



BIOLOGY

BOOKS - ARIHANT NEET BIOLOGY (HINGLISH)

SEXUAL REPRODUCTION IN FLOWERING PLANTS

Check Point

1. Which of the following structure is produced as a result of sexual reproduction?

A. zygote

B. gamete

C. pollen grains

D. egg cell

Answer: A



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2. Which layer of microsporangia helps in pollen dispersion?

A. tapetum

B. Epidermis

C. Endothecium

D. None of these

Answer: C



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3. Which of the following microsporangial layer posses stomium?

- A. Epidermis
- B. Endothecium
- C. Tapetum
- D. All of these

Answer: B



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4. Amoeboid tapetum is found in

A. Mahonia

B. Butomus

C. Typha

D. All of these

Answer: D



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5. An enzyme secreted by tapetum is

A. callase

B. reductase

C. protease

D. both b and c

Answer: A



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6. Microgametogenesis is the formation of

A. megaspore

B. male gamete

C. ovule

D. embryo sac

Answer: B



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7. When all pollen grains of a sporangium are united together, this structure is known as

A. circinotropus

B. anatropus

C. pollinium

D. pollenkit

Answer: C



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8. Process of formation of microspore from microspore mother cell is known as

A. microgamatogenesis

B. megagametogenesis

C. microsporogenesis

D. megasporogenesis

Answer: C



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9. At which stage of pollen grains pollination takes place?

A. 1-celled stage

B. 4-celled stage

C. 3-celled stage

D. 2-celled stage

Answer: D



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10. Sporopollenin is derived from the

A. polymerisation of pectin

B. oxidative polymerisation of carotenoids

C. reductive polymerisation of carotenoids

D. polymerisation of cellulose

Answer: B



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11. The cushion of parenchymatous cells that joins ovary and ovaule is known as

A. nucellus

B. placenta

C. hilum

D. funiculus

Answer: B



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12. The narrow pore at one end of the ovule is called as

A. funiculus

B. chalaza

C. micropyle

D. hilum

Answer: C



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13. Bitegmic ovules is found in

A. polypetalous angiosperms

B. gymnosperms

C. cruciferae

D. Santalaceae

Answer: C



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14. ovule in which funicle, chalaza and micropyle occur in one vertical plane is

A. atropous

B. anatropous

C. amphitropous

D. cicinotropous

Answer: B



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15. Horseshoe-shaped embryo sac is found in

A. Loganiaceae

B. Cactaceae

C. Butomaceae

D. Both a and c

Answer: D



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16. In majority of the angiosperm, themegaspore is functional.

A. micropylar

B. chalazal

C. both a and b

D. None of these

Answer: B



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17. Megagametogenesis is the process of formation of embryo sac from

A. pollen grain

B. microspore

C. ovule

D. megaspore

Answer: D



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18. Embryo sac isnucleated andcelled structure.

A. 9,16

B. 8,7

C. 8,8

D. 7,8

Answer: B



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19. The nucleus of synergid cell occurs towards

A. micropylar pole

B. central cell

C. egg cell

D. embryo sac wall

Answer: A



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20. How many polar nuclei are present in central cell?

A. One

B. Two

C. Three

D. None of these

Answer: B



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21. Synergids provide nutrition to the embryo sac in Seam by

A. filiform apparatus

B. haustoria

C. both a and b

D. None of these

Answer: B



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22. Antipodal cells are three in number and occur towards

- A. chalazal pole
- B. micropylar pole
- C. both a and b
- D. None of these

Answer: A



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23. Antipodal cells are rich in

- A. starch, cellulose
- B. pectin, protein
- C. starch, protein, lipids
- D. cellulose, lipids

Answer: C



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24. Four nucleated embryo sac is formed in

A. *Schisandra chinensis*

B. *Vinca rosa*

C. *Mirabilis*

D. *Commelina*

Answer: A



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25. All four megaspores take part in the formation of embryo sac in

A. Adoxa

B. Plumbago

C. peperomia

D. All of these

Answer: D



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26. The adaptation of facilitate autogamy in chasmogamous flowers is known as

A. xenogamy

B. cleistogamy

C. autogamy

D. homogamy

Answer: B



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27. In *Archis hypogea*, cleistogamous flowers are found. These flowers are

A. open

B. closed

C. both a and b

D. None of these

Answer: B



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28. Bud polination occurs in

A. pea

B. wheat

C. rice

D. All of these

Answer: D



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29. Protandary types of flowers are found in

A. sunflower

B. Vallisneria

C. orchids

D. maize

Answer: A



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30. Self sterility is found in

A. sunflower

B. rose

C. tobacco

D. Primula

Answer: C



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31. Well- exposed stamens, nectaries absent, pollen grains are dry, non-sticky, etc. these are the properties of the

A. hydrophilous flower

B. anemophilous flower

C. entomophilous flower

D. malacophilous flower

Answer: B



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32. Mode of pollination of *Ruppia maritima* and *Zea mays* are

A. hydrophily and anemophily

B. entomophily and hydrophily

C. cheiropterophily and malacophily

D. anemophily and hydrophily

Answer: A



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33. Papaver, Clemantis and Jasmium are
pollinated by

A. bat

B. bird

C. insect

D. snail

Answer: C



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34. Ornithophilous flowers are

A. small, sized and tubular flower

B. larger sized and mucilagenous nectar

C. pollen grains are small and non-sticky

D. fleshy and showy

Answer: B



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35. Strelitzia reginae is pollinated by

A. mainas

B. crow

C. sun bird

D. humming bird

Answer: C



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36. Pollens that are able to germinate on the stigma are

A. compatible

B. incompatible

C. both a and b

D. none of the above

Answer: A



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37. Stigmatic secretion consists of

- A. sugar and water
- B. lipid and pectin
- C. resin and lignin
- D. sugar and pectocellulose

Answer: A



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38. when the pollen tube enters through the micropyle it is termed as

A. isogamy

B. chalazogamy

C. porogamy

D. mesogamy

Answer: C



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39. Pollen tube enters is ovule of Cucurbita through

A. hilum

B. micropyle

C. funiculus

D. integument

Answer: D



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40. Both of the male gametes are involved in fertilisation. It was first time demonstrated by

A. sunflower

B. Nawaschin

C. tobacco

D. Primula

Answer: B



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41. Zygote is formed by the fusion of male gamete to female gamete. This process is known as

A. double fertilisation

B. syngamy

C. fertilisation

D. both b and c

Answer: D



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42. Fusion of male gamete with polar nuclei result in the formation of

- A. endosperm
- B. zygote
- C. synergid cell
- D. antipodal cell

Answer: A



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43. Ploidy level endosperm is

A. $4n$

B. $2n$

C. $3n$

D. n

Answer: C



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44. Fusion of two male gametes to two different cells of the same female gametophyte is known as

- A. double fertilisation
- B. triple fusion
- C. syngamy
- D. none of the above

Answer: A



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45. Which of the following is the structure formed by the transformation of outer integument?

A. Testa

B. Perisperm

C. Nucellus

D. Stalk

Answer: A



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46. Zygote divides by an asymmetric mitotic division to form two cells. Out of these, cells towards chalazal side is known as

- A. apical cell
- B. basal cell
- C. Both a and b
- D. none of these

Answer: A



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47. Basal cell divides to produce

A. haustorium

B. suspensor

C. hypobasal cell

D. epibasal cell

Answer: B



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48. The portion of the embryonal axis above the level of cotyledons is

A. epicotyl

B. hypocotyl

C. both a and b

D. none of the above

Answer: A



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49. Root cap enclosed in an undifferentiated sheath is called

- A. epicotyl
- B. coleorhiza
- C. coleoptile
- D. scutellum

Answer: B



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50. Which stage in the development of embryo is almost similar in monocot and dicot?

- A. Torpedo-shaped stage
- B. Heart-shaped stage
- C. Octant stage
- D. Globular stage

Answer: C



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51. Cellular endosperm is found in

A. Datura

B. Arachis

C. Acer

D. Malva

Answer: A



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52. Which type of endosperm is found in *Asphodelus*?

A. Helobial

B. Cellular

C. Nuclear

D. Both cellular and helobial

Answer: A



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53. Poor growth of endosperm result in the formation of

- A. viable seed
- B. dormancy is seed
- C. germinating seed
- D. non viable seed

Answer: D



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54. Aleurone tissue secretes

A. hydrolytic enzymes

B. protease enzyme

C. amylase enzymes

D. all of these

Answer: D



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55. Which of the following structure is regarded as third integument?

A. Operculum

B. Endosperm

C. Aril

D. Caruncle

Answer: C



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56. Fimbriate aril is found in

A. litchi

B. *Crossosma californicum*

C. *Myristica fragrans*

D. *Passiflora*

Answer: B



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57. True polyembryony occurs in

A. Citrus

B. Mangifera

C. Opuntia

D. All of these

Answer: D



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58. In *Saxifraga*, embryo develops from a separate embryo sacs, present in the same ovule. This phenomenon is known as

A. true polyembryony

B. false polyembryony

C. both a and b

D. none of these

Answer: B



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59. More than one pollen tube entering into an ovule and fertilising synergids occurs in

A. *Argemone mexicana*

B. *Brassica*

C. *Nicotiana rustica*

D. *Nymphaea*

Answer: A



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60. In apospory, seed arises from

A. embryo sac

B. nucellar cell

C. egg cell

D. synergid

Answer: B



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61. Identify the odd one with respect to apospory

A. Grasses

B. Taraxacum

C. Parthenium

D. Rubus

Answer: B



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62. A parthenocarpic fruit with seed is

A. orange

B. apple

C. mango

D. coconut

Answer: A



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63. Which of the following hormone can induce parthenocarph?

A. auxin

B. gibberellin

C. both a and b

D. none of these

Answer: C



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64. Parthencarpy is induced by environment in

A. apple

B. Citrus

C. banana

D. Capsicum

Answer: D



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65. Vitis Vinifera is a

- A. seedless fruit
- B. Parthenocarpic fruit
- C. both a and b
- D. none of these

Answer: A



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Asorted Questions

1. In which of the following plants, pollen tube enters through integuments?

- A. Casuarina
- B. Malva neglecta
- C. Cucurbita

D. Beta vulgaris

Answer: C



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2. Ruminant endosperm is commonly found in seeds of

A. Compositae

B. Cruciferae

C. Euphorbiaceae

D. Annonaceae

Answer: D



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3. Compound pollens held together in sporangium are called

A. caudicle

B. pollinia

C. translator

D. none of these

Answer: B



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4. Which of the following wall layer of anther shows multinucleate condition?

A. Epidermis

B. Tapetum

C. Endothecium

D. Middle layers

Answer: D



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5. The reduced type of anther wall lacks

A. middle layers

B. endothecium

C. epidermis

D. tapetum

Answer: A



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6. What is the cotyledon of maize embryo?

A. Aleurone layer

B. Scutellum

C. Plumule

D. Radicle

Answer: B



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7. Chalazogamy is a characteristic of

A. Casuarina

B. Juglans

C. both a and b

D. Cucurbita

Answer: C



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8. Is favoured by heterostyly in Primula.

A. Autogamy

B. Xenogamy

C. Homogamy

D. All of these

Answer: B



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9. Pollinia are found in the flowers o

A. Calotropis

B. Vinca rosa

C. Hibiscus

D. Salvia

Answer: A



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10. Pollination in Ficus is carried out by

A. air

B. water

C. birds

D. gall wasp

Answer: D



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11. Translator is employed for pollination in

A. Erythrina

B. Calotropis

C. Jasminum

D. Cestrum

Answer: B



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12. Mimicry-like condition is helpful in the pollination of

A. Blastophaga

B. Ophrys

C. Yucca

D. Magnolia

Answer: B



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13. Hovering birds pollinate

A. Bigonia

B. Peepal

C. Magnolia

D. Bougainvillea

Answer: A



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14. Caruncle is formed by

A. peduncle

B. cotyledons

C. integument

D. none of these

Answer: C



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15. The obturator in Euphorbia develops from

A. funicle

B. placenta

C. outer integument

D. inner integument

Answer: B



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16. Cotton fibres are the outgrowths from

A. septum

B. testa

C. funicle

D. fruit wall

Answer: B



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17. A middle integument has been observed in

A. Annona

B. Magnolia

C. Ranunculus

D. Cananga

Answer: D



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18. The outermost and innermost wall layers of microsporangium in an anther are respectively

- A. Endothecium and tepetum
- B. Epidermis and endodermis
- C. Epidermis and middle layer
- D. Epidermis and tapetum

Answer: D



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19. In which of the following is transfer mechanism found?

A. Ocimum

B. Pisun

C. Calotropis

D. Yucca

Answer: C



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20. Microsporangial initial of an anther is

A. tapetum

B. archesporium

C. endosporium

D. exosporium

Answer: B



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21. Tenuicellate ovules are found in

A. Cruciferae

B. Malvaceae

C. Compositae

D. Liliaceae

Answer: C



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22. The megaspore tetrad, which is extremely rare is

A. tetrahedral

B. isobilateral

C. decussate

D. inverted T-shaped

Answer: D



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23. A hypostase develops in the region of

A. nucellus

B. chalaza

C. funicle

D. integuments

Answer: B



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24. Meiotic division in an ovule takes place in

A. nucellus

B. megaspore

C. megaspore mother cell

D. microspore

Answer: B



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25. Which one of the following structure found in dicot seed will be genetically identical with its maternal plant ?

A. Testa

B. Radicle

C. Plumule

D. Cotyledon

Answer: A



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26. The number of cells in the Polygonum type of embryo sac which degenerate after fertilization

A. 4

B. 5

C. 6

D. 3

Answer: B



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27. Monocot pollen grains are generally

A. monocolpate

B. bicolpate

C. tricolpate

D. multicolpate

Answer: A



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28. Free nuclear divisions are characteristic of

A. cellular endosperm

B. nuclear endosperm

C. helobial endosperm

D. both b and c

Answer: D



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29. Suspensor formed during embryony of sagittaria is

A. 6-10 celled

B. 4-5 celled

C. 2-3 celled

D. 1-celled

Answer: D



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30. Epiblast present in certain monocot embryo represents

- A. rudimentary leaves
- B. mesocotyl
- C. scutellum
- D. second cotyledon

Answer: D



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31. Fossil pollen grains help to explore

A. coal

B. petroleum

C. fossil plants

D. All of these

Answer: C



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32. What is the term used for schematic illustration of the pollen grain?

A. Pollenogram

B. Patenogram

C. Hisgogram

D. Parallelogram

Answer: A



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33. is an example for the bisporic embryo sa.

A. Polygonum

B. Allium

C. Peperomia

D. None of these

Answer: B



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34. Pollen tube is covered by a membrane made of

- A. amino acids
- B. carbohydrates
- C. cellulose
- D. lignocellulose

Answer: D



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35. The micropylar part of the embryo sac protrudes out of ovule in

A. *Torenia*

B. *Deutzia*

C. both a and b

D. *Macrosolen*

Answer: C



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36. The embryo sac becomes haustorial and reaches the base of the stigma in

A. Santalum

B. Torenia

C. Macrosolen

D. Helixanthera

Answer: B



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37. In *Cortaderia jubaa*, a haustorium arises from

A. central cell

B. egg cell

C. antipodal

D. synergid

Answer: B



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38. The *Oenothera* type embryo sac lacks

A. synergids

B. antipodals

C. both a and b

D. central cell

Answer: B



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39. Which condition is more advanced

A. Bitemic

B. Unitegmic

C. Tritegmic

D. Ategmic

Answer: B



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40. A primitive massive nucellus occurs in some ovules. The condition is called

A. crassinucellate

B. tenuinucellate

C. resupinate ovule

D. protonucellate

Answer: A



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41. Of the two cells of zygote, the cell near to micropyle is termed as

A. terminal cell

B. basal cell

C. embryo cell

D. zygote cell

Answer: B



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42. The first division of zygote is oblique in

A. Solanum

B. Aster

C. Triticum

D. Najas

Answer: C



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43. Milky water of green coconut is liquid

A. nucellus

B. of female gametophyte

C. endosperm

D. chalaza

Answer: C



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44. The term xenia denotes the effect of pollen on the

A. endosperm

B. egg cell

C. nucellus

D. seed coat

Answer: A



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45. Both micropylar and chalazal endosperm haustoria are formed in

A. Lobelia

B. Ruellia

C. Klugia

D. All of these

Answer: D



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46. An endosperm having irregular boundaries is termed as

A. nuclear

B. Cellular

C. helobial

D. ruminare

Answer: D



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47. Suspensor formation in *Sagittaria* occurs at..... celled stage.

A. 6- 10

B. 4- 5

C. 2- 3

D. single

Answer: A



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48. A chalazal endosperm haustorium with finger like appendages occurs in

A. Magnolia

B. Hypericum

C. Lomatia

D. Opilia

Answer: C



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49. Mosaic endosperm was first reported in

A. Phoenix

B. Zea

C. Myristica

D. Annona

Answer: B



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50. The ploidy level of PEN in *Oenotera* is

- A. n
- B. $3n$
- C. $2n$
- D. $5n$

Answer: C



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51. The name of outermost layer of endosperm in maize is

A. Aleurone layer

B. epidermis

C. tunica

D. tonoplast

Answer: A



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52. The part of the embryo above the cotyledons is called

A. hypocotyl

B. epicotyl

C. suspensor

D. root apex

Answer: A



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53. The tissue in plant seeds that serves the same nutritive function as yolk in chicken embryos is the

A. seed coat

B. endosperm

C. epicotyl

D. embryo

Answer: B



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54. The first part of the monocot embryo to appear above the ground is

- A. shoot apical meristem
- B. cotyledons
- C. hypocotyl or epicotyl
- D. coleoptile

Answer: D



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55. The first part of the dicot embryo to appear above ground is the

- A. shoot apical meristem
- B. cotyledons
- C. hypocotyl
- D. coleoptile

Answer: D



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56. In Casuarina fertilisation takes place through

A. mesogamy

B. porogamy

C. chalazogamy

D. apogamy

Answer: C



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57. When vegetative cell of zygote form embryo it is called

A. apospory

B. apomixis

C. diploid polyembryony

D. adventive polyembryony

Answer: D



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58. A mature male gametophyte is formed from pollen mother cell by

- A. one meiotic division
- B. three meiotic divisions
- C. two mitotic divisions
- D. both a and c

Answer: D



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59. Number of meiotic divisions required to produce 100 microspores, in angiosperm is

A. 125

B. 50

C. 100

D. 25

Answer: D



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60. Which haploid cell forms embryo sac?

- A. Functional megaspore
- B. Microspore mother cell
- C. Megaspore mother cell
- D. None of these

Answer: A



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61. Function of guiding and attracting pollen tube is done by

A. egg cell

B. filiform apparatus

C. antipodal cells

D. secondary nucleus

Answer: B



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62. What would be the number of chromosomes in the cell of the aleurone layer in a plant species with 8 chromosomes in its synergids

A. 16

B. 24

C. 32

D. 8

Answer: B



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63. Collar like outgrowth arising from the base of ovule and forming is a sort of third integument is known as

A. operculum

B. aril

C. coma

D. caruncle

Answer: B



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64. Which of the following cells secrete enzymes to dissolve the nucellus and create an entry for the make germ cell?

A. Synergid cell

B. egg cell

C. Central cell

D. Both a and b

Answer: A



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65. The flower, in which the statements mature first, shedding their pollens before the stigma are receptive is known as

- A. protogynous flower
- B. heterostyly flower
- C. protandrous flower
- D. herkogamy flower

Answer: C



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66. Amphimixis is

- A. fusion of sperm with egg
- B. fusion of pronucleus of sperm with an egg
- C. no fusion
- D. fusion of diploid cells

Answer: A



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67. Before fertilisation, nuclei of a particular cell fuse and form a diploid nucleus called secondary nucleus. The cell is

- A. antipodal cell
- B. central cell
- C. egg cell
- D. synergid cell

Answer: B



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68. Which one of the following produces both enzymes and hormones?

A. Endothecium

B. Middle layer

C. Epidermis

D. tapetum

Answer: D



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69. Dyad stage of formed, in which type of cytokinesis during meiotic division of microspore mother cell?

- A. Successive type
- B. Simultaneous type
- C. both a and b
- D. None of these

Answer: A



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70. Cells constituting egg apparatus as well as antipodals are

A. haploid

B. diploid

C. polyploid

D. uninucleate and haploid

Answer: D



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71. Pollen tube when enter through integument, it refers to:

- A. porogamy
- B. chalazogamy
- C. mesogamy
- D. isogamy

Answer: C



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72. Allogamy has to be always performed with the help of

A. external agency

B. self-mechanism

C. only wind

D. only man

Answer: A



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73. Exine in pollen grain is made up of

A. pectocellulose

B. lignocellulose

C. sporopollenin

D. pollen kit

Answer: C



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74. To avoid cross-pollination the flowers, are closed. It is

A. homogamy

B. cleistogamy

C. protogyny

D. allogamy

Answer: B



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75. In Potato, self pollination is performed in

A. bud condition

B. cleistogamous condition

C. bending of filaments to bring anthers in
contact with stigma

D. style bends to bring stigma in contact with
anthers

Answer: D



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76. In dicot type development of anther wal, the middle layers arise from

- A. outer secondary parietal layer
- B. inner secondary parietal layer
- C. both a and b
- D. none of the above

Answer: B



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77. The fibrous thickenings of endothecium are in the form of

- A. spiral bands
- B. radial bands
- C. annular bands
- D. tangential bands

Answer: B



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78. When the radial walls break up releasing the protoplasm into the another chamber followed by the fusion of such protoplasts, the tapetum of such a type is called as

- A. parietal
- B. glandular
- C. secretory
- D. periplasmodial

Answer: D



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79. What is meant by double fertilisation?

A. Fusion between egg and male gamete

B. Fusion between secondary nucleus and male gamete

C. both a and b

D. Formation of two zygotes

Answer: C



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80. Maturation of stigma and anthers at different times in the same flower is

A. Dichotomy

B. Dichogamy

C. Heterospory

D. Heterostyly

Answer: B



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81. In which of the following pollen kit is present?

- A. Anemophilous flowers
- B. Entomophilous flowers
- C. Zoophilous flowers
- D. malacophilous flower

Answer: B



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82. Faster and better growth of pollen from other plants than the pollen from the same plant is

A. self-incompatibility

B. dichogamy

C. monoclony

D. Herkogamy

Answer: A



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83. In pin - eyed flowers of Primula

A. stamens are long

B. style is long

C. there are two series of long stamens and
one short style

D. there are two series of long styles and one
series of short stamens

Answer: B



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84. When the ovule is curved and embryo sac becomes horse shoe shaped, such an ovule is called

A. amphitropous

B. campylotropous

C. anatropous

D. orthotropous

Answer: A



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85. In most of the plants, the micropyle is formed by

A. outer integument

B. inner integument

C. both a and b

D. None of these

Answer: D



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86. The term sarcotesta is applied, when the outer integument becomes

A. fleshy

B. stony

C. papery

D. obsolete

Answer: A



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87. Perisperm is

- A. outer part of embryo sac
- B. degenerated secondary nucleus
- C. degenerated synergid
- D. remains of nucellus

Answer: D



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88. *Bombax ceiba* and *Butea monosperma* are

A. anemophilous flowers

B. ornithophilous

C. malacophilous

D. entomophilous

Answer: B



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89. Chasmocleistogamous flowers

A. never open

B. open in day

C. always open

D. few open and some remain closed

Answer: D



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90. Lever mechanism of pollination is a characteristic adaptation for entomophily in family-

A. Orchidaceae

B. Compositae

C. Labiatae

D. Liliaceae

Answer: C



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91. The phenomenon of floral parts acting as a barrier to self pollination is

A. heterostyly

B. dichogamy

C. dicliny

D. herkogamy

Answer: D



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92. Embryogeny is a branch of embryology dealing with

A. nutrition of embryo

B. development of embryo

C. formation of embryo

D. conversion of embryo to adult plant

Answer: B



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93. The isolation of megasporocyte from the rest of the nucellar tissue begin from

A. micropylar region

B. chalazal region

C. middle region

D. anywhere

Answer: B



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94. When ovule is straight with funiculus, embryo sac, chalaza and micropyle lying in a straight vertical line, it is known as

A. orthotropous

B. anatropous

C. campylotropous

D. amphitropous

Answer: A



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95. A yellow sticky substance present on the surface of entomophilous pollen grains is

A. sporopollenin

B. ligmosuberin

C. pollen kit

D. mucopolysaccharide

Answer: C



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96. The division of zygote in the development of crucifer type embryo is

A. transverse

B. vertical

C. both a and b

D. none of these

Answer: A



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97. Which of the following is not functionally analogous with other in the group

A. Oogonium

B. Archegonium

C. Antgheridium

D. Ovule

Answer: C



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98. The endosperm nucleus gives rise to a number of free nuclei, which remain in the periperal layer of embryo sac cytoplasm surrounding a large central vacuole in case of

A. Cocos

B. Capsella bursa-pastoris

C. datepalm

D. all of these

Answer: D



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99. In most plants, the first wall between the two cells in zygote is transverse, while only in a few

cases the first wall is more or less vertical. It is called as

A. cruciferous type

B. maize type

C. piperad type

D. none of these

Answer: C



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100. The aleurone layer of endosperm in monocot seed is related to

- A. growth of endosperm
- B. digestion of reserve food of embryo
- C. storage of food of endosperm
- D. formation of endosperm

Answer: C



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101. The maximum ploidy seen in the secondary nucleus is

A. $7n$

B. $14n$

C. $15n$

D. $10n$

Answer: B



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102. Which cell of the gametophyte of a normal angiosperm (*Capsella*) is diploid at the time of fertilisation?

- A. Prothallial cell/vegetative cell
- B. Antipodal cell and synergids
- C. Secondary nucleus
- D. Generative cell

Answer: C



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103. In monocot embryo,

- A. scutellum is absent
- B. two cotyledons found
- C. suspensor cell is 6-10 layer
- D. suspensor is single-celled

Answer: D



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104. A nuclear endosperm at a very stage of development

- A. becomes cellular
- B. becomes nuclear
- C. remains as it was
- D. becomes diploid

Answer: A



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105. After the seedling begins to photosynthesise, the cotyledons

- A. degenerate and fall off
- B. phloem tissue
- C. root tissue
- D. foliage leaves

Answer: A



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106. Formation of embryo directly from nucellus and integument is

- A. adventitious polyembryony
- B. apospory
- C. apogamy
- D. apomixis

Answer: A



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107. Despite high level of heterozygosity, the progeny derived from a seed of cross pollinated plant was found to be completely uniform. One reason can be

A. induced mutation

B. polyploidy

C. apomixis

D. parthenocarpy

Answer: C



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108. The orchid flowers emit a chemical that resembles the odour produced by the female wasps for sexual attraction. The chemical is

A. pheromone

B. kinetin

C. florigen

D. cytokinin

Answer: A



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109. Development of a portophyte directly from the gametophytic tissue is called

- A. apospory
- B. apogamy
- C. parthenogenesis
- D. parthenocarpy

Answer: A



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110. What is the function of tapetum in a developing anther?

A. To draw food materials from the microspores

B. To digest the sporocytes

C. To supply food materials to the developing microsporocytes

D. To give protection to the inner tissues

Answer: C



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111. An orchid resembles female of an insect so as to get pollinated. The phenomenon is

- A. mimicry
- B. pseudocopulation
- C. pseudopollination
- D. pseudoparthenocarpy

Answer: B



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112. Movement of pollen tube towards embryo sac is

A. thermotactic

B. phototactic

C. chemotactic

D. thigmotactic

Answer: C



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113. Pollen grains are able to tolerate extremes of temperature and desiccation because their exine consists of

A. cutin

B. suberin

C. sporopollenin

D. callose

Answer: C



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114. Cross pollination is preferred over self pollination because it

- A. produces better offspring
- B. forms new varieties
- C. induces parthenogenesis
- D. both a and b

Answer: B



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115. During formation of pollen grains, a microspore mother cell undergoes

- A. three meiotic division
- B. one mitotic deviation
- C. one meiotic and one mitotic division
- D. one meiotic and two mitotic divisions

Answer: D



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116. In a type of apomixis known as adventitious 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

Answer: A



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117. Formation of more than four spores in a tetrad known as polyspory is found in

- A. *Cuscuta reflexa*
- B. *Commelina subuhue*
- C. *Aristolochia*
- D. *Drinv*

Answer: A



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118. A particular species of plant produces light, non-sticky pollen in large numbers and its stigmas are long and feathery. These modifications facilitate pollination by

A. water

B. bat

C. bird

D. wind

Answer: D



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119. A seed that lacks endosperm. It may be

- A. wheat seed
- B. rice seed
- C. castor bean seed
- D. Cucurbita seed

Answer: D



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120. Which of these following are related with embryo sac?

Oenothera type, tapetum, ovule, megaspore, megasporogenesis, microgametogenesis, microspore, chalazal side, stomium.

A. 7

B. 3

C. 6

D. 4

Answer: C



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121. In microporangium, microspore tetrad are formed due to

- A. formation of callose wall
- B. formation of pectin wall
- C. formation of sporopollenin wall
- D. formation of pollen kit

Answer: A



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122. The Ubish bodies are involved in

- A. initiating meiosis in pollen mother cell
- B. designing the external thickening of pollen
- C. providing nutrition to developing pollen
- D. no specific embryological function

Answer: B



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123. The hydrophilous flowers, pollinated completely under water, are known as

- A. epihydrogamous
- B. hypohydrogamous
- C. both a and b
- D. polyhydrogamous

Answer: B



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124. Pollen grains of a flower fall on the stigma of another flowers of same plant. The phenomenon is

- A. genetically autogamy and ecologically allogamy
- B. genetically autogamy
- C. ecologically allogamy
- D. genetically allogamy and ecologically autogamy

Answer: A



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125. Allogamy is very useful because it results in the

- A. formation of male offsprings
- B. weaker progeny
- C. superior progeny
- D. formation of seeds

Answer: C



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126. In a typical complete, bisexual and hypogynous flower the arrangement of floral whorls on the thalamus from the outermost to the innermost is

- A. calyx, corolla, androecium and gynoecium
- B. calyx, corolla, gynoecium and androecium
- C. gynoecium, androecium, corolla and calyx
- D. androecium, gynoecium, corolla and calyx

Answer: A



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127. When the body of the ovule lies at right angles to the funicle and the micropyle lies close to the later, it is termed as

- A. anatropous
- B. hemianatropous
- C. campylotropous
- D. amphitropous

Answer: B



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128. The most exceptional feature of zoophilous flowers is

- A. scented, having nectar and mostly colourful
- B. scented, having nectar, but inconspicuous
- C. the presence of only perianth
- D. without colour and show

Answer: A



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129. Flower with a feathery and sticky stigma, numerous light pollen, reduced petals is characteristically

- A. moth-pollinated flower
- B. bird-pollinated flower
- C. bee-pollinated flower
- D. wind-pollinated flower

Answer: D



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130. Choose the correct match.

- A. Endosperm- $2n$
- B. Embryo- $3n$
- C. Anther- n
- D. Aleurone layer- $3n$

Answer: D



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131. Wall of a pollen sac consists of

A. endothecium and tapetum

B. tapetum and middle layers

C. endothecium, middle layers and tapetum

D. epidermis, endothecium, middle layers and
tapetum

Answer: D



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132. Tapetum is

A. parietal in origin

B. innermost wall layer of pollen sac

C. nutritive and provides wall material to
pollen grains

D. All of the above

Answer: D



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133. In the anther, stomium occurs

- A. at the tip
- B. in grooves of each anther lobe
- C. at the base of anther
- D. transversely on the anther

Answer: B



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134. Middle layers of the microsporangial wall

- A. shrivel at maturity of anther
- B. persist, but remain thin-walled
- C. degenerate before maturity
- D. persist and become thickened

Answer: C



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135. *Quinchamelium chilense* is peculiar in having haustorial appendages arising from

A. antipodals only

B. egg and synergids

C. antipodals and synergids

D. synergids only

Answer: C



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136. Raphe is

- A. ridge formed by union of funicle with the body of ovule
- B. distance between chalaza and micropyle
- C. distance between hilum and micropyle
- D. area between hilum and chalaza

Answer: A



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137. Tetrasporic embryo sac is one in which for

A. microspores form the embryo sac

B. megaspore mother cells form embryo sac

C. megaspores form the embryo sac

D. microspore mother cells form the embryo
sac

Answer: C



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138. In a mature angiospermic male gametophyte, the male gametes are present in

the

- A. pollen grain part
- B. base of pollen tube
- C. all over inside the male gametophyte
- D. tip of the pollen tube

Answer: B



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139. In an embryo sac, the cells that degenerate after fertilisation are

A. synergids and primary endosperm cell

B. synergids and antipodals

C. antipodals and primary endosperm cell

D. egg and antipodals

Answer: B



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140. At what stage embryo sac is ready for fertilisation?

A. At 8 nucleate stage in Polygonum type

B. At 4 nucleate stage in Oenothera type

C. At 16 nucleate stage in drusa type

D. All of the above

Answer: B



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141. The condition, under which Dophnia reproduces parthenogenetically is

A. in summer, when food is abundant in pond

B. in winter in lack of sufficient food

C. in reduced oxygen content

D. in cold temperature

Answer: A



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142. A pollinium consists of

- A. a bag of pollen grains formed in a microsporangium
- B. a cluster of pollen grains belonging to the chamber of microsporangium
- C. group of four pollen grains derived from a single mother cell
- D. two pollen tetrads attached by the small stalks

Answer: C



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143. Autogamy can occur in a chasmogamous flower if

A. pollen matures before maturity of ovule

B. ovules matures before maturity of pollen

C. both pollen and ovules mature simultaneously

D. both anther and stigma are of equal lengths

Answer: C



144. From among the situations given below, choose the one that prevents both autogamy and geitonogamy.

A. Monoecious plant bearing unisexual flowers

B. Dioecious plant bearing only male or female flowers

C. Monoecious plant with bisexual flowers

D. Dioecious plant with bisexual flowers

Answer: B



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145. A dicotyledonous plant bears flowers but never produces fruits and seeds. The most probable cause for the above situation is

A. plant is dioecious and bears only pistillate flowers

B. plant is dioecious and bears only pistillate flowers

C. plant is monoecious

D. plant is dioecious and bears only staminate flowers

Answer: D



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146. In a fertilised embryo sac, the haploid, diploid and triploid structures are

A. synergid, zygote and primary endosperm nucleus

B. synergid, antipodal and polar nuclei

C. antipodal, synergid and primary endosperm nucleus

D. synergid, polar nuclei and zygote

Answer: A



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147. The male gametes of angiosperms are

A. uniflagellate

B. biflagellate

C. non motile as there is no flagellated stage
in the life cycle of angiosperms

D. none of the above

Answer: C



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148. After penetrating stigmtic and stylar tissue,
the pollen tube usually grows downwards

towards egg because

- A. no other path to follow
- B. it grows under the control of egg nucleus
- C. attracted by dissimilar electric charge
- D. the filiform apparatus of synergids

Answer: D



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149. At which stage, one can distinguish between nuclear and cellular type of endosperm?

- A. Stage following division of primary endosperm nucleus
- B. Mature stage of endosperm
- C. When embryo has started divisions
- D. At heart-shaped stage of embryo

Answer: A



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150. While planning for an artificial hybridisation programme involving dioecious

plants, which of the following steps would not be relevant?

- A. Bagging of female flower
- B. Dusting of pollen on stigma
- C. Emasculation
- D. Collection of pollen

Answer: C



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151. There are at least two families where the product of double fertilisation soon disintegrates and endosperm development is completely absent in. These includes

- A. Orchidaceae and Podostemonaceae
- B. Asteraceae and Fabaceae
- C. Poaceae and Brassicaceae
- D. All of the above

Answer: A



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152. The sequence of development during the formation of endosperm is

A. archesporium → megaspore mother cell

→ megaspore → embryo sac

B. megaspore → archesporium →

megaspore → embryo sac

C. archesporium → megaspore →

megaspires → embryo sac

D. megaspore mother cell → spore mother

cell → embryo spore mother cell →

embryo sac

Answer: A



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153. Choose the correct statement from the following.

A. Cleistogamous flowers always exhibit autogamy

B. Chasmogamous flowers always exhibit geitonogamy

C. Cleistogamous flowers exhibit both autogamy and geitonogamy

D. Chasmogamous flowers never exhibit autogamy

Answer: A



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154. Even after killing the generative cell with a laser beam, the pollen grain of a flowering plant germinates and produces normal pollen tube because

A. laser beam stimulates pollen germination and pollen tube growth

B. laser beam does not the region from which pollen tube

C. the contents of the killed generative cell permit germination and pollen growth

D. the vegetative cell has not been damaged

Answer: D



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155. Pollen grains that would easily germinate on stigma are found to germinate in vitro, only when 10-200 p p m of boric acid is added. This suggest that

A. boron accelerates protein synthesis in pollen grain

B. boron has an abrative effect on the exine

C. boric acid serves as a solvent for sporopollenin

D. pollen wall is boron deficient and high levels of boron occur in the styles and stigma

Answer: D



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156. In angiosperms, each pollen grain produces two male cells. What do these sperm do in the fertilisation of flower?

A. Each one fertilises a separate egg cell to give rise to two seeds

B. One fertilises an egg cell and the other fertilises another cell that gives rise to the tissue of the fruit

C. Both fertilise a single egg cell

D. One fertilises and egg cell and other fertilises the cell that forms endosperm.

Answer: D



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157. IN Tape Grass (= Vallisneria)

A. both male and female flowers break from the plant and float on the surface of water

B. only the female flowers break from the plant, while the male flowers are brought to the surface by long stalks

C. only the male flower breaks from the plant and rise to the surface, while the female flowers are brought to the surface by long pedicels

D. any of the two types of flowers can break

Answer: C



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158. A botanist treated some pollen grains with enzymes, chemical and high temperature to break exine. After that he observed under the microscope and found that exine is still intact. Why exine is not broken down?

- A. Because exine is cellulosic in nature
- B. Because pollen grains are small
- C. Because exine is coated with sporopollenin
- D. None of the above

Answer: C



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159. Cross-pollination offers certain advantages as well as disadvantages to plants. Which of the following statements is not true about crosspollination?

- A. It can fail to take place due to distance barrier
- B. It is less economic because plants have to prodce large number of pollen grains
- C. It often gives high yield of crop

D. It takes place only in monoecious flowers.

Answer: D



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160. There is only one female Borasses palm on an island and no male palms. There are a few male Borasses palms on a near by island. Birds fly frequently between these two islands. The female palm produce fruits regularly in every season. What is the agent of pollination?

A. Water

B. Air

C. Birds

D. None of these

Answer: B



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161. Choose the correct match.

A. Microspore-Pollen

B. Megasporangium-Ovule

C. Microsporangium-Anther lobes

D. none of the above

Answer: D



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162. The angiospermic endosperm, except in special cases, is a triploid ($3n$) tissue as it is a product of triple fusion involving double fertilisation. It is thus, distinct from the

endosperm of gymnosperms and heterosporous pteridophytes, where the endosperm is a

A. diploid before fertilisation

B. simple haploid (n) tissue of the gametophyte no involving any complication like polar fusion or fertilisation

C. polyploid formed after simple fertilisation

D. haploid formed after fertilisation

Answer: B



163. Having one cotyledon distinguishes monocot seeds from dicot seeds. What other feature is to monocot?

- A. The nutrient required for germination are stored in the endosperm
- B. The shoot apical meristem is present at the time of germination
- C. The embryonic root is the first organ to penetrate the seed coat

D. The root apical meristem is protected by a
root cap

Answer: C



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Statement Based Questions

1. Consider the following statements and choose the ones that represent tapetum

I. It is the single, innermost layer.

II. It provides nutrition to the pollen grains.

III. It helps in the dispersal of microspores.

IV. It stores reserve food during early stages of microspore development.

Codes

A. I and II

B. III and IV

C. I and III

D. IV and II

Answer: A



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2. Which of the following statements are correct?

I. In amphitroous ovule, curvature of ovule is more and embryo sac becomes curved like horse-shoe.

II. In anatropous ovule, the body of ovule is completely inverted.

III. In hemianatropous ovule, ovule turns at 90° angle upon the funicle.

IV. In atropous ovule, ovule is circled more or

less at right angle to funicle.

Codes

A. I and IV

B. Only IV

C. I,II and III

D. All of these

Answer: C



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3. Read the following statements. Choose the correct statements regarding monocot embryo.

I. The envelope of plumule is called coleoptile

II. Coleorhiza is protective sheath of radicle.

III. Suspensor is large.

IV. Cotyledons occur laterally

Codes

A. Only I

B. I and II

C. III and IV

D. Only IV

Answer: B



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4. Which of the following are incorrect for pollination in flowering plants?

I. Myrmecophily is the pollination of flowers by means of wind.

II. Pollination of flowers by birds is called ornithophily.

III. Pollination of flowers by means of snail is called cheiropterophily.

IV. Pollination of flowers by bats is called malacophily

Codes

A. II, III and IV

B. I,II and III

C. II,IV and I

D. I,II and IV

Answer: D



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5. Which of the following are incorrect regarding cross-pollination?

I. It maintains purity of generation.

II. New varieties cannot be produced.

III. Pollen grains are not wasted.

IV Progenies are healthier.

Codes

A. I and II

B. I and IV

C. Only III

D. All of these

Answer: A



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6. Choose the correct statements regarding endosperm.

I. It provides nutrition to the developing embryo.

II. It has the potentiality to form a complete plant.

III. It contains reserve food material such as fats, carbohydrates, oil, proteins, etc. in mature seeds.

IV. It continues to divide transversely and

produces a thread of cells called the suspensor.

Codes

A. II and IV

B. I and III

C. I and II

D. III and IV

Answer: B



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7. Consider the following statements regarding angiosperms and choose combination of correct statement among these.

I. As a rule, only one pollen tube is formed from one pollen grain.

II. The protoplast of the pollen grain migrates out and position itself at the tip of pollen tube.

III. Backward flow of cytoplasm from the tip of the pollen tube towards the microspore is prevented by the formation of callose plugs at intervals.

Codes

A. I,II and III

B. I and III

C. II and III

D. I and II

Answer: B



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8. Arrange the following events in order of their occurrence.

I. Pollen tube enters via micropyle in the ovule.

II. Megasore undergoes mitotic division.

III. 7-celled and 8 nucleate embryo sac formed.

IV. Three megaspores degenerate.

Codes

A. I,II,III and IV

B. IV, II, III and I

C. II,I III and IV

D. IV,II,I and III

Answer: B



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9. Assertion Pollen grains are well preserved during fossilisation.

Reason The exine of pollen grain contains sporopollenin.

A. Both Assertion and Reason are true and

Reason is the correct explanation of

Assertion

B. Both Assertion and Reason are true, but

Reason is not the correct explanation of

Assertion

C. Assertion is true, but Reason is false

D. Assertion is false, but Reason are false

Answer: A



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10. Assertion Pollent kit sticks to the body of insects during pollination.

Reason Pollen kits are more common in anemophilous flowers.

- A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion
- B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
- C. Assertion is true, but Reason is false
- D. Assertion is false, but Reason are false

Answer: C



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11. Assertion The cells of endothecium develop fibrous thickenings of cellulose.

Reason The endothecium is hygroscopic in nature.

A. Both Assertion and Reason are true and

Reason is the correct explanation of

Assertion

B. Both Assertion and Reason are true, but

Reason is not the correct explanation of

Assertion

C. Assertion is true, but Reason is false

D. Assertion is false, but Reason are false

Answer: A



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12. Assertion : The megaspore mother cell divides mitotically to produce four spores

Reason : Megaspore mother cells are diploid and megaspore is haploid.

- A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion
- B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
- C. Assertion is true, but Reason is false
- D. Assertion is false, but Reason are false

Answer: D



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13. Assertion : In hemianatropous ovule, the funicle lies parallel to body of ovule

Reason : Here, body of ovule has rotated by 90°

A. Both Assertion and Reason are true and

Reason is the correct explanation of

Assertion

B. Both Assertion and Reason are true, but

Reason is not the correct explanation of

Assertion

C. Assertion is true, but Reason is false

D. Assertion is false, but Reason are false

Answer: A



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14. Assertion If pollen mother cell has 42 chromosomes then pollens have only 21 chromosomes

Reason Meiosis takes place in pollen mother cells.

- A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion
- B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
- C. Assertion is true, but Reason is false
- D. Assertion is false, but Reason are false

Answer: A



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15. Assertion Synergids are elongated cells that occur at the micropylar pole.

Reason Synergids help in chemotropic movement of pollen tube.

A. Both Assertion and Reason are true and

Reason is the correct explanation of

Assertion

B. Both Assertion and Reason are true, but

Reason is not the correct explanation of

Assertion

C. Assertion is true, but Reason is false

D. Assertion is false, but Reason are false

Answer: B



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16. Assertion Helobial endosperm occurs in dicots as well as in monotoc families.

Reason It is the most advanced type of endosperm.

- A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion
- B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
- C. Assertion is true, but Reason is false
- D. Both Assertion and Reason are false

Answer: D



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17. Assertion An embryo is formed after some mitotic divisions.

Reason An embryo is the first cell of sporophytic generation.

A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion

B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion

C. Assertion is true, but Reason is false

D. Assertion is false, but Reason are false

Answer: C



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18. Assertion Nuclear endosperm does not involve wall formation after each meiotic division.

Reason Coconut milk is an example of cellular endosperm.

- A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion
- B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
- C. Assertion is true, but Reason is false
- D. Assertion is false, but Reason are false

Answer: C



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19. Assertion Endosperm is a structure containing three complete sets of chromosomes.

Reason Endosperm is formed after the fusion of secondary nucleus to a male gamete.

A. Both Assertion and Reason are true and

Reason is the correct explanation of

Assertion

B. Both Assertion and Reason are true, but

Reason is not the correct explanation of

Assertion

C. Assertion is true, but Reason is false

D. Assertion is false, but Reason are false

Answer: A



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20. Assertion Ovules after fertilisation develop into a fruit.

Reason The angiospermic fruits contain diploid endosperm.

- A. Both Assertion and Reason are true and Reason is the correct explanation of Assertion
- B. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion
- C. Assertion is true, but Reason is false
- D. Both Assertion and Reason are false

Answer: D



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Medical Entrance Exams

1. Pollination in water by hyacinth and water lily is brought about by the agency of:

A. water

B. insects or wind

C. birds

D. bats

Answer: B



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2. the ovule of an angiosperm is technically equivalent to

- A. megasporangium
- B. megasporophyll
- C. megaspore mother cell
- D. megaspore

Answer: A



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3. In majority of angiosperms:

A. egg has a filiform apparatus

B. there are numerous antipodal cells

C. reduction division occurs in the
megaspore mother cells

D. a small central cell is present in the embryo
sac

Answer: c



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4. Which of the following statements is not correct?

A. insects that consume pollen or nectar without bringing about pollination are called pollen nectar robbers

B. pollen grains of many species cause severe allergies

C. some reptiles have also been reported as pollinators in some plant species

D. pollen grains of many species can germinate on the stigma of a flower, but only one pollen tube of the same species grows into the style.

Answer: D



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5. Seed formation without fertilization in flowering plants involves the process of

A. budding

B. somatic hybridisation

C. apomixis

D. sporulation

Answer: C



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6. The hilum is a scar on the :

A. seed, where funicle was attached

B. fruit, where it was attached to pedicel

C. fruit, where style was present

D. None of these

Answer: A



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7. Which one of the following may require pollinators but is generatically similar to autogamy

A. Geitonogamy

B. Xenogamy

C. Apogamy

D. Cleistogamy

Answer: A



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8. Which of the following statement is not true?

A. Pollen grains are rich in nutrients and they

are used in the form of tablets and syrups

B. Pollen grains of some plants cause severe allergies and bronchial infection in some people

C. The flower pollinated by flies and bats secrete foul odour to attract them

D. Honey is made by bees by digesting pollen collected from flowers

Answer: D



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9. Which of the following are the important floral rewards to the animal pollinators

- A. Colour and large size of flower
- B. Nectar and pollen grain
- C. Floral fragrance and calcium crystals
- D. Protein pellicle and stigmatic exudates

Answer: B



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10. Filiform apparatus is characteristic feature of :

- A. generative cell
- B. nucellar embryo
- C. aleurone cell
- D. synergids only

Answer: D



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11. In angiosperm , microsporogenesis and megasporogenesis :

A. occur in anther

B. form gametes without further divisions

C. involve meiosis

D. occur in ovule

Answer: C



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12. The wheat grain/maize grain has an embryo with one, large, shield shaped cotyledon known as:

A. epiblast

B. colerhiza

C. scutellum

D. coleoptile

Answer: C



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13. Coconut water from a tender coconut is:

- A. immature embryo
- B. free-nuclear endosperm
- C. innermost layers of the seed coat
- D. degenerated nucellus

Answer: B



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14. Which of the following is not properly matched case of angiosperms?

A. Exine of pollen grain-Sporopollenin

B. Tapetum-Ubish bodies

C. Male gametophyte of angiosperm-No
prothallial cell

D. Most common type of ovule-Orthotropous

Answer: D



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15. Embryo development other than the egg cell of haploid embryo sac from synergid and antipodals is known as

A. apogamy

B. apomixis

C. amphimixis

D. isobilateral tetrad

Answer: A



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16. Meiosis of megaspore mother cell generally produces

- A. linear tetrad
- B. tetrahedral tetrad
- C. decussate tetrad
- D. isobilateral tetrad

Answer: A



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17. "Isobilateral type" of microspore arrangement in tetrad is present in

A. *Solanum nigrum*

B. *Zea mays*

C. *Cassia fistula*

D. *Vigna radiata*

Answer: B



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18. Fibrous bands develop in the cells of anther wall layer known as

- A. epidermis
- B. endothecium
- C. middle layers
- D. tapetum

Answer: B



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19. Chalazogamy occurs in

A. Petunia

B. Cucurbita

C. Pistacia

D. Casuarina

Answer: D



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20. Egg of female gametophyte is accompanied by

- A. antipodal cells
- B. synergids
- C. definitive nucleus
- D. tube nucleus

Answer: B



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21. Endosperm nucleus is :

A. n

B. $2n$

C. $3n$

D. $4n$

Answer: C



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22. Banana is an example of :

A. parthenocarpy

B. apomixis

C. parthenogenesis

D. polyembryony

Answer: C



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23. Geitonogamy involves

A. fertilisation of a flower by the pollen from another flower of the same plant

B. fertilisation of a flower by the pollen from the same flower

C. fertilisation of a flower by the pollen from a flower of another plant in the same population

D. fertilisation of a flower by the pollen from a flower of another plant belonging to a distant population

Answer: A



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24. Pollen tablets are available in the market for

- A. in vitro fertilisation
- B. breeding programmes
- C. supplementing food
- D. ex situ conservation

Answer: C





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25. Function of filiform apparatus is to :-

- A. recognise the suitable pollen at stigma
- B. stimulate division of generative cell
- C. produce nectar
- D. guide entry of pollen tube

Answer: D



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26. Which one of the following statements is correct

A. The seed in grasses is not endospermic

B. Mango is parthenocarpic fruit

C. A proteinaceous aleurone layer is present
in maize grain

D. A sterile pistil is called a staminode

Answer: C



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27. An angiospermic male plant with 24 chromosomes in its pollen mother cells is crossed with female plant bearing 24 chromosomes in its root cells . What would be the ploidy of embryo and endosperm respectively formed after this cross ?

A. 24 and 48

B. 24 and 24

C. 48 and 72

D. 24 and 36

Answer: D



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28. Cross pollination does not occur in

- A. allogamous flowers
- B. geitonogamous flowers
- C. cleistogamous flowers
- D. chasmogamous flowers

Answer: C



29. Select the plants pollinated by water.

I. Water hyacinth II. Zostera

III. Amorphophallus IV. Vallisneria

A. I,IV and V

B. II and III

C. II and IV

D. II,III and IV

Answer: C





30. Which of the following features (s) is/are common to both wind and water pollinated flowers?

I. Pollen grains are long and ribbon-like.

II. Stigma is large and feathery.

III. The flowers are not colourful.

IV. The flowers do not produce nectar.

A. III and IV

B. II and III

C. Only III

D. Only II

Answer: A



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31. Read the following statements

(a) Angiosperms range in size from microscopic

Wolffia to tall trees of Eucalyptus

(b) In angiosperms, the seeds are enclosed by
fruits

(c) Double fertilization is an event unique to
angiosperms

(d) In angiosperms, each cell of embryo sac is diploid

(e) In angiosperms, the zygote develops into an endosperm

Of the above statements, the correct ones are

A. I,II and IV

B. I,II and V

C. I,II and III

D. II,III and IV

Answer: C



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32. Cross-pollination through insect agent is called

A. anthropophily

B. malacophily

C. entomophilly

D. ornithophily

Answer: C



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33. Cleistogamous flowers are

- A. bisexual flowers which remain opened
- B. bisexual flowers which remain closed
- C. open female flower
- D. open male flower

Answer: B



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34. Emasculation ensures cross pollination in

A. staminate flower

B. bisexual flowers

C. neuter flower

D. pistillate flower

Answer: B



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35. Which part of flowering plant contains sporogenous tissue

A. Pollen

B. Microspore

C. Young anther

D. Stamen

Answer: C



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36. Transfer of pollen grains from anther to the stigma of another flower on the same plant is called

A. autogamy

B. geitonogamy

C. xenogamy

D. cleistogamy

Answer: C



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37. Embryo sac of angiosperms contains

- A. 3-celled egg apparatus, 3 antipodal cell and 2 polar nuclei
- B. 2-celled egg apparatus, 3 antipodal cell and 2 polar nuclei
- C. 3-celled egg apparatus, 3 antipodal cell and 1 polar nuclei
- D. 3-celled egg apparatus 1 antipodal cell and 2 polar nuclei

Answer: A



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38. Zygote is resulted by the process of :

A. isogamy

B. anisogamy

C. monogamy

D. syngamy

Answer: D



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39. Developing pollen obtains its nutrition from

A. tapetum

B. endothecium

C. epidermis

D. spore mother cell

Answer: A



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40. During the process of sexual reproduction in flowering plants, double fertilisation involves

A. fertilisation of egg cell by two male gametes

B. fertilisation of egg cell and central cell by two male gametes brought by same pollen tube

C. fertilisation of egg cell and a central cell by two male gametes brought by different pollen tube

D. fertilisation of two egg cells by two male gametes brought by same pollen tube

Answer: B



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41. Endosperm, a product of double fertilization in angiosperms is absent in the seeds of

A. gram

B. orchids

C. maize

D. both a and b

Answer: A



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42. PEN stands for

A. Primary Endosperm Nucleus

B. Polyembryo Nourishment

C. Primary Endosperm Nourishment

D. Primary Embryo Nourishment

Answer: A



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43. In which of the following plants, pollen is released before the stigma becomes receptive in the same flower

A. Allium

B. Colchicum

C. Datura

D. Solanum

Answer: A



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44. With respect to angiosperms, identify the incorrect pair from the following

A. Antipodals- $2n$

B. Vegetative cell of male gametophyte- n

C. Primary endosperm nucleus- $3n$

D. Cells of nucellus of ovule- $2n$

Answer: A



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45. Which one of the following statements is correct?

A. Sporogenous tissue is haploid

B. Endothecium produces microspores

C. Tapetum nourishes the developing pollen

D. Hard outer layer of pollen is called intine

Answer: C



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46. Product of sexual reproduction generally generates

A. prolonged dormancy

B. new genetic combination leaving to variation

C. large biomass

D. longer viability of seeds

Answer: B



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47. Which of the following represents the male gamete?

A. Endosperm

B. Synergid

C. Pollen grain

D. Antipodals

Answer: C



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48. The endosperm in angiosperms develops from

A. zygote

B. secondary nucleus

C. chalazal polar nucleus

D. micropylar polar nucleus

Answer: B



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49. Both, autogamy and geitonogamy are prevented in

A. papaya

B. cucumber

C. castor bean seed

D. maize

Answer: A



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50. Even in absence of pollinating agents seed-setting is assured in

A. Commelina

B. Zostera

C. Salvia

D. fig

Answer: A



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51. What would be the number of chromosomes of the aleurone cells of a plant with 42 chromosomes in its root tip cells?

A. 63

B. 84

C. 21

D. 42

Answer: A



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52. Wind pollination is common in

A. lilies

B. grasses

C. orchids

D. legumes

Answer: B



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53. Nucellar polyembryony is reported in species of

A. Gossypium

B. Triticum

C. Brassica

D. Citrus

Answer: D



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54. In which pollination is autogamous

A. Xenogamy

B. Chasmogamy

C. Cleistogamy

D. Geitonogamy

Answer: C



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

- A. double fertilisation
- B. apomixis
- C. Vegetative reproduction
- D. Tissue culture

Answer: A



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56. In a flowering plant the pollen tube first arrives in

A. egg

B. an antipodal cell

C. a cynergid

D. central cell

Answer: C



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57. Which of the following statements is incorrect?

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

Answer: D



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58. Long ribbon like pollen grains are seen in some

A. aquatic plants

B. wind pollinated grasses

C. gymnosperms

D. bird pollinated flowers

Answer: A



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59. If the number of chromosomes in egg cell is 8, then what is the number of chromosomes in endosperm?

A. 24

B. 8

C. 16

D. 12

Answer: A



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60. Ruminant endosperm is commonly found in seeds of

A. Compositae

B. Cruciferae

C. Euphorbiaceae

D. Annonaceae

Answer: D



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61. Pericarp is formed of

A. endopserm

B. ovary wall

C. tapetum

D. epidermis

Answer: B



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62. Find out the odd one

A. Micropyle

B. Embryo sac

C. Nucellus

D. Pollen grain

Answer: D



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63. Ovule is attached to placenta of ovary wall
by:

A. raphae

B. micropyle

C. funicle

D. hilum

Answer: C



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64. Entry of pollen tube through micropyle is called :

A. mesogamy

B. porogamy

C. chalazogamy

D. none of these

Answer: B



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65. Ovule integument gets transformed into

A. seed

B. fruit wall

C. seed coat

D. cotyledons

Answer: C



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66. ovule in which funicle, chalaza and micropyle occur in one vertical plane is

A. campylotropous

B. amphitropous

C. orthotropous

D. anatropous

Answer: C



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67. Testa of seed develops from

A. ovary wall

B. hilum

C. outer integument of ovule

D. funicle

Answer: C



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68. Cleistogamous flower is found in

A. Tobacco

B. Viola

C. Mirabilis

D. None of these

Answer: B



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69. Study the following statements and select 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 waterlily, pollination occurs 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. II and IV are correct, but I and III are
incorrect

Answer: B



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70. 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

Answer: B



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71. Transfer of pollen grains from anther to the stigma of another flower on the same plant is

called

A. xenogamy

B. geitonogamy

C. karyogamy

D. autogamy

Answer: B



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72. Apomictic embryos in citrus arise from

A. synergids

B. maternal sporophytic tissue in ovule

C. antipodal cells

D. diploids egg

Answer: B



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73. The total number of nuclei involved in double fertilisation in angiosperms are

A. Two

B. three

C. Four

D. Five

Answer: D



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74. Which of the following is not nutritive?

A. Tapetum

B. Endosperm

C. Integument

D. All of these

Answer: C



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75. In angiospermic plants, the ovule is

A. embryo sac

B. endosperm

C. Microsporangium-Anther lobes

D. megasporangium

Answer: D



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76. During sexual reproduction in angiosperm, the megaspore is produced by

A. mitosis

B. meiosis

C. mitosis followed by meiosis

D. meiosis followed by mitosis

Answer: B



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77. Fore-runner of male gamete is

A. megasporangium

B. embryo sac

C. microspore mother cell

D. antipodal cell

Answer: C



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78. The versatile anthers are helpful for

A. anemophily

B. entomophily and hydrophily

C. chiropterophily

D. malacophily

Answer: A



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79. How many male gametes are present in male gametophyte of an angiosperm?

A. 1

B. 2

C. 3

D. 4

Answer: B



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80. Egg apparatus of angiosperm consists of

A. one synergid and two egg cells

B. two synergids and one egg cell

C. one central cell, two synergids and three
antipodal cells

D. one egg cell, two polar nuclei and three
antipodal cells

Answer: B



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81. Which one of the following is mismatched in angiosperm?

- A. Pollen grains -Haploid
- B. Megaspore - Diploid
- C. Synergid - Haploid
- D. Endosperm - Triploid

Answer: B



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82. Which of the following is pollinated by water?

A. Viola

B. Yucca

C. Oxalis

D. zosteria

Answer: D



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83. Which of the following statements about sporopollenin is incorrect ?

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

Answer: C



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84. Exine in pollen grain is made up of

A. pectocellulose

B. lignocellulose

C. sporopollenin

D. pollen kit

Answer: C



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85. Ornithophily refers to the pollination by which or the following :

A. Insects

B. Birds

C. Snails

D. Air

Answer: B



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86. 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. fertilisation

Answer: B



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87. Which of the following floral parts forms pericarp after fertilization

A. Nucellus

B. Outer integument

C. Ovary wall

D. inner integument

Answer: C



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88. Outer wall/exine of pollen grain is formed of

A. cellulose

B. Sporopollenin

C. pectocellulose

D. lignin

Answer: B



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89. During formation of mature embryo sac from megaspore, the megaspore undergoes:

A. two mitotic divisions

B. two meiotic divisions

C. three meiotic divisions

D. three mitotic division

Answer: D



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90. One of the most resistant known biological material is

A. lignin

B. hemicellulose

C. sporopollenin

D. lignocellulose

Answer: C



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91. Male gametophyte of angiosperms is reduced to

A. one cell

B. two cells

C. three cells

D. four cells

Answer: C



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92. 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.

Answer: C



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93. For good growth of pollen tube, necessary
element is

A. Ca

B. B

C. Mg

D. Mn

Answer: B



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94. Stalk with which ovules remain attached to placenta is called

A. funicle

B. raphe

C. hilum

D. chalaza

Answer: A



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95. The fertilisation in which male gametes are carried through pollen tube is known as

A. syngamy

B. porogamy

C. siphonogamy

D. chalazogamy

Answer: C



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96. 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

Answer: C



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97. 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. 4000

B. 10000

C. 24000

D. 48000

Answer: D



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98. The fusion of male and female pronuclei of the gametes is called

A. fertilisation of a flower by the pollen from another flower of the same plant

B. conjugation

C. amphimixis

D. panmixis

Answer: C



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99. Embryo developed from the somatic cells are called

- A. cybrids
- B. embryoid
- C. callus
- D. hybrids

Answer: B



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100. Endosperm is consumed by developing embryo in the seed of

A. coconut

B. castor

C. pea

D. maize

Answer: C



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101. Unisexuality of flowers prevents

- A. autogamy, but not geitonogamy
- B. both geitonogamy and xenogamy
- C. geitonogamy, but not xenogamy
- D. autogamy and geitonogamy

Answer: A



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102. What does the filiform apparatus do at the entrance into or Function of filiform apparatus is to

- 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

Answer: A



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103. Which one of the following is resistant action

A. Cork

B. Wood fibre

C. Pollen exine

D. Leaf cuticle

Answer: C



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104. Anthesis is a phenomenon which refers to

- A. reception of pollen by stigma
- B. formation of pollen
- C. development of anther
- D. opening of flower bud

Answer: D





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105. The plant part which consists of two generations one within the other is

A. germinated pollen grain

B. embryo

C. unfertilised ovule

D. seed

Answer: D



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106. Double fertilisation occurs among

A. algae

B. bryophytes

C. angiosperms

D. gymnosperms

Answer: C



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107. Number of chromosomes in an angiospermic plant is 14 then the number of chromosome in synergid cells will be

A. 14

B. 7

C. 28

D. 21

Answer: A



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108. Choose the mismatched option

A. Wind -Cannabis -Anemophily

B. Water -Zostera-Hydrophily

C. Insects-Salvia-Entomophily

D. Birds-Adansonia-Ornithophily

Answer: C



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

- A. microspore
- B. generative cell
- C. vegetative cell
- D. microspore mother cell

Answer: B



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

A. Microspore mother cell

B. Male gamete

C. Egg

D. Pollen grain

Answer: A



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111. Eight nucleate embryo sacs are

A. always bisporic

B. always tetrasporic

C. always monosporic

D. sometimes monosporic, sometimes bisporic and sometimes tetrasporic

Answer: D



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112. Anemophily type of pollination is found in :

A. Salvia

B. bottle brush

C. Vallisneria

D. coconut

Answer: D



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113. In natur, cleistogamous flowers are

- A. self-pollinated
- B. insect-pollinated
- C. wind -pollinated
- D. bird-pollinated

Answer: C



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114. Assertion : 7-celled, 8 nucleate and monosporic embryo sac is called polygonum type of embryo sac

Reason : It was discovered by Hofmesister for the first time in polygonum.

A. Both A and R are true, And R is the correct explanation of A

B. Both A and R are true, but R is not the correct explanation of A

C. A is true, but R is false

D. A is false, but R is true

Answer: B



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115. 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

Answer: A



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116. A self-fertilizing trihybrid plant forms

A. 8 different gametes and 64 different zygotes

B. 4 different gametes and 16 different zygotes

C. 8 different gametes and 16 different zygotes

D. 8 different gametes and 32 different zygotes

Answer: A



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117. Nuclellus forms which of the following part of a fruit?

A. Seed coat

B. Perisperm

C. Seed

D. Raphe

Answer: B



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118. 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

Answer: C



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119. if root of a flowering plant has 24 chromosome ,then its gamete has many chromosomes ?

A. 24

B. 12

C. 4

D. 8

Answer: B



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120. Pappus occurs in compositae for

- A. air pollination
- B. insect pollination
- C. water pollination
- D. air dispersal

Answer: D





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121. Raphe is

- A. part of flower
- B. funicle attached to ovule
- C. ridge formed by funiculus
- D. part of nucellus

Answer: C



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122. Tapetal cells are characterised by

A. mitotic division

B. meiotic division

C. endomitosis

D. endomitosis as well as endopolyploidy

Answer: D



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123. The number of chromosomes in endospermic cell is 36. What will be the number of chromosomes in root tip cells?

A. 9

B. 18

C. 12

D. 24

Answer: D



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124. 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

Answer: D



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125. 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. circinotropus

B. Anatrarpous

C. Amphitropous

D. Antropous

Answer: C



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126. Identify the wrong statement regarding post fertilisation 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

Answer: B



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127. In angiosperms, all the four microspores of a tetrad are covered by a layer formed by

A. pectocellulose

B. callose

C. cellulose

D. sporopollenin

Answer: B



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128. What is the direction of micropyle in anatropous ovule

A. Upward

B. Downward

C. Right

D. Left

Answer: A



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129. In Angiosperms pollen tube liberate their male gametes into the :

- A. central cell
- B. antipodal cell
- C. egg cell
- D. synergids only

Answer: D



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130. What is true for Cleavage ?

- A. Size of embryo increases
- B. Size of cells decreases
- C. Size of cells increases
- D. Size of embryo decreases

Answer: A



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131. Pollination by bats is called

A. anemophily

B. hydrophily

C. ornithophily

D. none of these

Answer: D



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132. The outermost layer of maize endosperm is known as

A. perisperm

B. aleurone

C. tapetum

D. endothelium

Answer: B



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