) I, II and III  
 b) II, III and IV  
 c) I, III and IV  
 d) II, IV and I

262. In which one pair, both the plants can be vegetatively propagated by leaf pieces?

- a) *Bryophyllum* and *kalanchoe*  
 b) *Chrysanthemum* and *Agave*  
 c) *Agave* and *kalanchoe*  
 d) *Asparagus* and *Bryophyllum*

263. Larger nucleus in a pollen grain is

- a) Tube nucleus  
 b) Sperm nucleus  
 c) Generative nucleus  
 d) None of these

264. Tallest flower is *Amorphophallus*. It is

- a) True  
 b) False  
 c) Sometimes (A) and sometimes (b)  
 d) Neither (a) nor (b)

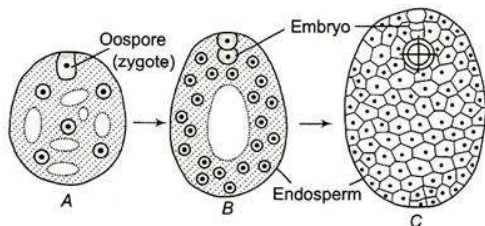
265. Anthesis is

- a) Development of pollen  
 b) Development of anther  
 c) Opening of flower  
 d) Reception of pollen by stigma

266. Single megasporic development is called

- a) Single sporic  
 b) Unisporic  
 c) Monosporic  
 d) Nulleiporic

267. Identify the type of endosperm to given diagram



- a) Cellular  
 b) Helobial  
 c) Nuclear  
 d) None of these

268. Consider the following statements and choose the correct option.  
 I. The genetic constitution of a plant is unaffected in vegetative propagation.  
 II. Rhizome in ginger serves as an organ of vegetative reproduction.  
 III. Totipotency of cells enables us to micropropagate plants.
- Statements I and II alone are true
  - Statements II and III alone are true
  - Statements II alone is true
  - All the three Statements I, II and III are true

269. Micropyle exists in

- Seed
- Ovule
- Both (a) and (b)
- Fruit only

270. Which one of the following is surrounded by a callose wall?

- Microspore mother cell
- Male gamete
- Egg
- Pollen grain

271. In *Amorphophallus* and *Yucca*, the moth lay egg into the

- Locule of ovary
- On stigma
- Into the fruit wall
- On style

272. Which of the following is incorrect in angiosperm?

- Pollen grain - Haploid
- Megaspore - Diploid
- Synergid - Haploid
- Endosperm - Triploid

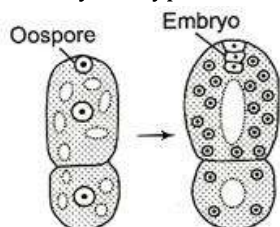
273. Aleurone layer is found in

- Dicotyledons
- Monocotyledons
- Both (a) and (b)
- None of these

274. Advantage of seed is/are

- Given variation to upcoming new plants
- Better dispersal
- Protect embryo
- All of the above

275. Identify the type of endosperm in given diagram



- Cellular
- Nucleus
- Helobial
- Persist

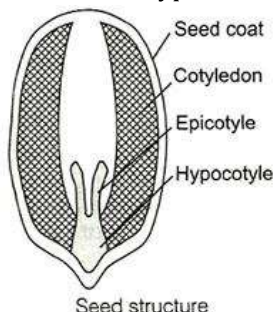
276. Epicotyle is the upper part of embryonal axis in

- Monocots
- Dicots
- All plants
- All of these

277. Ruminant endosperm is found in the seeds of family

- Compositae
- Cruciferae
- Euphorbiaceae
- Annonaceae

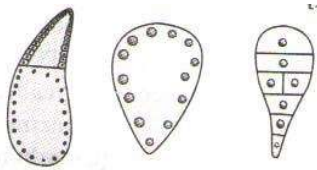
278. Find out the type of seed and three embryonal parts out of the four labellings given below



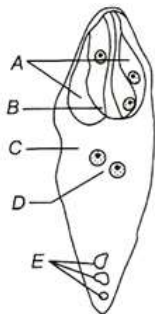
- Monocot (seed coat, cotyledon, epicotyle)
- Dicot (seed coat, epicotyle, hypocotyle)



- c) Monocot (seed coat, hypocotyle, cotyledon)      d) Dicot (cotyledon, epicotyle, hypocotyle)
279. The process of embryo formation without fertilization, is known as  
 a) Apospory      b) Apogamy      c) Parthenocarpy      d) Polyembryony
280. In previous figure find out *F* and *G*  
 a) F-Radicle; G-Root cap      b) F-Root cap; G-Coleorhiza  
 c) F-Epiblema; G-Radicle      d) F-Root cap; G-Epiblema
281. Micropyle is useful for the entry of  
 a) Pollen grain      b) Pollen tube      c) Water      d) Male gamete
282. Cleistogamous flower is found in  
 a) Tobacco      b) Viola      c) Mirabilis      d) None of these
283. Select the correct order of endosperm types.



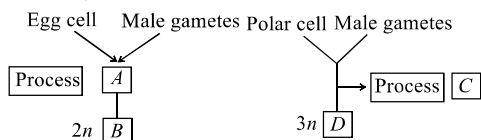
- a) Cellular, Helobial, Free nuclear      b) Cellular, Free nuclear, Helobial  
 c) Helobial, Free nuclear, Cellular      d) Free nuclear, Cellular, Helobial
284. Find out the odd one.  
 a) Micropyle      b) Embryo sac      c) Nucellus      d) Pollen grain
285. The outermost and inner most wall layers of microsporangium in anther are (respectively)  
 a) Endothecium and tapetum      b) Epidermis to endodermis  
 c) Epidermis to middle layer      d) Epidermis and tapetum
286. Microsporogenesis is  
 a) Formation of microspores      b) Formation of female gametes  
 c) Formation of tapetum      d) All of the above
287. Function of micropyle is  
 a) Helps in germination      b) Helps in surviving  
 c) Both (a) and (b)      d) Helps in endosperm formation
288. Bright colouration of flowers is an adaptation for  
 a) Anemophily      b) Hydrophily      c) Malacophily      d) Entomophily
289. Identify *A* and *E* in the diagram given below



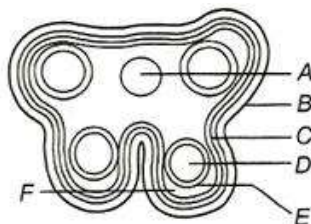
- a) A-Antipodal, B-2 Polar nuclei, C-Center cell, D-Egg, E-Synergids  
 b) A- Antipodal, B-Central cell, C-2 Polar nuclei, D-Egg, E-Synergids  
 c) A-2 Polar nuclei, B-Central cell, C-Antipodal cell, D-Egg, E-Synergids  
 d) A-Synergids, B-Egg, C-Central cell, D-2 Polar nuclei, E- Antipodal cell
290. If root of flowering plant has 24 chromosomes then its gamete has how many chromosomes?  
 a) 24      b) 12      c) 4      d) 8
291. If stock contains 58 chromosomes and scion contains 30 chromosomes,  
 Then how many chromosomes are present in root and egg cell of resultant plant respectively?

- a) 30 and 29                      b) 15 and 58                      c) 58 and 15                      d) 29 and 30
292. In previous figure find out scutellum, radicle  
a) *A* and *E*                      b) *E* and *F*                      c) *F* and *G*                      d) *G* and *B*
293. In some organisms, karyokinesis is not followed by cytokinesis as a result of which, multinucleate condition arises leading to the formation of syncytium. The perfect example for this is  
a) Appearance of a furrow in cell membrane                      b) Liquid endosperm in coconut  
c) Sexual reproduction                      d) Fertilization
294. The process of formation of microspore from the microspore mother cell is called megasporogenesis. The above statement is  
a) True                      b) False  
c) Sometimes (a) and sometimes (b)                      d) Neither (a) nor (b)
295. From which cells of embryo, plumule is produced?  
a) Proembryo                      b) Hypophysis                      c) Apical octant                      d) Micropylar octant
296. Triploid tissue in angiosperms, is  
a) Nucellus                      b) Endosperm                      c) endothelium                      d) Tapetum
297. ... A... egg cell, ...B... zygote, ...C... endosperm. Find out the correct ploidy nature of *A*, *B* and *C*  
a)  $A - 2n, B - 3n, C - 4n$                       b)  $A - 1n, B - 1n, C - 3n$   
c)  $A - 1n, B - 2n, C - 3n$                       d)  $A - 1n, B - 2n, C - 4n$
298. The ovule attached to the placenta of ovary wall by  
a) Raphae                      b) Micropyle                      c) Funicle                      d) Hilum
299. Apomixis is the development of  
a) Seeds with fertilization                      b) Seeds without fertilization  
c) Seed from vegetative cells                      d) Seeds from reproductive cells
300. The plant part which consists of two generations one within the other, is  
a) Germinated pollen grain                      b) Embryo  
c) Unfertilized ovule                      d) Seed
301. Find out right statement (s)  
I. Endosperm formation is the prior event than zyote formation  
II. Angiospermic endosperm is  $3n$   
III. Gymnospermic endosperm is  $n$   
a) Only I                      b) II and III                      c) I and III                      d) I, II and III
302. Transfer of pollen grains from the anther to the stigma of another flower of the same plants is called  
a) Xenogamy                      b) Geitonogamy                      c) Karyogamy                      d) Autogamy
303. After fertilization, the outer integument forms  
a) Testa                      b) Tegmen                      c) Perisperm                      d) Pericarp
304. Water pollination  
a) Is rare in flowering plant  
b) Is limited to 30 genera  
c) Takes place mostly in monocotyledons  
d) All of the above
305. Plants of which one of the following groups of genera are pollinated by the same agency?  
a) *Triticum, mussanda, zea mays*                      b) Kadam, *cannabis*  
c) *Salvia, calotropis*                      d) *Salvia, pinus, ophrys*
306. Pollens are be stored at which temperature  
a)  $-196^{\circ}\text{C}$                       b)  $196^{\circ}\text{C}$                       c)  $10^{\circ}\text{C}$                       d)  $0^{\circ}\text{C}$
307. The total number of nuclei involved in double fertilization in angiosperms are  
a) Two                      b) Three                      c) Four                      d) Five
308. In a flowering plant, the pollen tube first arrives in  
a) Egg                      b) An antipodal cell                      c) A synergid                      d) Central cell
309. Filiform apparatus are

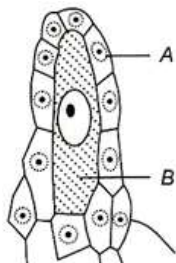
- a) Special cellular thickening at antipodal cell  
 b) Special cellular thickening at micropylar end  
 c) Special cellular thickening at synergid cells  
 d) Special cellular thickening at nuclear end
310. What would be the number of chromosomes of the aleurone cell of a plant with 42 chromosomes in its root tip cells?  
 a) 63                                      b) 84                                      c) 21                                      d) 42
311. Filiform apparatus is a characteristic feature of  
 a) Egg                                      b) Synergid                                      c) Zygote                                      d) Suspensor
312. An angiospermic leaf carries 16 chromosomes. The number of chromosomes in its endosperm will be  
 a) 16                                      b) 24                                      c) 12                                      d) 8
313. Embryo developed from the somatic cells are called  
 a) Cybrids                                      b) Embryoid                                      c) Callus                                      d) Hybrids
314. Wind pollinated and water pollinated plants  
 a) Are colourful                                      b) Are non-colourful                                      c) Are small in size                                      d) Produce nector
315. Identify *A, B, C* and *D*

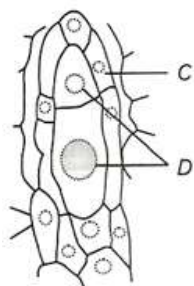


- a) A-Syngamy, B-Embryo, C-Triple fusion, D-Endosperm  
 b) A- Endosperm, B- Syngamy, C- Embryo, D- Triple fusion  
 c) A- Endosperm, B- Triple fusion, C- Syngamy, D-Embryo  
 d) A- Endosperm, B- Triple fusion, C- Embryo, D-Syngamy
316. Identify *A* and *E* in the following diagram



- a) A-Epidermis, B-Endodermis, C-Connective tissues, D-Sporogenous tissue, E-Middle layer, F-Tapetum  
 b) A- Endodermis, B- Connective tissues, C- Epidermis, D- Tapetum, E- Sporogenous tissue, F- Middle layer  
 c) A- Tapetum, B- Middle layer, C- Sporogenous tissue, D- Connective tissues, E- Endodermis, F- Epidermis  
 d) A- Connective tissues, B- Epidermis, C-Endothecium, D-Sporogenous tissue, E- Tapetum, F- Middle layer
317. Identify the labelling of given diagrams





- a) A-MMC, B-Megaspore dyad, C-Nucellus, D-Nucleus
- b) A- Nucellus, B- Megaspore dyad, C- Nucellus, D-MMC
- c) A- Nucellus, B-MMC, C- Nucellus, D- Megaspore dyad
- d) A-MMC, B- Nucellus, C- Megaspore dyad, D- Nucleus

318. The endosperm in angiosperms develops from

- a) Zygote
- b) Secondary nucleus
- c) Chalazal polar nucleus
- d) Micropylar polar nucleus

319. 'Cells in the micropylar region are called antipodal cell'

- a) True
- b) False
- c) Sometimes (a) and sometimes (b)
- d) Neither (a) nor (b)

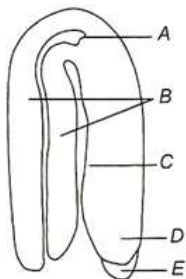
320. 'Sporopollenin is made up of organic material'. The above statement is

- a) True
- b) False
- c) Sometimes (a) and sometimes (b)
- d) Neither (a) nor (b)

321. Viability of date palm seed is

- a) 2000 yr
- b) 1000 yr
- c) 500 yr
- d) 100 yr

322. Identify the A to E in following diagram

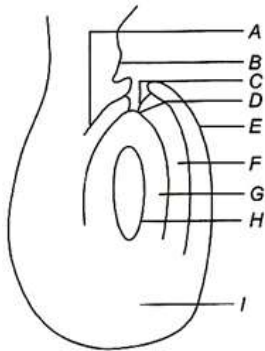


- a) A-Cotyledons, B-Hypocotyle, C-Plumule, D-Root cap, E-Radicle
- b) A- Radicle, B- Root cap, C- Plumule, D- Hypocotyle, E- Cotyledons
- c) A- Hypocotyle, B- Cotyledons, C- Plumule, D- Radicle, E- Root cap
- d) A- Plumule, B- Cotyledons, C- Hypocotyle, D- Radicle, E- Root cap

323. Coleorrhiza is

- a) Lower end of embryonal axis in monocot
- b) Lower end of embryonal axis in dicots
- c) Lower end of embryonal axis in potato family
- d) Lower end of embryonal axis in monocot

324. Identify A to H in the given diagram



- a) A-Chalazal end, B-Embryo sac, C-Nucellus, D-Inner integuments, E-Outer integuments, F-Micropylar pole, G-Micropyle, H-Funicle, I-Hilum  
 b) A- Inner integuments, B- Nucellus, C-Embryo sac, D- Chalazal end, E- Hilum, F- Funicle, G- Micropyle, H- Micropylor end, I- Outer integuments  
 c) A- Hilum, B- Funicle, C- Micropyle, D- Micropylar pole, E- Outer integuments, F- Inner integuments, G- Nucellus, H- Embryo sac, I- Chalazal pole  
 d) A- Micropylar end, B- Micropyle, C- Funicle, D- Hilum, E- Outer integuments, F- Inner integuments, G- Nucellus, H- Embryo sac, I- Chalazal end

325. Sugarcane is cultivated through

- a) Stem cutting                      b) Root cutting                      c) True seed                      d) Adventitious roots

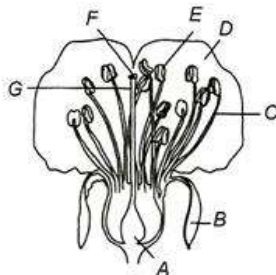
326. 'Sporopollenin is absent at the germ pore'. The above statement is

- a) True                                      b) False  
 c) Sometimes (a) and sometimes (b)                      d) Neither (a) nor (b)

327. Why seed dormancy takes place?

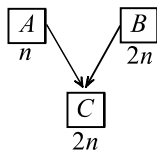
- a) Due to favourable conditions                      b) Due to unfavourable conditions  
 c) Due to embryonic conditions                      d) Due to specific endosperm conditions

328. Identify A to G in following figure and answer accordingly



- a) A-Ovary, B-Filament, C-Sepal, D-Petal, E-Style, F-Stigma, G-Anther  
 b) A-Petal, B-Ovary, C-Petal, D-Filament, E-Anther, F-Stigma, G-Style  
 c) A-Ovary, B- Sepal, C- Filament, D- Petal, E-Anther, F-Stigma, G-Style  
 d) A- Petal, B- Anther, C- Stigma, D- Style, E- Filament, F- Sepal, G- Ovary

329. Find out A, B and C in the flow chart given below



- a) A-Female gamete, B-Male gamete, C-Embryo                      b) A- Male gamete, B- Female gamete, C-Embryo  
 c) A- Female gamete, B- Male gamete, C- Embryo                      d) A- Male gamete, B- Embryo, C-Female gamete

330. One of the most resistant known biological material is

- a) Lignin                                      b) Hemicellulose                      c) sporopollenin                      d) Lignocellulose

331. It is process of embryo sac formation from cell of nucellus, without undergoing meiosis.

- a) Polyembryony                      b) incompatibility                      c) Parthenocarp                      d) Parthenogenesis

332. Study the following statements and choose the correct option.

I – Tapetum nourishes the developing pollen grains.

II- Hilum represents the junction between ovule and funicle

III- In aquatic plants such as water hyacinth and water lily, pollination is by water.

IV- The primary endosperm nucleus is triploid.

- a) I and II are correct but III and IV are incorrect      b) I, II and IV are correct but III is incorrect  
 c) II, III and IV are correct but I is incorrect      d) I and IV are correct but II and III are incorrect

333. Mass of cells enclosed by integuments is called

- a) Nucellus      b) Embryo      c) Ova      d) Pollen

334. Which of the following statements about sporopollenin is false?

- a) Exine is made up of sporopollenin  
 b) Sporopollenin is one of the resistant organic materials  
 c) Exine has apertures called germ pores where sporopollenin is present  
 d) Sporopollenin can withstand high temperatures and strong acids

335. Genotype of endosperm is ZZA, find out the genotype of male and female plant respectively

- a) ZZ, AA      b) ZA, ZA      c) AA, ZZ      d) ZAA, ZZA

336. An ovule which becomes curved so that the nucellus and embryo sac lie at right angles to the funicle is

- a) Hemitropous      b) Campylotropous      c) Anatropous      d) Orthotropous

337. Polar nuclei are located in

- a) Embryo sac      b) Thalamus      c) Pollen tube      d) Ovule

338. A typical angiosperm anther is

- a) Bilobed      b) Ditecous      c) Both (a) and (b)      d) Monothealous

339. Study the following pairs.

I. Modified aerial stem      - Unisexual flowers      - Chalazal entry of Develop pollen tube  
 Acropetally

II. Flowers achlamydeous      - Pedicels of all the flowers      - Presence of false whorl  
 are of same Length

III. Cohesion of Bracts      - Centrifugal opening of many flowers  
 forming a cup

IV. flower Formation on One side in a      - Presence of rachilla      - terminal part of the peduncle  
 is flowerless  
 Spiral manner

Select the correct pair of answers in which the former represents the set of characters present in *poinsettia* and the latter in the pair represents the set of characters present in *casuarina*.

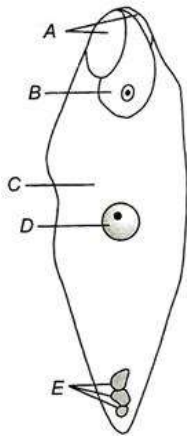
- a) II and III      b) I and II      c) IV and III      d) III and I

340. Identify the type of ovary in diagram





- a) D                                      b) C                                      c) B                                      d) A
350. Function of tapetum is to provide  
 a) Protection                              b) Nutrition                              c) Respiration                              d) All of these
351. Root has 42 chromosome then find out the chromosomal number of synergid  
 a) 7                                              b) 14                                              c) 21                                              d) 28
352. In nature, cleistogamous flowers are  
 a) Self-pollinated                              b) insect-pollinated                              c) Wind-pollinated                              d) Bird-pollinated
353. Among the sets of terms given below, identify those that are associated with gynoecium  
 a) Pistil, style, ovule, pollens                              b) Ovule, ovary, tepatum, embryo sac  
 c) Egg, embryo sac, nucellus, pollens                              d) Stigma, ovule, embryo sac, placenta
354. The nutritive layer of microsporangia of cypsella  
 a) Endothecium                              b) Exothecium                              c) Sporogenous tissue                              d) Tapetum
355. A longitudinal groove runs lengthwise separating the theca. This groove is called line of dehiscence. The above sentence is  
 a) True                                              b) False  
 c) Sometimes (a) and sometimes (b)                              d) Neither (a) nor (b)
356. In the given embryo sac identify A to E



- a) A-Degeneration antipodal cell, B-Primary endosperm nucleus, C-Primary endosperm cell, D-Synergid cell, E-Zygote
- b) A- Synergid cell, B- Antipodal cell, C- Zygote, D- Endosperm cell, E-Chalazal cell
- c) A-Degenerating Synergids, B- Zygote, C-Primary endosperm cell, D-Primary endosperm nucleus, E- Degenerating antipodal cell
- d) A- Zygote, B-Synergid, C-Primary endosperm cell, D-Primary endosperm nucleus, E-Degenerating antipodal cell
357. For good growth of pollen tube, necessary element is  
 a) Ca                                              b) B                                              c) Mg                                              d) Mo



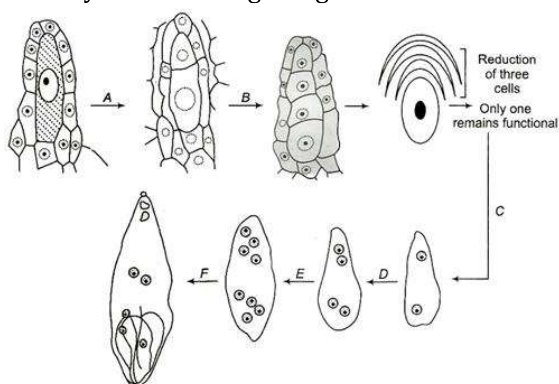
358. In the angiosperm ovule, central cell of the embryo sac, prior to the entry of pollen tube, contains  
 a) A single haploid nucleus  
 b) One diploid and one haploid nuclei  
 c) Two haploid polar nuclei  
 d) One diploid secondary nucleus

359. Anemophily is pollination by  
 a) Wind  
 b) Air  
 c) Insects  
 d) Birds

360. Polyembryony is reported in  
 I. Citrus  
 II. Mango  
 III. *Gossypium*  
 Correct name are  
 a) I and III  
 b) II and III  
 c) I, II and III  
 d) I and II

361. Polyembryony is a type of  
 a) Apomixis  
 b) Fertilization  
 c) Fusion  
 d) Embryogenesis

362. Identify A to F in diagram given below



- a) A-Mitosis, B-Meiosis-I, C-Meiosis II, D-Mitosis, E-Meiosis, F-Meiosis  
 b) A-Meiosis-I, B-Meiosis-II, C-Mitosis, D-Mitosis, E-Mitosis, F-Embryo  
 c) A-Embryo, B-Meiosis-I, C-Meiosis-II, D-Mitosis, E-Mitosis, F-Mitosis  
 d) A-Mitosis, B-Mitosis, C-Mitosis, D-Meiosis, E-Meiosis, F-Meiosis

363. Viability of lupine seed is  
 a) 10000 yr  
 b) 5000 yr  
 c) 2000 yr  
 d) 1000 yr

364. Perisperm is  
 a) Remnants of nucellus  
 b) Remnants of embryo  
 c) Remnants of endosperm  
 d) None of these

365. Which of the following statement is true with reference to cross pollination in angiosperms?  
 a) It requires the production of a large number of pollen grains  
 b) It can fail to occur due to distance barrier  
 c) It occurs only in unisexual flowers  
 d) It most often results in high yield of plants

366. In which one of the following pollination is autogamous?  
 a) Xenogamy  
 b) Chasmogamy  
 c) Cleistogamy  
 d) Geitonogamy

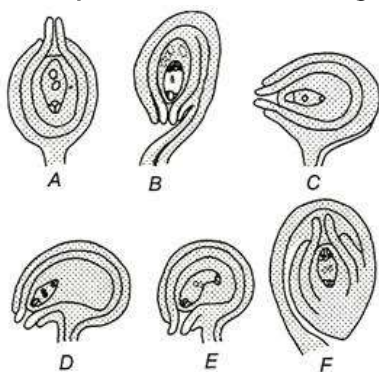
367. In an angiosperm, male plant is diploid and female plant is tetraploid then endosperm will be  
 a) Haploid  
 b) Triploid  
 c) Tetraploid  
 d) Pentaploid

368. Through which cell of the embryo sac, does the pollen tube enter the embryo sac?  
 a) Egg cell  
 b) Central cell  
 c) Persistent synergid  
 d) Degenerated synergid

369. Milky water of tender coconut is  
 a) Liquid gametes  
 b) Liquid nucellus  
 c) Liquid female gametophyte  
 d) Liquid endosperm

370. The ovule in which the funicle, chalaza and micropyle lie in one vertical plane, is called

- a) Campylotropous      b) Amphitropous      c) Orthotropous      d) Anatropous
371. Pericarp is formed of  
a) Endosperm      b) Ovary wall      c) Tapetum      d) Epidermis
372. Which of the following is pollinated by water?  
a) *Viola*      b) *Yucca*      c) *Oxalis*      d) *Commelina*
373. Ubisch bodies are secreted by  
a) Tapetum      b) Exine      c) Microspore mother cells      d) Endothecium
374. Which of the following parts in angiosperms are diploid and triploid, respectively?  
a) Secondary nucleus and endosperm      b) Microspore mother cell and egg cell  
c) Polar nucleus and secondary nucleus      d) Endosperm and antipodal cells
375. Which type of pollen grains are found in insect pollinated flowers?  
a) Hygroscopic      b) Light and sticky      c) Light and rough      d) Heavy and coloured
376. Identify different ovules of diagrams A to F



- a) A-Circinotropous, B-Amphitropous, C-Campylotropous, D-Hemitropous, E-Anatropous, F-Orthotropous  
b) A- Campylotropous, B- Anatropous, C- Hemitropous, D- Amphitropous, E- Circinotropous, F- Orthotropous  
c) A- Orthotropous, B- Anatropous, C- Hemitropous, D- Campylotropous, E- Amphitropous, F- Circinotropous  
d) A- Campylotropous, B- Anatropous, C- Hemitropous, D- Amphitropous, E- Orthotropous, F- Circinotropous
377. Male gamete in angiosperm is produced by  
a) Generative cell      b) Microspore cell      c) Vegetative cell      d) Tube cell
378. Synergids are  
a) Haploid      b) Diploid      c) Triploid      d) Tetraploid
379. Exine of pollen grain is made up of  
a) Pectocellulose      b) Lignocellulose      c) Sporopollenin      d) Pollen kit
380. The process of formation of microspores  
I. From pollen mother cell through ...A... formed ...B...  
II. Microspore are arranged in ...C...  
III. Microspore changes into the ...D...  
A to D in the above statements are  
a) A-Pollen grains, B-Microspore tetrad, C-Microsporogenesis, D-Meiosis  
b) A- Microspore tetrad, B- Microsporogenesis, C-Meiosis, D- Pollen grains  
c) A- Microsporogenesis, B- Microspore tetrad, C- Pollen grains, D- Meiosis  
d) A- Meiosis, B- Microsporo, C- Microspore tetrad, D- Pollen grains
381. Viability of pollen grains depends on  
a) Temperature      b) Humidity      c) Both (a) and (b)      d) Pressure
382. 60% of the angiosperms shed their pollens at the

- a) 2-celled stage                      b) 3-celled stage                      c) 4-celled stage                      d) 1-celled stage
383. The inner most layer of microsporangium is  
a) Tapetum                              b) Endothecium                      c) Middle layer                      d) Epidermis
384. Male gametophyte of angiosperms is reduced to  
a) One cell                              b) Two cells                              c) Three cells                              d) Four cells
385. Long, ribbon-like pollen grains are seen in some  
a) Aquatic plants                      b) Wind-pollinated grasses  
c) Gymnosperms                      d) Bird-pollinated flowers

