The Bodwad Sarvajanik Co-Op.Education Society Ltd., Bodwad

Arts, Commerce and Science College, Bodawd

Question Bank

Class :-S.Y.B.Sc **SEM:- IV**

Subject: - BOTANY- 402 **Plant Embryology**

1. Flowers with both androecium and gynoecium are called

1. **Bisexual flowers**
2. Anther
3. Stamens
4. Unisexual flowers

2. The transfer of pollen from the anther to stigma is called

1. **Pollination**
2. Fertilization
3. Adoption
4. Diffusion

3. The fusion of female reproductive nucleus with the male reproductive nucleus is known as

1. Adoption
2. Excretion
3. **Fertilization**
4. Regeneration

4. The two nuclei at the end of the pollen tube are called

1. **Tube nucleus and a generative nucleus**
2. Sperm and ovum
3. Generative nucleus and stigma
4. Tube nucleus and sperm

5. Generative nucleus divides forming

1. **2 male nuclei**
2. 3 male nuclei
3. 2 female nuclei
4. 3 female nuclei

6. Embryo sac is located inside the

1. Stigma
2. **Ovule**
3. Micropyle
4. Style

7. One nucleus of the pollen tube and secondary nucleus of the ovum grow into

1. Stigma
2. **Endosperm**
3. Anther
4. Stamen

8. The male reproductive parts of a flower, the stamens, are collectively known as

1. **Androecium**
2. Filament
3. Anther
4. Gynoecium

9. The other name for gynoecium is

1. **Pistil**
2. Stigma
3. Androecium
4. Style

10. Functional megaspore in a flowering plant develops into

1. Endosperm
2. Ovule
3. **Embryo-sac**
4. Embryo

11. Which of the following is similar to autogamy, but requires pollinators?

1. **Geitonogamy**
2. Cleistogamy
3. Apogamy
4. Xenogamy

12. What is the function of the filiform apparatus?

1. **Guide the entry of pollen tube**
2. Recognize the suitable pollen at the stigma

3. Produce nectar
4. Stimulate division of the generative cell

13. A mass of nutritive material outside the embryo sac is called _____

1. Protoplasm
2. Pericarp
3. Ectoderm
4. **Perisperm**

14. Which of the following statements is correct?

1. Sporogenous tissue is haploid
2. The hard outer layer of pollen is called intine
3. **Tapetum nourishes the developing pollen**
4. Microspores are produced by endothecium

15. Which of the following fruit is produced by parthenocarpy?

1. Brinjal
2. Apple
3. **Banana**
4. Jackfruit

16. The process of formation of seeds without fertilization in flowering plants is known as

1. Budding
2. **Apomixis**
3. Sporulation
4. Somatic hybridization

17. Functional megaspore in an angiosperm develops into

1. Endosperm
2. Embryo
3. **Embryo-sac**
4. Ovule

18. Rewards and attractants are required for

1. **Entomophily**
2. Cleistogamy
3. Anemophily
4. Hydrophily

19. A dioecious flowering plant prevents

1. Geitonogamy and xenogamy
2. Autogamy and xenogamy
3. **Autogamy and geitonogamy**
4. Cleistogamy and xenogamy

20. Parthenogenesis is

(a) development of embryo without fertilization
(b) **development of fruit without fertilization**
(c) development of fruit without hormones
(d) development of embryo from egg without fertilization.

21. Male gametophyte of angiosperms is shed as

(a) four celled pollen grain
(b) three celled pollen grain
(c) microspore mother cell
(d) anther.

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22. Total number of meiotic division required for forming 100 zygotes/100 grains of wheat is

(a) 100
(b) 75
(c) 125
(d) 50.

Answer and Explanation:

For formation of 100 zygotes, 100 male gametes and 100 female gametes (eggs) are required. 100 male gametes are developed from 100 microspores (from 25 meiotic divisions) and 100 eggs are developed from 100 megaspores (from 100 meiotic division).
Hence, number of meiotic divisions necessary for 100 zygotes formation = 25 + 100 = 125.

23. Perisperm is

(a) remnant of endosperm
(b) persistent nucellus
(c) peripheral part of endosperm
(d) disintegrated secondary nucleus.

24. Development of an organism from female gamete/' egg without involving fertilization is

(a) adventitive embryony
(b) polyembryony
(c) parthenocarpy
(d) parthenogenesis.

25. Generative cell was destroyed by laser but a normal pollen tube was still formed because

(a) vegetative cell is not damaged.
(b) contents of killed generative cell stimulate pollen growth

(c) laser beam stimulates growth of pollen tube
(d) the region of emergence of pollen tube is not harmed.

Answer and Explanation:

Generative cell was destroyed by laser but a normal pollen tube was still formed because vegetative cell is not damaged. Each microspore divides by mitotic division making a smaller generative cell and a larger vegetative cell or tube cell. If generative cell is damaged then the normal pollen tube will be formed because pollen tube is formed by vegetative cell not by generative cell of microspore.

26. Male gametophyte of angiosperms/monocots is

(a) microsporangium
(b) nucellus
(c) microspore
(d) stamen.

Answer and Explanation:

Male gametophyte of angiosperms is microspore. Microspore is haploid, uninucleate, minute spores produced in large numbers as a result of meiosis in microspore mother cell inside the microsporangia. These are the first cell of gametophytic generations in angiosperms.

27. Female gametophyte of angiosperms is represented by

(a) ovule
(b) megaspore mother cell
(c) embryo sac
(d) nucellus.

Answer and Explanation:

Female gametophyte of angiosperms is represented by embryo sac. The polygonum type of embryo sac is eight nucleate and seven celled. It is found in more than 80% plant families. The nucleuses of megaspore undergo division and give rise to embryosac or female gametophyte by the process of megagametogenesis.

28. Entry of pollen tube through micropyle is

(a) chalazogamy
(b) mesogamy
(c) porogamy
(d) pseudogamy

29. Pollination occurs in

(a) bryophytes and angiosperms
(b) pteridophytes and angiosperms
(c) angiosperms and gymnosperms
(d) angiosperms and fungi.

30. Embryo sac occurs in

(a) embryo
(b) axis part of embryo
(c) ovule

(d) endosperm.

31. Which of the following pair have haploid structures?

(a) nucellus and antipodal cells

(b) antipodal cells and egg cell

(c) antipodal cells and megaspore mother cell

(d) nucellus and primary endosperm nucleus

32. Point out the odd one

(a) nucellus

(b) embryo sac

(c) micropyle

(d) pollen grain

Answer and Explanation:

Pollen grain is odd one among all the other three. Pollen grain in a male gametophytic structure. Whereas all the other three are found inside ovule, (nucellus, micropyle and embryo sac).

33. Syngamy means

(a) fusion of gametes

(b) fusion of cytoplasms

(c) fusion of two similar spores

(d) fusion of two dissimilar spores.

34. Double fertilization is fusion of

(a) two eggs

(b) two eggs and polar nuclei with pollen nuclei

(c) one male gamete with egg and other with synergid

(d) one male gamete with egg and other with secondary nucleus.

35. Meiosis is best observed in dividing

(a) cells of apical meristem

(b) cells of lateral meristem

(c) microspores and anther wall

(d) microsporocytes.

Answer and Explanation:

Meiosis is best observed in dividing microsporocytes. Microsporocytes or microspore mother cell after meiosis give rise to microspore. Other cells do not divide by meiosis.

36. Study of formation, growth and development of new individual from an egg is

(a) apomixis

(b) embryology

(c) embryogeny

(d) cytology.

37. Ovule is straight with funiculus, embryo sac, chalaza and micropyle lying on one straight line. It is

(a) orthotropous
(b) anatropous
(c) campylotropous
(d) amphitropous.

38. Double fertilization is characteristic of

(a) angiosperms
(b) anatropous
(c) gymnosperms
(d) bryophytes.

39. Number of meiotic divisions required to produce 200/400 seeds of pea would be

(a) 200/400
(b) 400/800
(c) 300/600
(d) 250/500.

Answer and Explanation:
Number of meiotic divisions required to produce 200/400 seeds of pea would be 250/500. 200 seeds of pea would be produced from 200 pollen grains and 200 eggs. 200 pollen grains will be formed by 50 microspore mother cell while 200 eggs will be formed by 200 megaspore mother cell so 250/500.

40. Embryo sac represents

(a) megaspore
(b) megagametophyte
(c) megasporophyll
(d) megagamete.

41. When pollen of a flower is transferred to the stigma of another flower of the same plant, the pollination is referred to as

(a) autogamy
(b) geitonogamy
(c) xenogamy
(d) allogamy.

42. The polyembryony commonly occurs in

(a) tomato
(b) potato
(c) Citrus
(d) turmeric.

43. In an angiosperm, how many microspore mother cells are required to produce 100 pollen grains?

(a) 75

(b) 100
(c) 25
(d) 50.

44. The anthesis is a phenomenon, which refers to

(a) development of anthers
(b) opening of flower bud
(c) stigma receptors
(d) all of these.

45. If there are 4 cells in anthers, what will be the number of pollen grains?

(a) 16
(b) 12
(c) 8
(d) 4.

46. The role of double fertilization in angiosperms is to produce

(a) cotyledons
(b) endocarp
(c) endosperm
(d) hormones.

47. The embryo in sunflower has

(a) two cotyledons
(b) many cotyledons
(c) no cotyledon
(d) one cotyledon.

48. The endosperm of gymnosperm is

(a) diploid
(b) polyploid
(c) triploid
(d) haploid.

49. Endosperm is fertilization by

(a) two polar nuclei and one male gamete
(b) one polar nuclei and one male gamete
(c) ovum and male gamete
(d) two polar nuclei and two male gametes.

50. Anemophily type of pollination is found in

(a) Salvia
(b) bottle brush
(c) Valtisnaria

(d) coconut.

51. In angiosperms pollen tube liberate their male gametes into the

(a) central cell
(b) antipodal cells
(c) egg cell
(d) synergids.

52. What is the direction of micropyle in anatropous ovule?

(a) upward
(b) downward
(c) right
(d) left.

53. In angiosperm all the four microspores of tetrad are covered by a layer which is formed by

(a) pectocellulose
(b) callose
(c) cellulose
(d) sporopollenin.

54. 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.

55. Which one of the following represents an ovule, where the embryo sac becomes horse-shoe shaped and the funiculus and micropyle are close to each other?

(a) amphitropous
(b) circinotropous
(c) atropous
(d) antropous.

56. In a type of apomixis known as adventive embryony, embryos develop directly from the

(a) nucellus or integuments
(b) zygote
(c) synergids or antipodals in an embryo sac
(d) accessory embryo sacs in the ovule.

57. The arrangement of the nuclei in a normal embryo sac in the dicot plants is

(a) 3 + 3 + 2
(b) 2 + 4 + 2
c) 3+2 + 3
(d) 2 + 3 + 3

58. In a cereal grain the single cotyledon of embryo is represented by

(a) coleoptile
(b) coleorhiza
(c) scutellum
(d) prophyll

59. Parthenocarpic tomato fruits can be produced by

(a) treating the plants with phenylmercuric acetate
(b) removing androecium of flowers before pollen grains are released
(c) treating the plants with low concentrations of gibberellic acid and auxins
(d) raising the plants from vernalized seeds

59. Male gametes in angiosperms are formed by the division of

(a) generative cell
(b) vegetative cell
(c) microspore mother cell
(d) microspore.

60. Monosporic eight nucleated female gametophyte is found in

(a) Adoxa
(b) Onion
(c) Fritilaria
(d) Polygonum

61. After fertilization seed coat is developed from

(a) Adoxa
(b) Onion
(c) Fritilaria
(d) Polygonum

62. How does the outer 3 layers help young anthers?

a) Osmosis
b) active transport
c) Nutrients and water
d) Protection

63. Intine of pollen grains is composed of

A) Lipid and protein
B) Cellulose and pectin
C) Lignin and cutin
D) Pectin and lignin

64. A microspore mother cell forms
A) An ovule
B) An embryo sac
C) A pollen sac
D) Pollen grains

65. Endothecium layer of anther lobes is present
A) Outside the epidermis
B) Just inside the epidermis
C) In the innermost layer
D) In the middle region

66. If the developing microspore mother cells draw nourishment by contacting the tapetal cells, the type of tapetum is called

A) Plasmodial tapetum
B) Secretory tapetum
C) Amoeboid tapetum
D) Endothelium

67. One pollen mother cell may produce four germinating pollen grains, each with two male nuclei and one tube nucleus. How many meiotic divisions are necessary to bring this about

A) Two
B) One
C) Three
D) Four

68. How many microspore mother cells will give rise to 256 microspores after reduction division
A) 512
B) 128
C) 64
D) 96

69. How many meiotic divisions are necessary to produce 100 pollen grains
A) 100
B) 25
C) 50

D) 20

70. Exine layer of pollen grain is made up of :

a) sporopollenin

b) Pectin

c) cellulose

d)chitin

71. Embryo sac of angiosperm is

a) 6-celled 8-nucleate

b) 7-celled 8-nucleate

c) 8-celled 7- nucleate

d) 7-celled 7-nucleate

72. A typical angiospermic anther is;

a) Bilobed

b) unilobed

c) Trilobed

d) Tetralobed

73. What is a megasporangium?

a) Pistil

b) Carpel

c) Ovule

d) Stigma

74. Embryo sac of the angiosperms having eight nuclei is

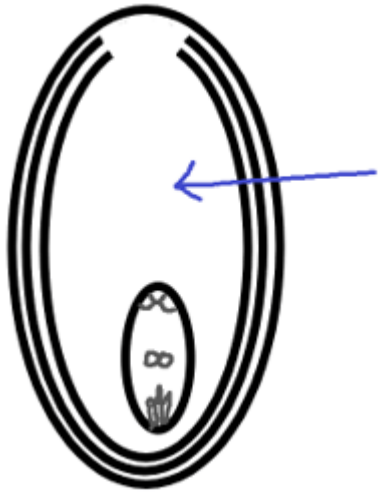
(a) only tetrasporic

(b) only bisporic

(c) only monosporic

(d) any of the following

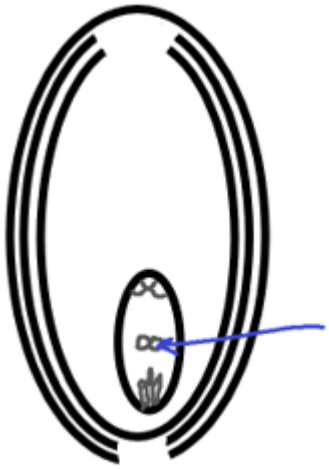
75. 2. Label the part marked with a blue arrow.



a) Chalaza

b) Micropyle
c) Egg
d) Nucellus

76. Label the part marked in blue arrow.



a) Polar nuclei
b) Synergids
c) Antipodal cells
d) Placenta

77. Pollination which occurs in closed flower is known as

a) Allogamy
b) Cleistogamy
c) Protogyny
d) None of the above

78. Which one of the following character causes cross pollination

A) Cleistogamy
B) Dichogamy
C) Homogamy
D) All the above

79. Continuous self-pollination in a species develops

A) Strong off springs
B) Weak off-springs
C) New varieties
D) Seedless fruits

80. In maize, pollination is

A) Anemophilous
B) Ornithophilous
C) Malacophilous
D) Entomophilous

81. Which prevents self pollination

A) Self sterility
B) Herkogamy
C) Dichogamy
D) All of the above

82. In bisexual flowers when the gynoecium matures earlier than the androecium, it is called

A) Protandry
B) Protogyny
C) Heterogamy
D) Autogamy

83. Pollination by water is seen in

A) Nelumbium
B) Vallisneria
C) Eichornia
D) Nymphaea

84. Progeny produced as a result of cross pollination

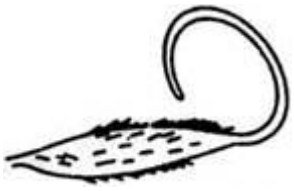
A) Shows high degree of variability and is evolutionary important
B) Is sterile
C) Has recessive characters
D) Is homozygous with phenotypic uniformity

85. Which of the following type of gynoecium is associated by wind pollination

A) 

B)

C) 

D) 

86. The primary endosperm nucleus is

(a) tetraploid
(b) triploid
(c) diploid
(d) haploid

87.The outermost proteinaceous layer of maize endosperm is called

(a) pericarp
(b) epidermis
(c) aleurone
(d) tunica

88. If the endosperm cell of a dicot plant contains 30 chromosomes, find the number of chromosomes present in the root cells of the plant

(a) 40
(b) 10
(c) 20
(d) 15

89. In the angiosperms, the endosperm is formed

(a) before fertilization
(b) after fertilization
(c) along with fertilization
(d) None of the above

90. During nuclear type of endosperm development,primary endosperm mother cell divide by

(a) Mitosis
(b) Meiosis
(c) Free nuclear division
(d) Both a and b

91. Which of the following tye of endosperm found in Datura

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

92. Very small and light seeds which are dispersed by air are

1. **Dust seeds**
2. Winged seeds
3. Balloon seeds
4. Plumed seeds

93. Winged seeds occur in

1. **Moringa**
2. Ulmus
3. Shorea
4. Hiptage

94. Some plants have seeds with hooks for

A. pollination
B. fertilization
C. dispersion
D. reproduction

95. _____ may be defined as occurrence of two or more embryos in one ovule.

a) Polyembryony
b) Nucellus
c) Parthenocarps
d) Embryogenesis

96. Formation of individuals without fusion is called _____

a) fertilization
b) pollination
c) apomixis
d) amphimixis

97. **In plants, apomixis pertains to plant development**

(a) from root cuttings
(b) from cuttings of stem
(c) without the gametes having to fuse
(d) fusion of gametes

98. **This about apomixis is true:**

(a) There is no fertilization involved in both apomixis and parthenocarpy
(b) Apomixis produces genetically identical mother cells
(c) Apomixis is observed in angiosperms and gymnosperms
(d) All of the above

99. **In plants, apomixis pertains to plant development**

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(b) from cuttings of stem
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100. **Functional megaspore in an angiosperm develops into**

1. Endosperm
2. Embryo
3. Embryo-sac
4. Ovule