



BIOLOGY

BOOKS - A2Z BIOLOGY (HINGLISH)

SEXUAL REPRODUCTION IN FLOWERING PLANTS

**Section A Topicwise Questions Topic 1 Flower A
Fancinating Organ Of Angiosperms**

1. Read the following statements and find out the incorrect statement(s).

(a) All flowering plants show sexual reproduction

(b) Fruits and seeds are the end products of sexual reproduction.

(c) Rich colours, scents and perfumes of flowers aid in sexual reproduction.

(d) Flowers are objects of aesthetic, ornamental, social, religious and cultural values.

(e) Flowers have always been used as symbols

for conveying important human feelings such as love, affection, happiness, grief, mourning, etc.

A. a, d and c

B. b, c and d

C. a, c and e

D. None of the above

Answer: D



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2. Cultivation of plants for their flowers is called

A. Horticulture

B. Agriculture

C. Floriculture

D. Bonsai

Answer: C



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3. In angiosperms, the site of sexual reproduction is

A. Seed

B. Fruit

C. Flower

D. Embryo

Answer: C



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4. Male and female reproductive structures of the angiosperms are

- A. Carpel and pistil respectively
- B. Pistil and stamen respectively
- C. Gynoecium and androecium respectively
- D. Androecium and gynoecium respectively

Answer: D



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5. Sexual reproduction of flowering plants was discovered by

A. Camerarius

B. Nawaschin

C. Strasburger

D. Maheshwari

Answer: A



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6. Famous embryologist of india who also advanced the science of morphology and tissue culture in India is

A. P.Maheshwari

B. T.S. Sadasivan

C. Swaminathan

D. Ramdeo Misra

Answer: A



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Section A Topicwise Questions Topic 2 Pre Fertilisation Structures And Events Stamen Microspor

1. The typical angiospermic stamen has two parts-the long and slender stalk called the ..a., and the terminal generally bilobed structure called the .. B..

A. a-pedicel, b-anther

B. a-petiole, b-microsporangia

C. a- peduncle, b-pollen sac

D. a-filament, b-anther

Answer: D



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2. A typical agiosperm anther is

A. Monolobed, monothealous and

bisporangiate

B. Bilobed, monothealous and

tetrasporangiate

C. Bilobed, ditheous and tetrasporangiate

D. Bilobed, ditheous and bisporangiate

Answer: C



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3. Read the following statements and find out the incorrect statement.

a. the number and length of stamens is variable in flowers of same species.

b. A typical angiosperm anther is bilobed with

each lobe having two theca.

c. Often a longitudinal groove runs lengthwise separating the theca.

d. The anther consists of four microsporangia located at the corners one in each lobe.

e. the microsporangia develop further and become pollen sacs. They extend longitudinally all through the length of an anther and are packed with pollen grains.

A. b, c and e

B. a, c and d

C. a and d only

D. a and b only

Answer: C



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4. Match the options.

	Structure		Shape
a.	Anther	1.	Spindle shaped
b.	Microsporangium	2.	Spherical shaped
c.	Pollen grain	3.	Tetragonal (four sided)
d.	Generative cell	4.	Near circular in outline

A. a-4, b-3, c-1,d-2

B. a-3,b-4,c-2,d-1

C. a-1,b-2,c-3,d-4

D. a-2,b-1,c-4,d-3

Answer: B



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5. The bilobed nature of an anther is very distinct in the

A. Transverse section

B. Longitudinal section

C. Latitudinal section

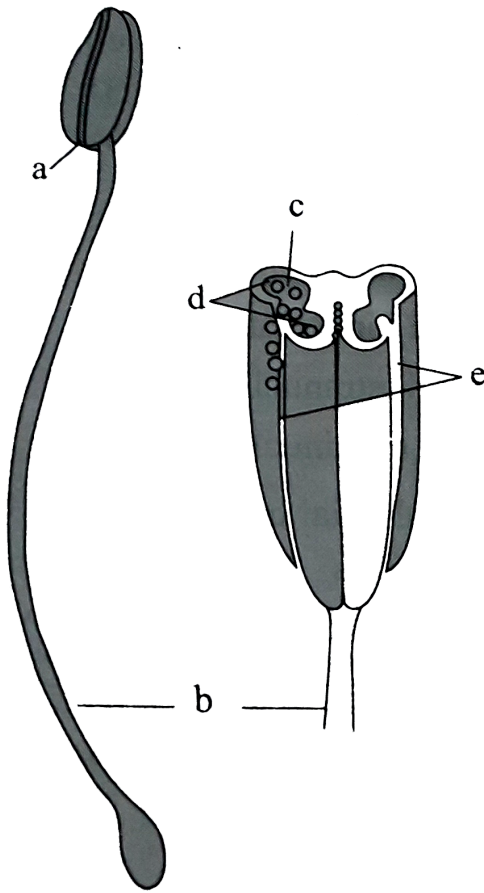
D. Both A and B

Answer: A



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6. Recognise the figure and find out the correct matching.



A. a-anther, b-filament, c-pollen sacs, d-pollen grains , e-line of dehiscence

B. b-anther, a-filament, c-pollen sacs, d-pollen grains, e-line of dehiscence

C. a-anther, b-filament, d-pollen sacs, c-pollen grains, e-line of dehiscence

D. b-anther, a-filament, e-pollen sacs, c-pollen grains, d-line of dehiscence

Answer: C



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7. Arrangement of four wall layers in microsporangium from inside to outside is as follows :

A. Epidermis, endothecium, tapetum and middle layers

B. Epidermis, middle layers, endothecium and tapetum

C. Epidermis, endothecium, middle layers and tapetum

D. Tapetum, middle layers, endothecium
and epidermis

Answer: D



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8. In the centre of each microsporangium,
there is a group of compactly arranged
homogenous cells called

A. Tapetum

B. Nucellus

C. Sporogenous tissue

D. pollen grains

Answer: C



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9. The microspores, as they are formed, are arranged in a cluster of four cells-the microspore tetrad. As the anthers mature and

dehydrate, the microspores dissociate from each other and develop into

- A. Pollen grains
- B. Female gametophyte
- C. Male gametophyte
- D. Both A and C

Answer: D



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10. Diameter of the pollen grains is generally

A. $5 - 10\mu m$

B. $10 - 50\mu m$

C. $20 - 50\mu m$

D. $25 - 50\mu m$

Answer: D



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11. Pollen grain has a prominent two layered wall. The inner wall

A. Is made up of cellulose and pectin

B. Is thin and continuous

C. Is made up of Sporopollenin

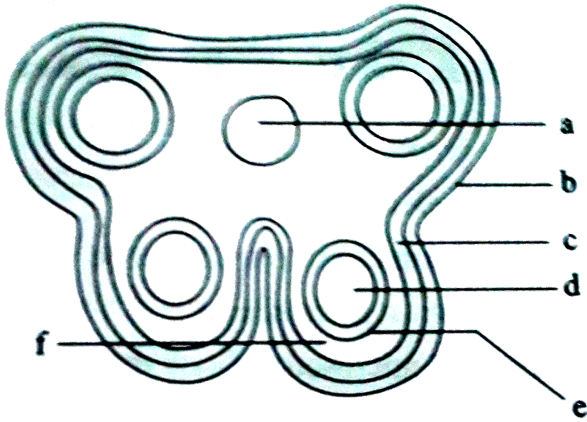
D. Both A and B

Answer: D



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12. Recognise the figure and find out the correct matching.



A. a-epidermis, b-endothecium, c-middle layers, d-tapetum, e-sporogenous tissue, f-connective

B. b-epidermis, c-endothecium, d-middle layers, e-tapetum, f-sporogenous tissue,

a-connective

C. b-epidermis, c-endothecium, f-middle
layers, -e-tapetum, a-sporogenous tissue,
d-connective

D. b-epidermis, c-endothecium, f-middle
layers, e-tapetum, d-sporogenous tissue,
a-connective

Answer: D



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13. When the pollen grain is mature it contains two cells, the vegetative cell and generative cell. The vegetative cell

a. Is bigger

b. Spindle shaped

c. Has abundant food reserve

d. Has large irregularly shaped nucleus.

A. a, b and c

B. a, c and d

C. a, b, c and d

D. b, c and d

Answer: B



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14. The generative cell of a pollen grain

A. Is small and floats in the cytoplasm of vegetative cell

B. Is spindle shaped

C. Has dense cytoplasm and a nucleus.

D. All of the above

Answer: D



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15. In over 60 percent of angiosperms, pollen grains are shed at

- A. Two-celled stage
- B. Three-celled stage
- C. Four-celled stage
- D. Either A and B

Answer: A



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16. Parthenium or carrot grass has become ubiquitous in occurrence and causes pollen allergy. Parthenium came into India as a contaminant with imported

A. Wheat

B. Rice

C. Carrot

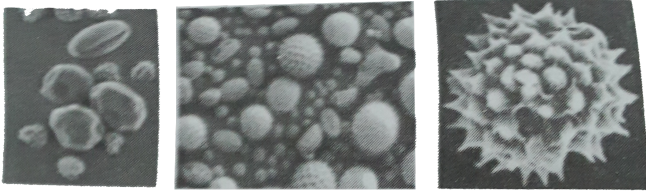
D. Rose

Answer: A



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17. The following picture is showing the amazed variety of architecturue (sizes, shapes, designs) seen on the pollen grains from different species.



These micrographs are taken by

- A. Scanning electron microscope
- B. Transmission electron microscope
- C. Phase-contrast microscope
- D. Compound microscope

Answer: A



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18. Number of gametes produced by a male gametophyte of flowering plant is

A. Four

B. One

C. Three

D. Two

Answer: D



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19. Which of the following statements about sporopollenin is wrong

A. Exine is formed of sporopollenin

B. Sporopollenin is not degraded by any known enzyme

C. Sporopollenin occurs in the area of germ pores only

D. Sporopollenin is most resistant organic material

Answer: C



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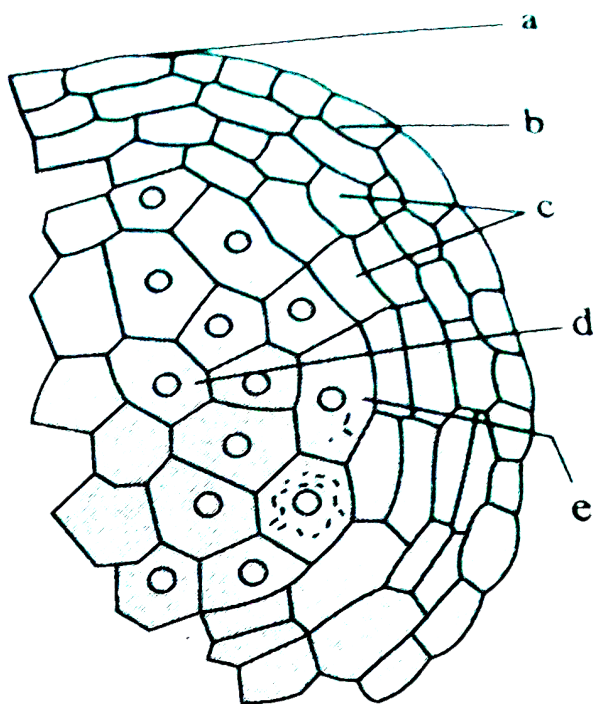
20. In flowering plants, meiosis takes place during

- A. Pollen grain formation
- B. Seed formation
- C. Gamete formation
- D. Seed germination

Answer: A



21. Recognise the figure and find out the correct matching.



A. a-epidermis, b-endothecium, c-middle layers, d-tapetum, e-microspore mother cell

B. b-epidermis, c-endothecium, d-middle layers, e-tapetum, a-microspore mother cell

C. a-epidermis, b-endothecium, c-middle layers, e-tapetum, d-microspore mother cell

D. a-epidermis, b-endothecium, e-middle layers, c-tapetum, d-microspore mother cell

Answer: C



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22. 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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23. Tapetal cells of stamens are

A. Diploid unicucleate

B. Tetraploid binucleate

C. Hexaploid tetranucleate

D. Polyploid multinucleate

Answer: D



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24. Number of prothallial cells present in male gametophyte of flowering plant is

A. Three

B. Two

C. One

D. Zero

Answer: D



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

A. One meiotic division

B. One mitotic division

C. One meiotic and one mitotic division

D. One meiotic and two mitotic divisions

Answer: A



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26. In angiosperms, a mature male gametophyte is formed from a pollen mother cell through

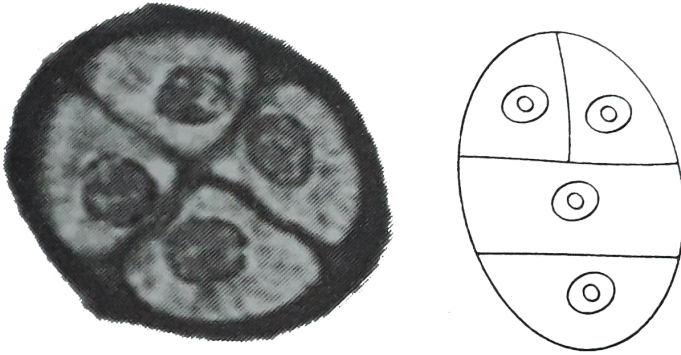
- A. One meiotic division
- B. Two meiotic division
- C. One meiotic and two mitotic division
- D. Three meiotic divisions

Answer: C



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27. The following figures show



A. Microspore

B. Pollen grain

C. Microsporangium

D. Microspore tetrad

Answer: D



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28. The cells of sporogenous tissue undergo ___ division to form microspore tetrads.

A. Mitotic

B. Meiotic

C. Amitoitic

D. Cleavage

Answer: B



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29. An anther having four microsporocytes shall produce pollen grains

A. 24

B. 12

C. 8

D. 16

Answer: D



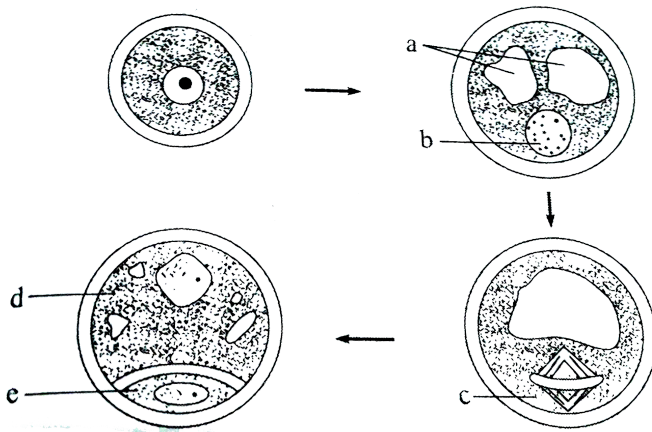
30. In flowering plants, the male gametes are formed by

- A. Generative cell
- B. Uninucleate microspore
- C. Vegetative cell
- D. Pollen tube

Answer: A



31. Recognise the figure and find out the correct matching .



A. a-nucleus, b-vacuoles, c-symmetric spindle, d-generative cell, e-vegetative cell

B. b-nucleus, a-vacuoles, c-asymmetric spindle, e-generative cell, d-vegetative cell

C. a-nucleus, b-vacuoles, c-symmetric spindle, e-generative cell, d-vegetative cell

D. b-nucleus, a -vacuoles, c-asymmetric spindle, d-generative cell, e-vegetative cell

Answer: B



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32. 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: A



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33. The process of formation of microspores from pollen mother cell (PMC) through meiosis is called

A. Microgametogenesis

B. Microsporogenesis

C. Megagametogenesis

D. Megasporogenesis

Answer: B



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**Section A Topicwise Questions Topic 3 The Pistil
Megasporangium Ovule And Embryo Sac**

1. An ovule generally has a single embryo sac formed from a megaspore through

A. Reduction divisions

B. Mitotic divisions

C. Mitotic division followed by meiotic division

D. Meiotic division followed by mitotic division

Answer: B



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2. The process of formation of megaspores from the megaspore mother cell is called

A. Microgametogenesis

B. Microsporogenesis

C. Megagametogenesis

D. Megasporogenesis

Answer: D



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3. Match the columns I and II, and choose the correct combination from the options given.

	Column I		Column II
a.	Male gametophyte	1.	Ovule
b.	Female gametophyte	2.	Locule
c.	Megasporangium	3.	Pollen grain
d.	Ovarian cavity	4.	Embryo sac

A. a-3, b-4, c-1, d-2

B. a-4, b-3, c-2, d-1

C. a-3, b-4, c-2, d-1

D. a-4, b-3, c-1, d-2

Answer: A



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4. Read the following statements and find out the incorrect statements.

a. The placenta is located inside the locule.

Arising from the placenta are the ovules.

b. The number of ovules in an ovary may be one (papaya, watermelon and orchids) to many (wheat, paddy and mango).

c. Each ovule has one or two protective

envelops called integuments.

d. Integuments encircle the ovule except at the tip where a small opening called the chalaza is organised. Opposite the chalaza is the micropylar end.

e. Enclosed within the integuments is a mass of cells called the perisperm.

A. b,d and e

B. a, c and d

C. b,c and e

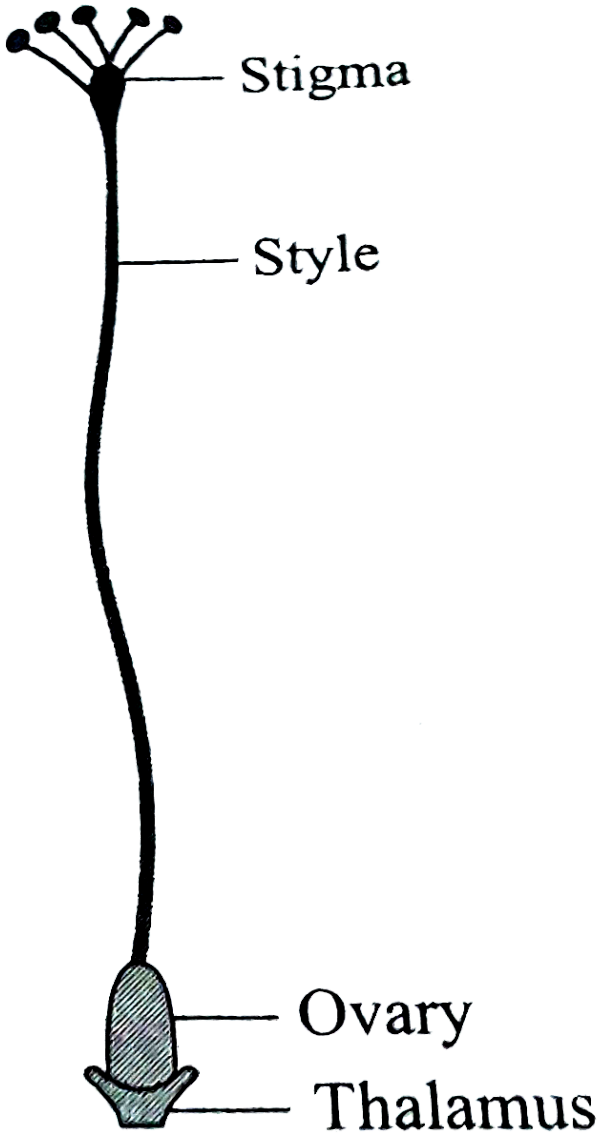
D. a,b and d

Answer: A



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5. The following figure shows the



A. Multicarpellary syncarpous pistil of
Papaver

B. Multicarpellary apocarpous gynoecium
of Michelia

C. Pentacarpellary syncarpous gynoecium
of the Hibiscus

D. Multicarpellary apocarpous gynoecium
of the china rose

Answer: C



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6. In polygonum type of embryo sac, the cells are

A. Haploid

B. Diploid

C. Both A and B

D. Polyploid

Answer: C



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7. Read the following statements and find out the incorrect statements.

a. Ovules generally differentiate single megaspore mother cell (MMC) in the chalazal region of the nucellus.

b. The MMC undergoes reduction division and produces four megaspores.

c. In a majority of angiosperms, one of the megaspore is degenerated while the other three remains functional.

d. The nucleus of the functional megaspore divides mitotically three times and form 2-

nucleate, 4-nucleate and later 8-nucleate stages of the embryo sac.

e. These mitotic division are strictly free nuclear, that is, nuclear division are immediately followed by cell wall formation.

A. a, b and c

B. b, c and d

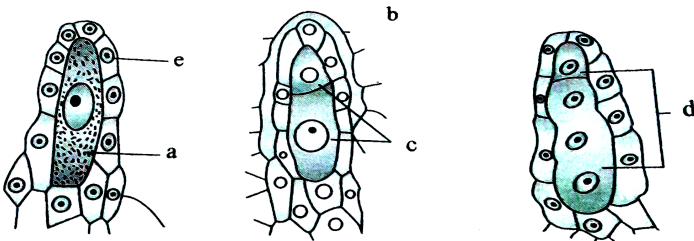
C. c, d and d

D. a , c and e

Answer: D



8. Recognise the figure out the correct matching .



A. a-nucellus, b-chalazal end, c-microspore
dyad, d-microspore tetrad, e-megaspore
mother cell

B. a-megaspore mother cell, b-chalazal end,
c-megaspore dyad, d-megaspore tetrad,
e-nucellus

C. a-megaspore mother cell, b-micropylar
end, c-megaspore dyad, d-megaspore
tetrad, e-nucellus

D. a-nucellus, b-micropylar end, c-
megaspore dyad, d-megaspore tetrad, e-
megaspore mother cell

Answer: C



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9. Embryo sac is monosporic when it develops from

- A. One of the four megaspores of a megaspore mother cell
- B. Three megaspores of megaspore tetrad
- C. Two functional megaspores
- D. The megaspore mother cell where meiosis has occurred but cytokinesis

does not take place.

Answer: A



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10. Match the columns I and II, and choose the correct combination from the options given.

Column I

Column II

Stigma

1. Basal bulged part

Style

2. Landing platform for pollens

Ovary

3. Elongated slender part

A. a-1, b-2, c-3

B. a-3, b-1, c-2

C. a-2, b-3, c-1

D. a-2, b-1, c-3

Answer: C



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11. In angiosperms the functional megaspore in the linear tetrad is generally

A. Micropylar

B. Second from micropylar

C. Third from micropylar

D. Fourth from micropylar

Answer: D



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12. In an embryo sac of a typical angiosperm there are

A. Egg, synergids and secondary cell

B. Egg, synergids, central cell and polar nuclei

C. Egg, synergids, polar nuclei and antipodals

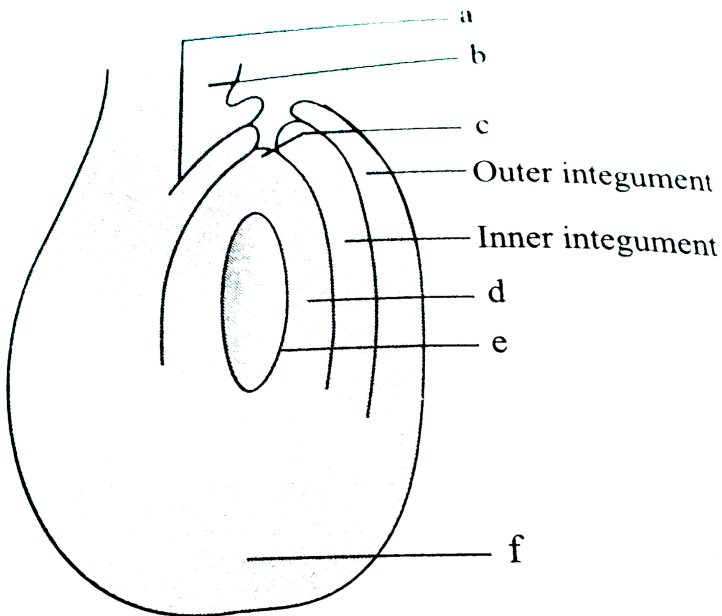
D. Egg, synergids and secondary wall

Answer: C



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13. Recognise the figure and find out the correct matching.



A. a-funcile, b-hilum, c-chalazal pole, f-
micropylar pole, d-embryo sac, e-nucellus

B. b-funcile, a-hilum, c-chalazal pole, f-micropylar pole, d-embryo sac, e-nucellus

C. a-funcile, b-hilum, f-chalazal pole, c-micropylar pole, e-embryo sac, d-nucellus

D. b-funcile, a-hilum, f-chalazal pole, c-micropylar pole, e-embryo sac, d-nucellus

Answer: D



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14. Select the incorrect statement regarding angiosperm

A. Pollen grain is the first cell of male gametophyte

B. Megaspore is diploid

C. Megaspore is the first cell of female gametophyte

D. All of the above

Answer: B



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15. Largest cell of the ovule is

- A. Megaspore mother cell
- B. Antipodal cell
- C. Central cell
- D. Size of cells variable

Answer: C



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16. Embryo sac develops from megaspore mother cell through

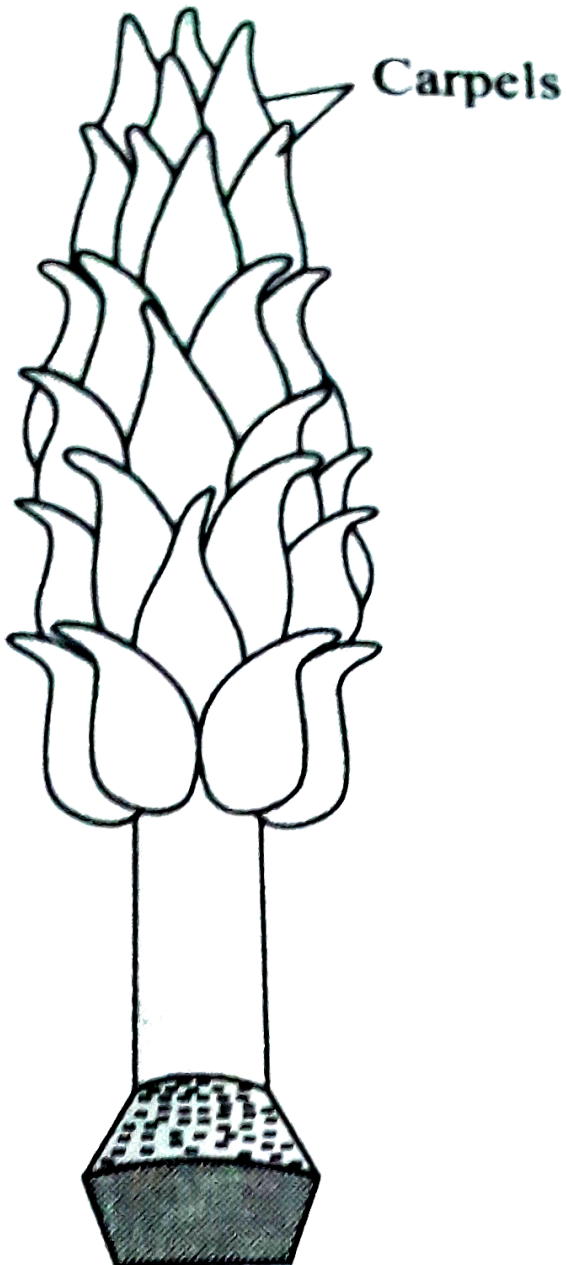
- A. 1 meiosis and 2 mitosis
- B. 1 meiosis and 3 mitosis
- C. 2 meioses and 1 mitosis
- D. 2 meiosis and 2 mitosis

Answer: B



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17. The following figure shows the



A. Multicarpellary syncarpous pistil of
Papaver

B. Multicarpellary apocarpous gynoecium
of Michelia

C. Pentacarpellary syncarpous gynoecium
of the Michelia

D. Multicarpellary apocarpous gynoecium
of the Papaver

Answer: A



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18. First haploid cell of female gameophyte is

- A. Functional megaspore
- B. Microspere mother cell
- C. Megaspore mother cell
- D. None of the above

Answer: B



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19. Pollen grain is related to embryo sac as

A. Sperm is to the female gametophyte

B. Sperm is to the egg

C. Male gametophyte is to the egg

D. Male gametophyte is to the embryo sac

Answer: D



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20. The following figure shows the

Stigma



A. Multicarpellary syncarpous pistil of

Papaver

B. Multicarpellary apocarpous gynoecium
of Michelia

C. Pentacarpellary syncarpous gynoecium
of the Michelia

D. Multicarpellary apocarpous gynoecium
of the Papaver

Answer: A



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21. Type of divisions that occurs during formation of megaspore is

A. Meiosis

B. Mitosis

C. Meiosis followed by mitosis

D. Mitosis followed by meiosis

Answer: B



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22. Match the columns I and II, and choose that correct combination from the options given.

	Column I		Column II
a.	Monocarpellary	1.	Pistils fused
b.	Multicarpellary	2.	Pistils free
c.	Apocarpous	3.	Single pistil
d.	Syncarpous	4.	More than one pistils

A. a-3, b-4, c-1, d-2

B. a-3, b-4, c-2, d-1

C. a-4, b-3, c-1, d-2

D. a,-4, b-3, c-2,d-1

Answer: B



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23. Which one produces embryo sac

- A. Megaspore mother cell
- B. Megaspore
- C. Microspore
- D. Embryo cell

Answer: B



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Section A Topicwise Questions Topic 4 Pollination

1. Fill in the blanks :

1. The male and female gametes in angiosperms are produced in the ..a..and ..b.., respectively.

2. In angiosperms, both male and female gametes are ..c.., they have to be brought together for..d..to occur. The ..e..is the mechanism to achieve this objective

A. a-pollen grain, b-embryo sac, c-motile, d-pollination, e-fertilisation

B. a-generative cell, b-nucellus, c-non motile, d-pollination, e-fertilisation

C. a-pollen grain, b-embryo sac, c-motile, d-fertilisation, e-pollination

D. a-pollen grain, b-embryo sac, c-non motile, d-fertilisation, e-pollination

Answer: D



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2. Depending on the source of pollen, pollination can be divided into

A. Two types

B. Three types

C. Four types

D. Many types

Answer: B



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3. For which of the following flowers, complete autogamy is rather rare

A. Cleistogamous

B. Chasmogamous

C. That do not open at all

D. Both A and C

Answer: B



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4. Transfer of pollen grains (shed from the anther) to the stigma of a pistil is termed

A. Fertilisation

B. Double fertilisation

C. Pollen-pistil interaction

D. Pollination

Answer: D



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5. The conditions required for the autogamy

A. Bisexuality

B. Synchrony in pollen release and stigma receptivity

C. Anthers and stigma lie close to each other

D. All of the above

Answer: D



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6. Which is correct about Viola ?

A. Commonly called common pansy

B. Bears two types of flowers,
chasmogamous and cleistogamous

C. Produce assured seed-set even in the
absence of pollinators

D. All of the above

Answer: D





7. Read the following statements and find out the incorrect statements.

a. Plants use two abiotic (wind and water) and one biotic (animals) agent to achieve pollination.

b. Majority of plants use abiotic agents for pollination.

c. Only a small proportion of plants uses biotic agents.

d. Pollination by water is common among

abiotic pollinators.

e. Pollination by wind is quite rare in flowering plants and is restricted to about 30 genera mostly monocotyledons.

A. a, b, c and d

B. b, c, d and e

C. a, c, d and e

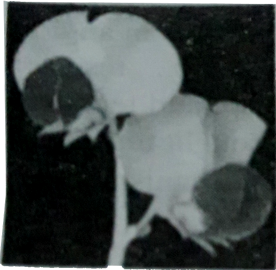
D. b and d only

Answer: B



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8. Recognise the figure and find out the correct matching.



(a)



(b)

A. a-self-pollinated flowers, b-cross-pollinated flowers

B. a-cross-pollinated flowers, b-self-pollinated flowers

C. a-cross-pollinated flowers, b-cross-pollinated flowers

D. a-self-pollinated flowers, b-self-pollinated flowers

Answer: A



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9. In the corn cob the tassels which wave in the wind to trap the pollen grains represents

A. Stigma and style

B. Style and ovary

C. Stigma

D. Style

Answer: A



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10. In most of the water pollinated species pollen grains are protected from wetting by a

A. Mucilagenous covering

B. Agar coating

C. Algin coating

D. Pectose coating

Answer: A



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11. Read the following statements and find out the incorrect statements.

a. Majority of flowering plants use a range of

animals as pollinating agents.

b. Bees, butterflies, flies, beetles wasps, ants, moth, birds (sunbirds and humming birds) and bats are the common pollinating agents.

c. Among the animals, insects particularly bees are the dominant biotic pollinating agents.

d. Even larger animals such as some primates (lemurs), arboreal (tree dwelling) rodent, or even reptiles (gecko lizard and garden lizard) have also been reported as pollinators in some species.

e. Often flowers of animal pollinated plants are

specifically adapted for a particular species of animal.

A. a and b

B. b and c

C. d and c

D. None of the above

Answer: D



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12. Tallest flower of the world is of

A. Rafflesia

B. Amorphophallus

C. Yucca

D. Fig

Answer: B



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13. The flower height in *Amorphophallus* is

A. 6 feet

B. 6 meter

C. 6 cm

D. 12 meter

Answer: A



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14. Which of the following species provides floral rewards in the form of providing safe place to lay eggs ?

A. Amorphophallus

B. Fig

C. Yucca

D. All of the above

Answer: D



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15. Yucca plant is pollinated by

- A. A species of moth (Pronuba)
- B. A species of wasp (Blastophaga)
- C. A species of beetle
- D. A species of insect

Answer: A



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16. Many insects may consume pollen or the nectar without bringing about pollination.

Such floral visitors are referred to as

- A. Pollen robbers
- B. Nectar robbers
- C. Pseudocopulators
- D. Both A and B

Answer: D



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17. Majority of angiosperms produce

- A. Unisexual flowers
- B. Bisexual flowers
- C. Hermaphrodite flowers
- D. Both B and C

Answer: D



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18. Which of the following is an outbreeding device ?

a. If pollen release and stigma receptivity are not synchronised.

b. If the anther and stigma are placed at different positions so that pollen cannot come in contact with the stigma of the same flower.

c. Self-incompatibility which prevents self-pollen (from the same plant) from fertilising the ovules by inhibiting pollen germination or pollen tube growth in the pistil.

d. Production of the unisexual flower

A. a, b and c

B. b, c and d

C. a, c and d

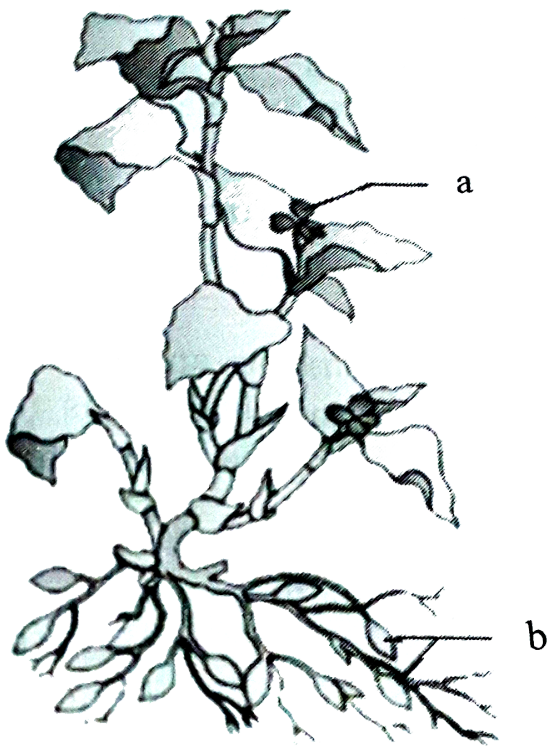
D. a, b, c and d

Answer: D



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19. Recognise the figure and find out the correct matching.



A. a-chasmogamous flowers, b-
cleistogamous flowers

B. a-cleistogamous flowers, b-
chasmogamous flowers

C. a-chamogamous flowers, b-dichogamous
flowers

D. a-dichogamous flowers, b-cleistogamous
flowers

Answer: A



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**20. Dioecious plants (papaya, date palm)
prevent**

- A. Autogamy but not geitonogamy
- B. Geitonogamy but not autogamy
- C. Both autogamy and geitonogamy
- D. Neither autogamy nor geitonogamy

Answer: C



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21. All the events from pollen deposition on the stigma until pollen tubes enter the ovules are together referred to as

A. Fertilisation

B. Double fertilisation

C. Pollen-pistil interaction

D. Pollination

Answer: C



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22. Removal of anther from the floral bud is called

A. Anthesis

B. Bagging

C. Emasculation

D. Anthectomy

Answer: C



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23. Artificial hybridisation is one of the major approaches of crop improvement programme.

For the bisexual flower it includes the following steps in correct sequence.

A. Bagging, pollination, rebagging

B. Pollination, bagging, rebagging

C. Emasculation, bagging, pollination,
rebagging

D. Bagging, emasculation, pollination,
rebagging

Answer: C



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24. For the unisexual flower the steps in artificial hybridisation are

A. Bagging, pollination, rebagging

B. Pollination, bagging, rebagging

C. Emasculation, bagging, pollination,
rebagging

D. Bagging, emasculation, pollination,
rebagging

Answer: A



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25. To study pollen germination, some pollen from flowers such as pea, chickpea, Croton, balsam and Vinca are collected and dusted on a glass slide containing a drop of ..a.. Solution about..b..per cent . After about ..c.. Minutes, pollen tubes coming out of the pollen grains.

A. a-Saline, b-5, c-5 to 10

B. a-Sugar, b-5, c-10 to 20

C. a-Saline, b-10, c-15 to 30

D. a-Sugar, b-10,c-15 to 30

Answer: D



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26. In plants that shed pollen grain at two-celled condition, the generative cell divides and form the two male gametes during the

- A. Entry of pollen tube in the ovule
- B. Entry of pollen tube in the synergid
- C. Growth of pollen tube in the stigma
- D. Growth of pollen tube in the style

Answer: C



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27. The given plant is pollinated by



A. Wind

B. Water

C. Insect

D. Bird

Answer: A



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28. Pollination does not guarantee the transfer of the right type of pollen (compatible pollen). If the pollen is of the wrong type (incompatible type), then the pistil rejects the pollen by preventing

A. Pollen germination on the the stigma

B. Pollen tube growth in the style

C. Double fertilisation

D. Both A and B

Answer: D



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29. Cleistogamous flower is found in

A. Tobacco

B. *Mirabilis*

C. Viola

D. None of the above

Answer: C



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30. Hydrophily occurs in

A. Nymphaea

B. Nelumbo

C. Eichhornia

D. Vallisneria / Zostera

Answer: D



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31. An advantage of cleistogamy is

A. It leads to greater genetic diversity

B. Seed dispersal is more efficient and wide
spread

C. Each visit of polinator brings hundreds of pollen grains

D. Seed set is not dependent upon pollinators

Answer: D



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32. Anemophilous plants have

A. Sticky stigmas

B. Feathery stigmas

C. Prominent nectaries

D. Colourful flowers

Answer: B



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33. Xenogamy is

A. Pollination between two flowers of two
different plants

B. Pollination between two different flowers of same plant and same branch

C. Pollination between anther and stigma of same flower

D. A mechanism of parthenocarpy

Answer: A



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34. Cleistogamous flowers are

A. Wind pollinated

B. Insect pollinated

C. Bird pollinated

D. Self-pollinated.

Answer: D



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35. Contrivance for self pollination is

A. Cleistogamy

B. Bisexuality

C. Homogamy

D. All of the above

Answer: D



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36. Anemophily occurs in

A. Salvia

B. Vallisneria

C. Coconut

D. Bottle Brush.

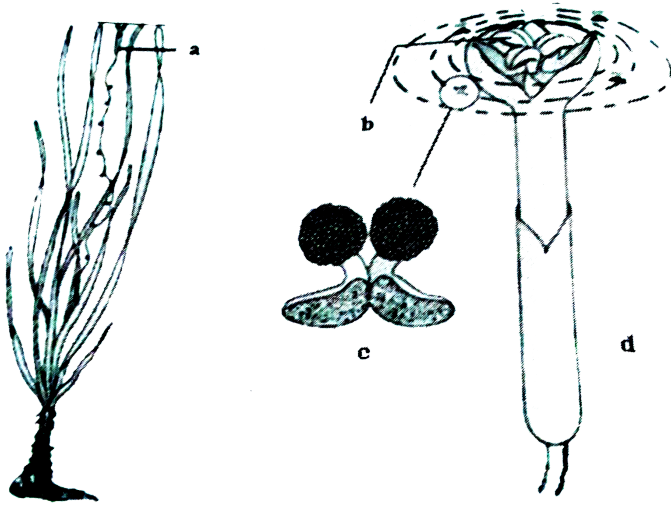
Answer: C



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37. The given figure show the pollination by water in Vallisneria. Find out the correct

matching.



A. a-female flower, b-male flower, c-female flower, d-stigma

B. b-female flower, a-male flower, d-female flower, c-stigma

C. a-female flower, b-male flower, d-female flower, c-stigma

D. d-female flower, c-male flower, a-female flower, b-stigma

Answer: D



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38. Pollination in Lotus is carried out by

A. Wind

B. Water

C. Insects

D. All of the above

Answer: C



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39. Nontransfer of pollen from anther to stigma of the same flower due to a mechanical barrier is

A. Dichogamy

B. Herkogamy

C. Heterostyly

D. Cleistogamy

Answer: B



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40. Feathery stigma occurs in

A. Pea

B. Wheat / Jowar

C. Datura

D. Caesalpinia

Answer: B



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Section A Topicwise Questions Topic 5 Double Fertilisation

1. The central cell after triple fusion becomes the

A. PEC (primary endosperm cell)

B. PEN (primary endosperm nucleus)

C. Diploid

D. PEC and develops into embryo.

Answer: A



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2. Following double fertilisation, events of endosperm and embryo development, maturation of ovules into seeds and ovary into fruit, are collectively termed as

A. Pollen-pistil interaction

B. Artificial hybridisation

C. Embryogenesis

D. Post-fertilisation events

Answer: D



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3. Fertilization is synonym with

A. Autogamy

B. Syngamy

C. Homogamy

D. Apogamy

Answer: B



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4. The nuclei of the sperm and egg fuse as a result of

A. Base pairing of their DNA and RNA

B. Formation of hydrogen bonds

C. Mutual attraction due to difference in electrical charges

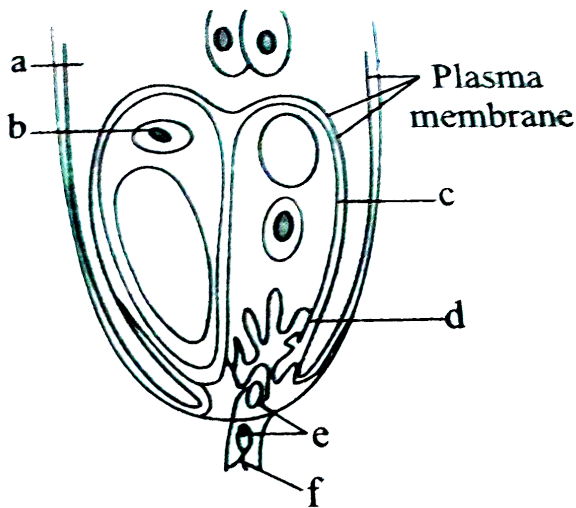
D. Attraction of their protoplasts

Answer: D



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5. Recognise the figure and find out the correct matching.



A. a-egg nucleus, f-vegetative nucleus, b-synergid, e-filiform apparatus, d-male gametes, c-central cell

B. b-egg nucleus, f-vegetative nucleus, c-synergid, d-filiform apparatus, e-male gametes, a-central cell

C. b-egg nucleus, e-vegetative nucleus, c-synergid, d-filiform apparatus, f-male gametes, a-central cell

D. b-egg nucleus, d-vegetative nucleus, a-synergid, f-filiform apparatus, e-male gametes, c-central cell.

Answer: B



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6. 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

Answer: D



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7. Fertilization involving carrying of male gametes by pollen tube is

- A. Porogamy
- B. Siphonogamy
- C. Chalazogamy
- D. Syngonogamy

Answer: B



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8. Double fertilization and triple fusion were discovered by

A. Hofmeister

B. Nawaschin and Guignard

C. Leeuwenhoek

D. Strassburger

Answer: B



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9. A unique phenomenon observed in the embryo sac of angiosperms is

- A. Fusion of gametes
- B. Double fusion
- C. Triple fusion
- D. Triple fusion and double fertilization

Answer: D



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10. Double fertilization is a characteristic of

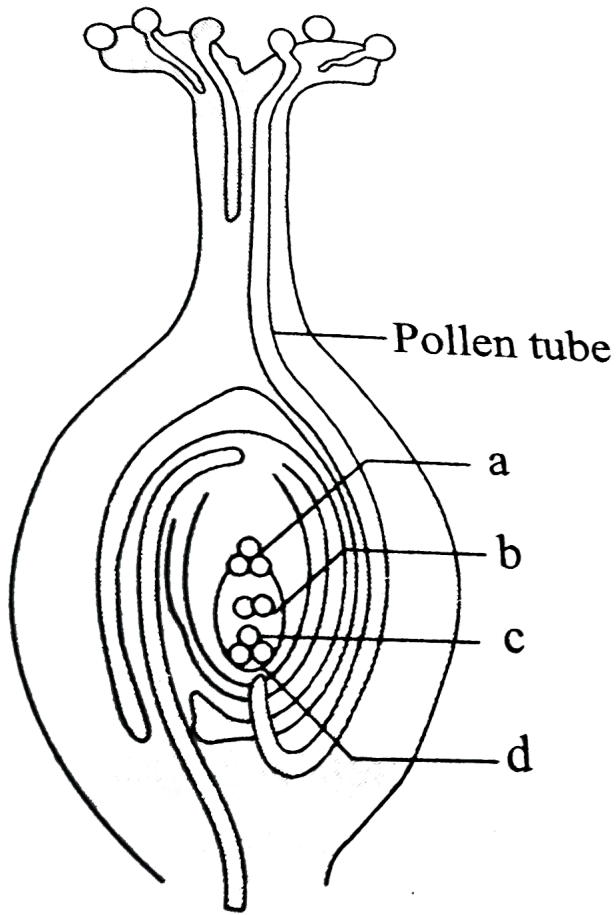
- A. Bryophytes
- B. Pteridophytes
- C. Gymnosperms
- D. Angiosperms

Answer: D



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11. Recognise the figure and find out the correct matching.



A. a-polar nuclei, b-egg cell, c-synergid, d-
antipodal

B. d-polar nuclei, a-egg cell, b-synergid, c-
antipodal

C. b-polar nuclei, d-egg cell, c-synergid, a-
antipodal

D. b-polar nuclei, c-egg cell, d-synergid, a-
antipodal

Answer: D



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12. In angiosperms, triple fusion produces

A. Polar nucleus

B. Secondary nucleus

C. Primary endospermic nucleus

D. Zygotic nucleus

Answer: C



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13. Fusion of one male gamete with egg and other of the same pollen tube with two polar nuclei is

- A. Triple fusion
- B. Vegetative fertilization
- C. Double fertilisation
- D. Parthenogenesis

Answer: C



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Section A Topicwise Questions Topic 6
Endosperm Embryo

1. Read the following statements and find out the incorrect statement.

a. Embryo development precedes endosperm development.

b. Though the seeds differs greatly the early stages of embryo development (embrogeny) are similar in both monocotyledons and dicotyledons.

c. A typical dicotyledonous embryo consists of

an embryonal axis and two cotyledons.

d. Endosperm may either be completely consumed by the developing embryo (e.g., castor and coconut) before seed maturation or it may persist in the mature seed (e.g., wheat, rice , pea, groundnut and beans).

e. The coconut water from tender coconut is cellular endosperms and the surrounding while kernal is the nuclear endosperm.

A. a, b and c

B. b, c and d

C. c, d and e

D. a, d and e

Answer: D



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2. The correct sequence of embryogeny in dicot seed is

A. Zygote, proembryo, globular, heart-shaped and mature embryo

B. Zygote, globular, proembryo, heart-shaped and mature embryo

C. Zygote, proembryo, heart-shaped, globular and mature embryo

D. Zygote, globular, heart-shaped, proembryo and mature embryo

Answer: A



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3. Endosperm is not completely consumed by developing embryo in

A. Gram

B. Bean

C. Castor

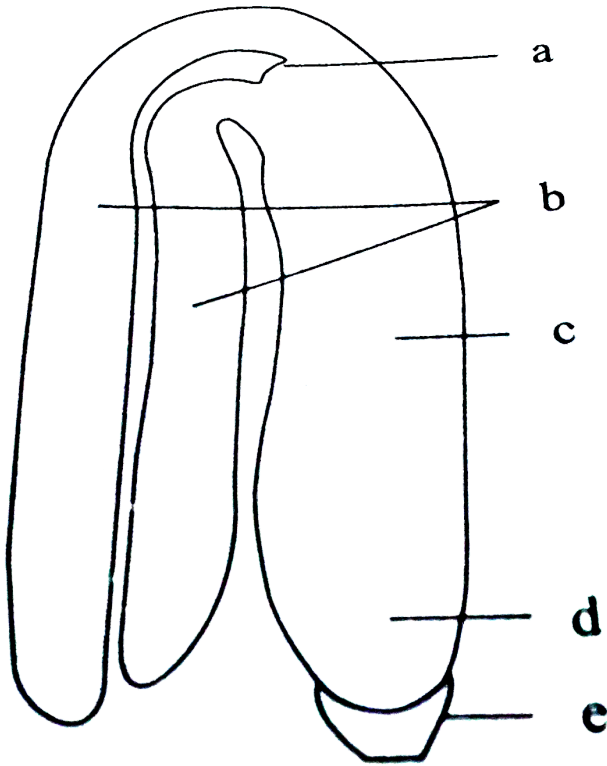
D. Pea

Answer: C



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4. Recognise the figure and find out the correct matching.



A. a-radicle, b-hypocotyl, c-epicotyl, d-plumule, e-coleorhiza

B. a-plumule, b-epicotyl, c-hypocotyl, d-radicle, e-root cap

C. a-plumule, b-cotyledons, c-epicotyl, d-radicle, e-root cap

D. a-plumule, b-cotyledons, c-hypocotyl, d-radicle, e-root cap

Answer: D



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5. 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. a, b, correct, c, d incorrect

B. a, b,d correct, c incorrect

C. a, b,d correct, a incorrect

D. a,d, correct , b,c incorrect

Answer: B



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6. A typical dicotyledonous embryo consists of

A. Radicle only

B. Embryonal axis and cotyledons

C. Cotyledons only

D. Embryonal axis only

Answer: B



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7. Embryo axis above the cotyledon is called as

A. Hypocotyl

B. Funicle

C. Epicotyl

D. Raphe

Answer: C



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8. What would be number of chromosomes in aleurone layer if megaspore mother cell contains 10 chromocomes

A. 10

B. 20

C. 15

D. 30

Answer: C



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9. Function of suspensor of embryo is

A. Absorption of nutrients

B. Push the embryo into nutritive
endosperm region

C. Formation of secondary embryo

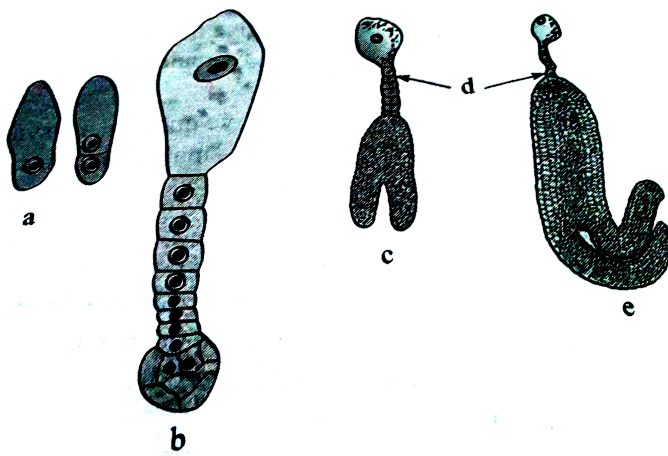
D. All of the above

Answer: B



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10. Recognise the figure and find out the correct matching .



A. a-zygote, b-heart shaped embryo, c-globular embryo, d-radicle, e-mature embryo

B. a-PEN, b-globular embryo, c-heart shaped embryo, d-plumule, e-mature embryo

C. a-PEN, b-heart shaped embryo, c-globular embryo, d-suspensor, e-cotyledon

D. a-zygote, b-globular embryo, c-heart shaped embryo, d-suspensor, e-mature embryo

Answer: D



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11. Aleurone layer occurs in the peripheral region of

A. Endosperm

B. Coleoptile

C. Cotyledon

D. Coleorhiza

Answer: A



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12. Non-albuminous seeds occur in

A. Maize

B. Wheat

C. Rice

D. Vallisneria

Answer: D



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13. Free nuclear division occurs in

A. Flower

B. Gametes

C. Endosperm

D. Fruit

Answer: C



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14. Milky water of green Coconut is

A. Liquid female gametophyte

B. Liquid endosperm

C. Liquid nucellus

D. Liquid chalaza

Answer: B



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15. Suspensor is component off

A. Developing embryo

B. Zygote

C. Endosperm

D. Germinated embryo

Answer: A



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16. Endosperm is formed in angiosperms due to double fertilization. It is, however, absent in certain seeds due to lack of

A. Certain enzymes

B. Growth hormone

C. Dicotyledonous hormone

D. Nutrients

Answer: B



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17. Endosperm formation is suppressed in

A. Liliaceae

B. Cyperaceae

C. Orchidaceae and Podostemonaceae

D. Gramineae

Answer: C



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Section A Topicwise Questions Topic 7 Seed

1. Select the dry fruits from the following.

A. Guava, orange and mango

B. Groundnut and mustard

C. Guava, groundnut and mustard

D. Mango, guava and mustard

Answer: B



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2. Which of the following is a group of fleshy fruit ?

A. Guava, orange and mango

B. Groundnut and mustard

C. Guava, groundnut and mustard

D. Mango, guava and mustard

Answer: A



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3. The fruits in which thalamus also contributes to fruit formation are called

A. True fruits

B. False fruits

C. Parthenocarpic fruits

D. Parthenogenic fruits

Answer: B



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4. False fruits are found in

A. Guava, pear and sapota

B. Black pepper and beet

C. Apply, strawberry and cashew

D. Banana and apple

Answer: C



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5. Albuminous seeds are found in

A. Wheat, maize and barley

B. Castor and rice

C. Orchid and podostemon

D. Both A and B

Answer: D



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6. The transformation of ovules into seeds and ovary into fruit proceeds

A. Successively (one by one)

B. Simultaneously

C. Alternatively

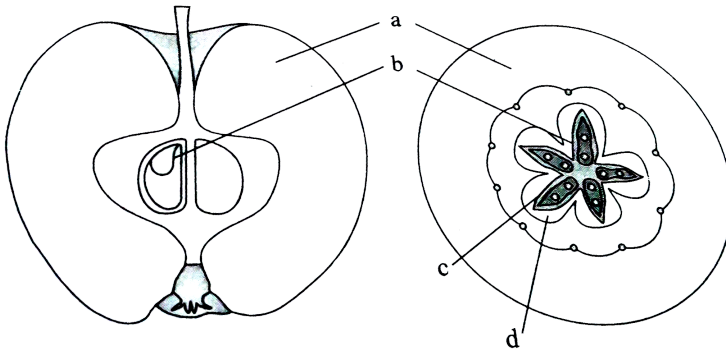
D. Can't say

Answer: B



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7. Recognise the figure and find out the correct matching.



A. a-seed, b-thalamus, c-mesocarp, d-endocarp

B. b-seed, a-thalamus, d-mesocarp, c-endocarp

C. a-seed, b-thalamus, d-mesocarp, c-endocarp

D. b-seed, a-thalamus, c-mesocarp, d-endocarp

Answer: B



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8. The record of oldest seed dormancy is of

A. 2,000 years

B. 5,000 years

C. 10,000 years

D. 12,000 years

Answer: C



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9. The thousands of years old viable seed of *Lupinus arcticus* excavated from

A. Arctic Tundra

B. King Herod's palace near the Dead Sea

C. Rohtang Pass near Manali

D. Tropical Pacific Island

Answer: A



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10. In which of the following species, each fruit contains thousand of tiny seeds ?

- A. Orchid and Orobanche
- B. Orobanche and Striga
- C. Orchid and Striga
- D. Orchid, Orobanche and Striga

Answer: D



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11. Germination of seed in *Cycas* and *Pinus* is

A. Hypogeal

B. Epigeal

C. Hypogeal and epigeal respectively

D. Epigeal and hypogeal respectively

Answer: C



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

A. 100

B. 75

C. 125

D. 50

Answer: C



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13. Which is the most logical sequence with reference to the life cycle of angiosperm

A. Cleavage-Fertilization - Differentiation -
Fruit formation

B. Pollination - Fertilization- Seed
formation- Germination

C. Germination - Double fertilization -
Endosperm formation - Seed dispersal

D. Maturation - Mitosis - Differentiation -
Fertilization

Answer: B



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14. Germination of seed within fruit is

A. Ovipary

B. Vivipary

C. Hypogeal

D. Epigeal

Answer: B



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15. Food is stored in albuminous seed in

A. Testa

B. Cotyledon

C. Endosperm

D. Plumule

Answer: C



[Watch Video Solution](#)

16. Which is active in Maize

A. Maltase

B. Zymase

C. Diastase

D. Urease

Answer: C



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17. In the legume seed, food is stored in

A. Cotyledons

B. Endosperm

C. Perisperm

D. Seed coats

Answer: A



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18. Seed dormancy allows the plants to

A. Overcome unfavourable climactic conditions

B. Develop healthy seeds

C. Reduce viability

D. Prevent deterioration of seeds

Answer: A



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19. Among the following which compound can induce seed dormancy

A. Gibberellins

B. Caffeine

C. ABA

D. Potassium nitrate

Answer: C



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20. A method of breaking dormancy and allowing ample absorption of water is

A. Stratification

B. Scarification

C. Vernalisation

D. Devernalisation

Answer: B



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21. The following figure show



- A. True fruit of cashew
- B. False fruit of strawberry
- C. Parthenocarpic fruit of strawberry
- D. Apomictic seed of litchi

Answer: B



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22. During seed germination, seed coat ruptures due to

A. Differentiation of cotyledons

B. Massive glycolysis in endosperm and cotyledons

C. Massive imbibition of water

D. Sudden increase in cell division

Answer: C



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23. Hormone group responsible for breaking
see dormancy 1. ABA 2. Cytokinin 3. Auxin 4.
Gibberellin

A. 1,3

B. 1,2,4

C. 2,3,4

D. 1,2,4

Answer: C



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24. In pluses protein is stored in

A. Cotyledons

B. Endosperm

C. Pericarp

D. Seed coat

Answer: A



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25. The embryo in sunflower has

A. One cotyledon

B. Two cotyledons

C. Many cotyledons

D. No cotyledon

Answer: B



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26. Effect of pollen on character of pericarp and seed coat is

A. Xenia

B. Metaxenia

C. Ruminant endosperm

D. Chimera

Answer: B



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27. Xenia nd metaxenia are related to

- A. Only endosperm
- B. Xylem and phloem
- C. Pollen and endosperm
- D. Pollen culture

Answer: C



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Section A Topicwise Questions Topic 8 Apomixis And Polyembryony

1. Apomictic embryos in citrus arise from

A. Maternal sporophytic tissue in ovule

B. Antipodal cells

C. Haploid cells

D. Synergids

Answer: A



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2. In a type of apomixis known as adventitious embryony embryos develop directly from the

A. Nucellus or integument

B. Zygote

C. Synergids or antipodals of embryo sac

D. Accessory embryo sacs in the ovule

Answer: A



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3. Match the columns I and II, and choose the correct combination from the options given.

Column I

Column II

Apomixis

1. Mango

Polyembryony

2. Seedless fruit

Parthenocarpy

3. Asteraceae

A. a-3, b-1, c- 2

B. a-2, b-3, c-1

C. a-1, b-2, c-3

D. a-3, b-2, c-1

Answer: A



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4. 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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5. Adventive embryony and polyembryony is common in:

A. Carthamus

B. Citrus

C. Corchorus

D. Maize

Answer: B



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6. Nucellar embryo is

A. Amphimictic haploid

B. Amphimictic diploid

C. Apomictic haploid

D. Apomictic diploid

Answer: D



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Section B Assertion Reasoning Questions

1. Assertion : Each cell of sporogenous tissue is a potential pollen mother cell (PMC) or

microspore mother cell.

Reason : Each cell of the sporogenous tissue is capable of giving rise to a microspore tetrad

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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2. Assertion : The period for which pollen grains remain viable is highly variable.

Reason : Viability of pollen grain depends some extent on the prevailing temperature and humidity.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: B



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3. Assertion : It is possible to store pollen grains of a large number of species for years in years in liquid nitrogen ($-196^{\circ}C$)

Reason : Such stored pollen can be used as pollen banks, similar to seed banks, in crop breeding programmes.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: B



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4. Assertion : Pollen consumption has claimed to increase the performance of athletes and race horses.

Reason : Pollen grains are rich in the nutrients.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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5. Assertion : Pollen grains of many species cause severe allergies and bronchial affections in some people leading to acute respiratory disorders-asthma, bronchitis, etc.

Reason : In some members of Rosaceae,

Leguminosae and Solanaceae, pollen grains lose viability within 30 minutes of their release.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: D



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6. Assertion : In majority of angiosperms, there is monosporic type of embryo sac development.

Reason : The embryo sac develops from the single functional megaspore.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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7. Assertion : Geitonogamy is functionally cross-pollination involving pollinating agent and genetically it is similar to autogamy since the pollen grains come from the another plant.

Reason : Geitonogamy is the only type of pollination which during pollination brings genetically different types of pollen grains to the stigma.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: D



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8. Assertion : To compensate the uncertainties and associated loss of pollen grains during pollination by abiotic agents, the flowers produce enormous amount of pollen when compared to the number of ovules available for pollination.

Reason : Pollen grains coming in contact with the stigma is a chance factor in both wind and water pollination.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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9. Assertion : Wind pollination requires that the pollen grains are light and non-sticky.

Reason : Light pollen grains can be transported easily in wind currents.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of

the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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10. Assertion : The distribution of bryophytes and pteridophytes is limited.

Reason : In bryophytes and pteridophytes

water is required for the transport of male gamete and fertilisation.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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11. Assertion : Both wind and water pollinated flowers are not very colourful and do not produce nectar.

Reason : There is no need to attract the pollinating agents.

A. If both assertion and reason are true
and the reason is the correct

explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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12. Assertion : Flowering plants have developed many out breeding devices to discourage self-pollination and to encourage cross-pollination.

Reason : Continued self-pollination result in inbreeding depression.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: A



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13. Assertion : Syngamy results in the formation of endosperm.

Reason: Triple fusion results in the formation of embryo.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: D



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14. Assertion : In the most common type of endosperm development, the PEN undergoes successive nuclear division to give rise to free nuclei.

Reason : Embryo develops at the chalazal end of the embryo sac where zygote is situated.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion.

C. If assertion is true but reason is false

D. If both assertion and reason are false.

Answer: C



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15. Assertion : Seeds generate new genetic combinations leading to variations.

Reason : Seeds are the product of sexual reproduction.

A. Both assertion and reason are true and the reason is the correct explanation of the assertion.

B. Both assertion and reason are true but reason is not the correct explanation of the assertion.

C. Assertion is true but reason is false

D. Both assertion and reason are false.

Answer: A



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Section D Chapter End Test

1. Pollinia are found in the flowers of

A. Calotropis/ Asclepiadoideae or
Apocynaceae

B. Vinca (Catharanthus)

C. Hibiscus/Malvaceae

D. Salvia/Lamiaceae

Answer: A



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2. Which among the following is correct ?

A. Gametes are invariably haploid

B. Spores are invariably haploid

C. Gametes are generally haploid

D. Both spores and gametes are invariably
haploid

Answer: A



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3. In a fertilized ovule, n , $2n$ and $3n$ conditions occur respectively in

A. Antipodal, egg and endosperm

B. Egg, nucellus and endosperm

C. Endosperm, nucellus and egg

D. Antipodals, synergids and integuments

Answer: B



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4. Crassinucellate ovule shows:

A. Ill developed nucellus

B. Partially developed nucellus

C. Well developed nucellus

D. No nucellus

Answer: C



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5. Male gametophyte of angiosperms/monocots is

A. Microsporangium

B. Nucellus

C. Microspore

D. Stamen

Answer: C



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6. Chromosome number in a flowering plant can be

A. haploid, diploid and polyploid

B. Haploid and diploid

C. Only diploid

D. Only haploid

Answer: A



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7. Seeds are products of sexual reproduction because they

- A. Give rise to new plants
- B. Have variability
- C. Are formed by fusion of gametes
- D. Are formed by fusion of pollen tube

Answer: C



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8. Sporogenesis is

- A. Development and formation of spores
- B. Production of mitospores
- C. Production of meiospores
- D. Formation of zygote and embryo.

Answer: A



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9. Movement of pollen tube towards embryo sac is

A. Thermotactic

B. Phototactic

C. Chemotactic

D. Thigmotactic

Answer: C



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10. Oil reservoir of Groundnut is present in

A. Embryo

B. Cotyledons

C. Endosperm

D. Underground tubers

Answer: B



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11. In sausage tree (*Kigelia africana*) the pollination takes place by

A. Bats

B. Birds

C. Insects

D. Wind

Answer: A



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12. 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

Answer: A



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13. Aleurone layer helps in

A. Storage of food in endosperm

B. Protection of embryo

C. Utilization of stored food

D. All of the above

Answer: C



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14. Development of female gametophyte directly from megaspore mother cell without meiosis is called

A. Apogamy

B. Apospory

C. Syngamy

D. Parthenospore

Answer: B



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15. Cleistogamous flowers are found in

A. *Arachis hypogea*

B. *Solanum tuberosum*

C. *Cucumis melo*

D. *Allium cepa*

Answer: A



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16. Ubisch bodies are connected with the formation of

- A. Sporopollenin
- B. Intine and pollenkit
- C. Exine
- D. Pollenkit and pollinia

Answer: C



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17. Common characteristic found in Cycas and angiosperm is

- A. Vessels
- B. Motile sperms
- C. Ovules
- D. Circinate vernation

Answer: C



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18. Formation of additional embryo from part of the same embryo or embryo sac is

- A. Simple polyembryony
- B. Adventive polyembryony
- C. Vegetative polyembryony
- D. Cleavage polyembryony

Answer: B



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

A. Campylotropous

B. Amphitropous

C. Orthotropous

D. Anatropous

Answer: B



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20. Germination is epigeal in

A. Zea mays

B. helianthus

C. Mangifera

D. Pisum.

Answer: B



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21. After removal of covering in Pea, the seed consists of

A. Cotyledons

B. Embryo

C. Cotyledons + Endosperm

D. Cotyledons + Endosperm + Pericarp

Answer: B



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22. Heaping of soil around base of stem in Potato is meant for

- A. Preventing exposure of roots
- B. Providing extra support to delicate stem
- C. Inducing development of more axillary shoots
- D. Making more water available

Answer: C



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23. Entry of pollen tube through the end opposite to micropyle is

A. Porogamy

B. Chalazogamy

C. Mesogamy

D. Syngamy

Answer: B



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24. Pollenkit is formed form

- A. Endothecium
- B. Middle layers
- C. Microspore mother cell
- D. Tapetum

Answer: D



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25. Night blooming flowers are generally

A. Light weight

B. Scented

C. Brightly coloured

D. Bloom in clusters

Answer: B



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26. Formation of embryo directly from nucellus and integument is

A. Adventive polyembryony

B. Apospory

C. Apogamy

D. Apomixis

Answer: A



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27. What one is correct ?

A. Albinism is genetic and etiolation is physiological

B. Etiolation is genetic and albinism is physiological

C. Etiolation is irreversible

D. Etiolation and albinism are synonyms

Answer: A



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28. Entry of pollen tube through chalazal end is

A. Syngamy

B. Porogamy

C. Mesogamy

D. Basigamy

Answer: D



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29. In 82% of angiosperm families, ovule is

- A. Anatropous
- B. Orthotropous
- C. Amphitropous
- D. Circinotropous

Answer: A



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30. In Pea, Castor and Maize, the number of cotyledons are respectively

A. One, two and two

B. Two, two and one

C. Two , one and two

D. One, two and one.

Answer: B



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31. In *Cycas* or *Pinus*, ovule has how many integuments

A. Three

B. One

C. Two

D. None

Answer: B



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32. Cross pollination is

A. Autogamy

B. Allogamy

C. Chasmogamy

D. Cleistogamy

Answer: B



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33. Rarely in angiosperms, the pollen tube developed further in embryo sac. The abnormality is called

A. Metaxenia

B. Nemec phenomenon

C. Xenia

D. Mesogamy

Answer: B



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34. The point of attachment of the stalk with the seed is

A. Hilum

B. Micopyle

C. Tegmen

D. Plumule.

Answer: A



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35. Micropyle occurs is

A. Ovary

B. Seeds

C. Ovule

D. Both B and C

Answer: D



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36. Monocot seed generally shows

- A. Epigeal germination
- B. Hypogeal germination
- C. Both A and B
- D. None of the above

Answer: B



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37. Pollen grains have spiny exine to aid in

- A. Entomophily

B. Anemophily

C. Ornithophily

D. Chiropterophily

Answer: A



Watch Video Solution

38. Intraspecific cross pollination is

A. Autogamy

B. Geitonogamy

C. Xenogamy

D. Alloautogamy

Answer: C



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39. In hypogeal germination due to elongation ofplumule comes out of the ground

Or

The portion of embryonal axis above cotyledon is called as

A. Hypocotyl

B. Epicotyl

C. Cotyledons

D. Both A and B

Answer: B



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40. Type of ovule present in Opuntia is

A. Amphitropous

B. Campylotropous

C. Circinotropous

D. Orthotropous

Answer: C



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41. Versatile anthers are connector with

A. Entomophily

B. Malacophily

C. Ornithophily

D. Anemophily

Answer: D



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42. In a grafted plant, stock has 48 chromosomes while scion has 24 chromosomes. The chromosome number for root cells and eggs are

A. 48 and 24

B. 24 and 24

C. 24 and 12

D. 48 and 12

Answer: D



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43. A non-nutritive structure is

A. Tapetum

B. Endosperm

C. Integument

D. Palisade parenchyma

Answer: C



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44. Development of microsporangium in angiosperms and gymnosperms is of typical:

A. Eusporangiate type

B. Leptosporangiate type

C. Monosporic type

D. Tetrasporic type

Answer: A



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45. Thread-like pollen without exine are found
in

A. Hydrophily

B. entomophily

C. Anemophily

D. Chiropterophily

Answer: A



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46. Which one does not exhibit seed dormancy

?

A. Phaseolus

B. Rhizophora

C. Cassia

D. Xanthium

Answer: B



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47. How many cells or nuclei are present in mature male gametophyte of *Capsella*

A. One

B. Two

C. Three

D. Four

Answer: C



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48. Egg apparatus consists of

A. Egg and antipodals

B. Polar nuclei

C. Egg and synergids

D. Egg.

Answer: C



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49. Tetrad of megaspores is generally

A. Tetrahedral

B. Linear

C. Decussate

D. Isobilateral

Answer: B



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50. Pollination characteristically occurs in

A. Bryophytes and angiosperms

B. Pteridophytes and angiosperms

C. Angiosperms and gymnosperms

D. Angiosperms and fungi.

Answer: C



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Others

1. Raphe is

- A. Ridge formed by fused funiculus
- B. Funicle attached to ovule
- C. Part of nucellus

D. Part of flower

Answer: A



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

A. Male gamete

B. Pollen grain

C. Egg

D. Microspore mother cell

Answer: D



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3. Unisexuality of flowers prevents

A. Geitonogamy but not xenogamy

B. Autogamy and geitonogamy

C. Autogamy but not geitonogamy

D. Both geitonogamy and xenogamy.

Answer: C



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

- A. Brings about opening of pollen tube
- B. Guides pollen tube from synergid to egg
- C. Helps in entry of pollen tube into synergid

D. Prevents entry of more than pollen tube
into embryo sac

Answer: C



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5. Which one of the following is resistant
action

A. Pollen exine

B. Leaf cuticle

C. Cork

D. Wood fibre

Answer: A



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6. Endosperm is consumed by the developing embryo in

A. Coconut

B. Pea

C. Maize

D. Castor

Answer: B



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

A. Seed

B. Germinated pollen grain

C. Embryo

D. Unfertilised ovule

Answer: D



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8. Assured seed set is possible even in absence of pollinators when flower is

A. Xenogamous

B. Chasmogamous

C. Geitonogamous

D. Cleistogamous

Answer: D



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9. In a mature embryo sac the central cell is

A. Single nucleate

B. Binucleate

C. Four nucleate

D. Eight nucleate

Answer: B



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10. Formation of liquid endosperm in coconut takes place because:

A. Karyokinesis is not followed by cytokinesis

B. Karyokinesis is followed by cytokinesis

C. Formation of liquid endosperm is not dependent upon karyokinesis and cytokinesis

D. None of the above

Answer: A



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11. An example of a seed with endosperm perisperm and caruncle is

Or

Which one of the following is an endosperm seed

Or

In which of the following plants, cotyledons form the first pair of leaves.

A. Castor

B. Coffee

C. Lily

D. Cotton

Answer: A



12. Ovule is inverted with body fused to funicle, micropyle lying close to hilum and facing the placenta. It is

- A. Hemitropous
- B. Orthotropous
- C. Anatropous
- D. Campylotropous

Answer: C



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13. Tapetum occurs in

A. Anther wall

B. Ovary wall

C. Male gametophyte

D. Female gametophyte

Answer: A



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14. Wind pollinated flowers are

A. Small, brightly coloured, producing large number of pollen grains

B. Small, producing large number of dry pollens

C. Large producing abundant nectar and pollens

D. Small, producing nectar and dry pollens

Answer: B



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15. Ruminant endosperm is commonly found in seeds of

A. annonaceae/Areca Nut

B. Compositae

C. Cruciferae

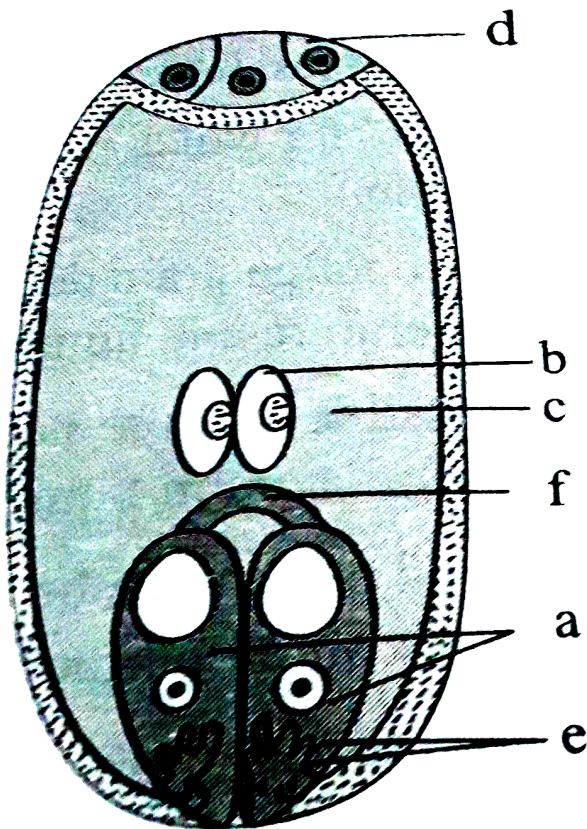
D. Euphorbiaceae

Answer: A



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16. In the diagram given, parts labelled as a, b,c,d,e and f are respectively identified as



- A. Synergids, polar nuclei, central cell, antipodals, filiform apparatus and egg
- B. Polar nuclei, egg, antipodals, central cell, filiform apparatus and synergids
- C. Filiform apparatus, polar nuclei, egg, antipodals synergids and central cell
- D. Central cell, polar nuclei, filiform apparatus, antipodals, synergids and eggs

Answer: A



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17. A polygonum type embryo sac is:

- A. 7 celled, 7-nucleate
- B. 7 celled, 8-nucleate
- C. 8 celled, 7-nucleate
- D. 8 celled, 8-nucleate

Answer: B



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18. Number of male gametes formed 16 microspore mother cells is

A. 128

B. 64

C. 32

D. 16

Answer: A



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19. The only type of pollination which during pollination brings genetically different types of pollen grains to the stigma, is:

- A. Xenogamy
- B. Geitonogamy
- C. Chasmogamy
- D. Autogamy

Answer: A



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20. Gametogenesis in haploid plants involves

A. Binary fission

B. Meiosis

C. Mitosis

D. Amitosis

Answer: C



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21. In which pollination is autogamous

A. Chasmogamy

B. Geitonogamy

C. Cleistogamy

D. Xenogamy

Answer: C



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22. Nucellar polyembryony is reported in species of

A. Triticum

B. Brassica

C. Citrus

D. Gossypium

Answer: C



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23. In angiosperms, functional megaspore develops into

A. Endosperm

B. Embryo sac

C. Ovule

D. Pollen sac

Answer: B



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24. Cleistogamy does not require anthesis because

A. No pollination agent is required

B. It assures heterozygosity

C. It allows xenogamy

D. It favours insect pollination

Answer: A



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25. The recent record of 2000 years old viable seed is of

A. Bamboo

B. Areca Palm

C. Cocunut

D. Date Palm

Answer: D



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26. Fragrant flowers with cell developed nectaries are an adaptation for

- A. Hydrophily
- B. Anemophily
- C. Entomophily
- D. None of these

Answer: C



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27. Both, autogamy and geitonogamy are prevented in

A. Papaya

B. Cucumber

C. Castor

D. Maize

Answer: A



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

A. Zostera

B. Fig

C. Salvia

D. Commelina

Answer: D



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29. The coconut water and the edible part of coconut are equivalent to or the morphological nature of the edible part of coconut is

A. Endosperm

B. Embryo

C. Endocarp

D. Mesocarp

Answer: A



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30. What is the function of germ pore

A. Emergence of radicle

B. Emergence of pollen tube

C. Release of male gametes

D. Absorption of water for seed
germination

Answer: B



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31. Which one is wrong

A. Vegetative cell is larger than generative cell

B. Intine is made of cellulose and pectin

C. Pollen grains of some plants remain viable for months

D. Double fertilization is absent where pollen is shed in two-celled stage.

Answer: D



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32. Plants with ovaries having only one or a few ovules are generally pollinated by

A. Wind

B. Bees

C. Birds

D. Butterflies

Answer: A



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33. Innermost microsporangial wall layer that nourishes pollen grains is

- A. Endothecium
- B. Tapetum
- C. Endodermis
- D. Sporogenous tissue

Answer: B



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34. Remnants of nucellus present in seed of Black Pepper and Beet are called

- A. Pericarp
- B. Periderm
- C. Endosperm
- D. Perisperm

Answer: D



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35. Which of the following events takes place after double fertilization

A. Pollen grain germinates over stigma

B. Pollen tube enters the embryo sac

C. Two male gametes are discharged into embryo sac

D. PEN develops into endosperm

Answer: D



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36. Match the columns and choose the correct combination.

	Column I		Column II
1.	Funicle	a.	Small opening of ovule
2.	Integuments	b.	Stalk of ovule
3.	Chalaza	c.	Protective envelopes
4.	Hilum	d.	Junction part of ovule and stalk
5.	Micropyle	e.	Basal part of ovule

A. 1-b, 2-c, 3-e, 4-d, 5-a

B. 1-a, 2-c, 3-b, 4-d, 5-e

C. 1-b, 2-c, 3-a, 4-d, 5-c

D. 1-c, 2-d, 3-e, 4-a, 5-b

Answer: A



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37. Sporopollenin is formed by polymerisation of

A. Fat and phenols

B. Fat and esters

C. Fats and esters

D. Carotenoid and esters

Answer: A



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38. Commonly the pollen tube enters the ovule through

A. Hilum

B. Chalaza

C. Funicle

D. Micropyle

Answer: D



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39. Development of an embryo sac from a nucellar cell is

A. Diplospory

B. Apospory

C. Apogamy

D. Adventive embryony

Answer: B



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40. Double fertilization is essential for formation of

A. Seed

B. Fruit

C. Megaspore

D. Endosperm

Answer: D



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41. Which is correct

A. Sporopollenin is made up of inorganic materials

B. Sporopollenin can withstand high temperature as well as strong acids and alkalis

C. Sporopollenin can withstand high temperature but not strong acids

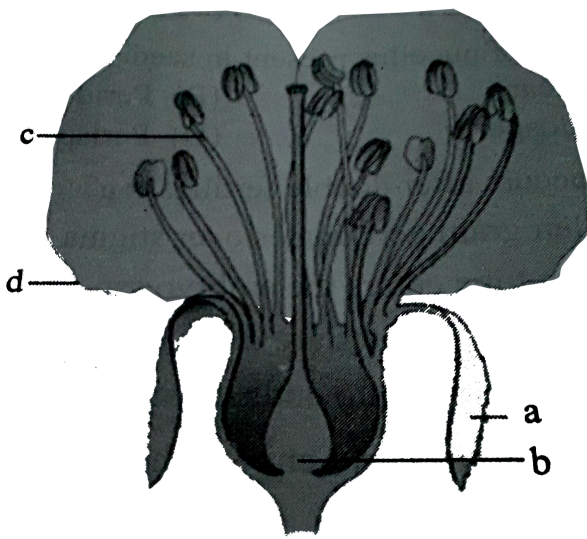
D. Sporopollenin can be degraded by enzymes

Answer: B



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42. Identify correctly the labels a, b, c and d in the figure of typical flower.



- A. a-petals, b-sepals, c-stamens, d-pistil
- B. a-sepals, b-pistil, c-petals, d-stamens
- C. a-sepals, b-pistil, c-stamens, d-petals
- D. a-petals, b-speals, c-pistil, d-stamens

Answer: C





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43. Pollen grains of rice and wheat lose their viability in ____ Minutes of their release

A. 30

B. 10

C. 60

D. 90

Answer: A



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44. After double fertilization, a mature ovule has

- A. 1 diploid and 1 haploid cell
- B. 1 diploid and 1 triploid cell
- C. 2 haploid and 1 triploid cell
- D. 1 haploid and 1 triploid cell

Answer: B



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45. Geitonogamy involves

A. Fertilization of a flower by the pollen from a flower of another plant belonging to a distant population

B. Fertilization of a flower by the pollen from another flower of the same plant

C. Fertilization of a flower by the pollen from the same flower

D. Fertilization of a flower by the pollen from a flower of another plant in the same population.

Answer: B



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46. Function of filiform apparatus is to :-

A. Guide the entry of pollen tube

B. Recognize the suitable pollen at stigma

C. Stimulate division of generative cell

D. Produce nectar

Answer: A



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47. Male gametophyte with least number of cells is present in

A. Pinus

B. Pteris

C. Funaria

D. Lilium

Answer: D



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48. Pollen tablets are available in the market
for

A. Ex situ conservation

B. In vitro fertilization

C. Breeding programmes

D. Supplementing food

Answer: D



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49. Non-albuminous seed is produced in

A. Pea

B. Maize

C. Castor

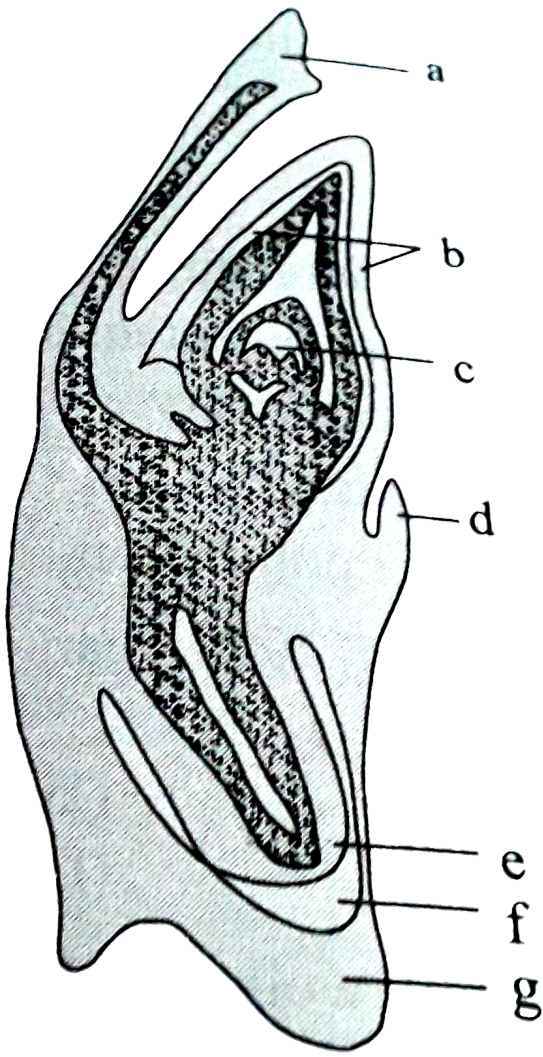
D. Wheat

Answer: A



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50. In L.S. exmbryo of grass, which one shows correct labelling.



A. a-scutellum, b-coleoptile, c-shoot apex, d-epiblast, e-radicle, f-root cap, g-

coleorhiza

B. a-root cap, b-shoot apex, c-scutellum, d-

coleoptile, e-epiblast, f-radicle, g-

coleorhiza

C. a-coleorhiza, b-radicle, c-epiblast, d-

coleoptile, e-root cap, f-scutellum, g-

shoot apex

D. a-coleoptile, b-scutellum, c-radicle, d-

shoot apex, e-epiblast, f-coleorhiza, g-

root cap

Answer: A



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51. Nitsch was able to get strawberries of different shapes by

- A. Splitting the ovary
- B. Removing the perianth
- C. Selectively removing some carpels

D. Inserting an alcohol dipped needle into
ovary

Answer: C



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52. PEN stands for

- A. Primary endosperm nourishment
- B. Primary endosperm nucleus
- C. Primary embryo nourishment

D. Poly embryo nourishment

Answer: B



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53. wind pollinated plants generally do not show the character

A. Feathery stigmas

B. Single ovule in the ovary

C. Well exposed stamens

D. Flowers are large and colourful

Answer: D



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54. Identify the pair of wrong statements

I. Intine of pollen grains is made up of sporopollenin,

II. Pollen grains are well preserved as fossils because of the presence of sporopollenin,

III. Enzymes can degrade the organic material

of the pollen grain exine,

IV. Sporopollenin can withstand high temperature, strong acids and alkali

A. III, IV

B. I, III

C. I, II

D. II, III

Answer: B



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55. In Castor and Maize plants

A. Autogamy is prevented but not geitonogamy

B. Both autogamy and geitonogamy are prevented

C. Male and female flowers are borne by different plants

D. Anthers and stigma are placed at different positions to encourage cross pollination

Answer: A



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56. Perisperm is found in

A. Black pepper

B. Wheat

C. Maize

D. Groundnut

Answer: A



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57. Which of the following finds application in hybrid seed industry

- A. Apomixis
- B. Parthenocarpy
- C. Parthenogenesis
- D. Polyembryony

Answer: A



58. Which of the following features 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. Flowers are not colourful,

IV. Flowers do not produce nectar

A. III and IV

B. II and III

C. I and II

D. II

Answer: A



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59. Select the plants pollinated by water

(a) Water Hyacinth (b) Zostera (c)

Amorphophallus (d) Vallisneria (e) Yucca.

A. a, d and e

B. b and e

C. b and d

D. b, c and d

Answer: C



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60. When anthers and stigma of a given flower mature at different points of time, it is a case of
of

A. Geitonogamy

B. Dichogamy

C. Cleistogamy

D. Herkogamy

Answer: B



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61. Ex-albuminous seeds at maturity

A. Have no residual endosperm

B. Retain part of endosperm

C. Have no perisperm

D. Have no seed coat

Answer: A



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62. The residual persistent nucellus occurs in

A. Barley

B. Groundnut

C. Castor

D. Beet.

Answer: D



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63. A large majority of flowering plants are
pollinated by

A. Butterflies

B. Bees

C. Sunbirds

D. Beetles

Answer: B



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64. which among the following contributes to pollen wall formation ?

A. Tapetum

B. Endothecium

C. Connective

D. Stomium

Answer: A



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65. The embryo sac of a typical dicotyledonous plant at the time of fertilization is

A. 8 cells

B. 7 cells

C. 6 cells

D. 5 cells.

Answer: B



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66. The antigenic material(s) in the pollen wall that causes allergy is/are contributed by

A. Exine

B. Pollen cytoplasm

C. Intine

D. Exine and intine

Answer: D



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67. Advantage of cleistogamy is

A. More vigorous offspring

B. No dependence on pollinators

C. Vivipary

D. Higher genetic variability

Answer: B



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68. Wind pollination is common in

A. Orchids

B. Legumes

C. Lilies

D. Grasses.

Answer: D



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69. Flowers are unisexual in

A. Cucumber

B. China rose

C. Onion

D. Pea

Answer: A



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70. Male gametophyte in angiosperms produces:

- A. Single sperm and a vegetative cell
- B. Single sperm and two vegetative cells
- C. Three sperms
- D. Two sperms and a vegetative cell

Answer: D



71. Coconut water from a tender coconut is:

- A. Free nuclear endosperm
- B. Innermost layers of the seed coat
- C. Degenerated nucellus
- D. Immature embryo

Answer: A



72. Which one of the following fruits is parthenocarpic

A. Apple

B. Jackfruit

C. Banana

D. Brinjal

Answer: C



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73. Filiform apparatus is characteristic feature of :

A. Nucellar embryo

B. Aleurone cell

C. Synergids

D. Generative cell

Answer: C



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

A. Coleorhiza

B. Scutellum

C. Coleopite

D. Epiblast

Answer: B



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75. In angiosperms, microsporogenesis and megasporogenesis

- A. Form gametes without further divisions
- B. Involve meiosis
- C. Occur in ovule
- D. Occur in anther

Answer: B



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76. Transmission tissue is characteristic feature of

A. Dry stigma

B. Wet stigma

C. Hollow style

D. Solid style

Answer: D



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77. The hilum is a scar on the :

- A. Fruit, where style was present
- B. Seed, where micropyle was present
- C. Seed, where funicle was attached
- D. Fruit, where it was attached to pedicel.

Answer: C



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78. Which one of the following statements is not true

A. The flowers pollinated by flies and bats secrete foul odour to attract them.

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

C. Pollen grains are rich in nutrients, and they are used in the form of tablets or syrups.

D. Pollen grains of some plants cause severe allergies and bronchial affections in some people.s

Answer: A



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

A. Apogamy

B. Cleistogamy

C. Geitonogamy

D. Xenogamy

Answer: C



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

A. Floral fragrance and calcium crystals

B. Protein pellicle and stigmatic exudates

C. Colour and large size of flower

D. Nectar and pollen grains

Answer: D



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81. The coconut water from tender coconut represents

A. Free nuclear proembryo

B. Free nuclear endosperm

C. Endocarp

D. Fleashy mesocarp

Answer: B



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

- A. Pollen grains of many species cause severe allergies.
- B. Stored pollen in liquid nitrogen can be used in the crop breeding programmes.
- C. Tapetum helps in the dehiscence of anther.
- D. Exine of pollen grains is made up of sporopollenin.

Answer: C



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

A. Somatic hybridization

B. Apomixis

C. Sporulation

D. Budding

Answer: B



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84. Which of the following statements is not correct ?

A. Pollen germination and pollen tube growth are regulated by chemical components of pollen interacting with those of the pistil.

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

C. 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.

D. Insects that consume pollen or nectar without bringing about pollination are called pollen/nectar robbers.

Answer: C



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85. Proximal end of the filament of stamen is attached to the

A. Placenta

B. Thalamus or petal

C. Anther

D. Connective

Answer: B



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86. Which one of the following generates new genetic combinations leading to mutations

- A. Sexual reproduction
- B. Nucellar polyembryony
- C. Vegetative reproduction
- D. Parthenogenesis.

Answer: A



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87. Match the Column I and Column II and select the correct option using the codes given below

Column I		Column II	
a.	Pistils fused together	i.	Gametogenesis
b.	Formation of gametes	ii.	Pistillate
c.	Hyphae of higher Ascomycetes	iii.	Syncarpous
d.	Unisexual female flower	iv.	Dikaryotic

A. a-i, b-ii, c-iv, d-iii

B. a-iii, b-i, c-iv, d-ii

C. a-iv, b-iii, c-i, d-ii

D. a-ii, b-i, c-iv, d-iii

Answer: B



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88. In majority of angiosperms

A. Reduction division occurs in the
megaspore mother cells

B. A small central cell is present in the
embryo sac

C. Egg has a filiform apparatus

D. There are numerous antipodal cells

Answer: A



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

A. Birds

B. Bats

C. Water

D. Insects or wind

Answer: D



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90. the ovule of an angiosperm is technically equivalent to

A. Megaspore mother cell

B. Megaspore

C. Megasporangium

D. Megasporophyll

Answer: C



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91. Functional megaspore in an angiosperm develops into

A. Endosperm

B. Embryo sac

C. Embryo

D. Ovule

Answer: B



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92. Attractants and reward are required for

A. Entomophily

B. Hydrophily

C. Cleistogamy

D. Anemophily

Answer: A



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93. Plants, which produce characteristic pneumatophores and show vivipary belong to

- A. Halophytes
- B. Psammophytes
- C. Hydrophytes
- D. Mesophytes

Answer: A



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94. Flowers which have single ovule in the ovary and are packed into inflorescence are usually pollinated by

A. Bee

B. Wind

C. Bat

D. Water

Answer: B



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95. A dioecious flowering plant prevents both

- A. Autogamy and geitonogamy
- B. Geitonogamy and xenogamy
- C. Cleistogamy and xenogamy
- D. Autogamy and xenogamy

Answer: A



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96. Which of the following has proved helpful in preserving pollen of fossils

- A. Pollenkitt
- B. Cellulosic intine
- C. Oil content
- D. Sporopollenin

Answer: D



97. Pollen grains can be stored for several years in liquid nitrogen having a temperature of

A. $-120^{\circ}C$

B. $-80^{\circ}C$

C. $-196^{\circ}C$

D. $-160^{\circ}C$

Answer: C



98. Double fertilization is

A. Fusion of two male gametes of a pollen tube with two different eggs

B. Fusion of one male gamete with two polar nuclei

C. Fusion of two male gametes with one egg

D. Syngamy and triple fusion

Answer: D



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99. Which one of the following plants shows a very close relationship with a species of moth, where none of the two can complete its life cycle without the other

A. Hydrilla

B. Yucca

C. Banana

D. Viola

Answer: B



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100. Part of the embryo which comes out first during seed germination is

A. Radicle

B. Plumule

C. Hypocotyl

D. Epicotyl

Answer: A



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101. Pollinia are found in

A. wheat

B. madar

C. mango

D. banana

Answer: B



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102. Ploidy of ovum of angiosperms is

A. haploid

B. diploid

C. triploid

D. polyploid

Answer: A



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103. Xenia refers to

- A. effect of pollen on endosperm
- B. effect of pollen on stems
- C. effect of pollen on taste of fruits
- D. effect of pollen on vascular tissue

Answer: A



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104. Chasmogamy refers to the condition where

- A. Flowers remain closed
- B. Flowers are absent
- C. Flowers are open
- D. Flower are gamopetalous

Answer: C



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105. 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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106. The pollen tube usually enters the embryo sac:

- A. between the egg cell and synergid
- B. by directly penetrating the egg
- C. between one synergid and antipodal cell
- D. by knocking off the antipodal cells

Answer: A



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107. Double fertilization involves :-

- A. fertilization of egg by two male gametes
- B. fertilization of two eggs in the same embryo sac by two sperms brought by one pollen tube
- C. fertilization of the egg and the central cell by two sperms brought by different pollen tubes
- D. fertilization of the egg and the central cell by two sperms brought by the same

pollen tube

Answer: D



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108. Root cell of wheat has 42 chromosomes.
What would be the number of chromosomes
in the synergid cell ?

A. 7

B. 14

C. 21

D. 28

Answer: C



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109. Plants of which one of the following groups of genera are pollinated by the same agency ?

A. Triticum, Cocos, Mangifera

B. Ficus, Kigelia, Casuarina

C. Salvia, Morus, Euphorbia

D. Bombax, Dutea, Bauhinia

Answer: B



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110. Apomixis is

A. formation of seeds by fusion of gametes

B. formation of seeds without syngamy and
meiosis

C. formation of seeds with syngamy but no
meiosis

D. None of the above

Answer: B



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

A. germinated pollen grain

B. embryo

C. unfertilized ovule

D. seed

Answer: A



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112. What is common between vegetative reproduction and Apomixis

- A. Both are applicable to only dicot plants
- B. Both bypass the flowering phase
- C. Both occur round the year
- D. Both produces progeny identical to the parent

Answer: D



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113. Emasculation is not required when flowers are

A. bisexual

B. intersexual

C. unisexual

D. Either A and B

Answer: C



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114. Wheat root cells have 42 chromosomes.

The number of chromosomes in a cell of pollen grain is

A. 14

B. 21

C. 28

D. 42

Answer: B



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115. Geitonogamy involves

A. Fertilization of a flower by the pollen

from another flower of the same plant

B. Fertilization of a flower by the pollen

from a the same flower

C. Fertilization of a flower by the pollen

from a flower of another plant in the

same population.

D. Fertilization of a flower by the pollen

from a flower of another plant belonging

to a distant population.

Answer: A



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116. What is the correct sequence in the formation of female gametophyte in angiosperms?

A. Nucellus, megaspore tetrad, megaspore mother cell, megaspore, female

gametophyte

B. Megaspore tetrad, nucellus, megaspore

mother cell, megaspore, female

gametophyte

C. Nucellus, megaspore mother cell,

megaspore tetrad, megaspore, female

gametophyte

D. Megaspore mother cell, megaspore

tetrad, megaspore, nucellus, female

gametophyte

Answer: C



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117. Primary endosperm nucleus is formed by the fusion of

A. 2 polar nuclei + 1 synergid cell nucleus

B. 1 polar nucleus +1 antipodal cell nucleus
+1 synergid cell nucleus

C. 2 polar nuclei +1 male gamete nucleus

D. 2 antipodal cell nuclei + 1 male gamete

nucleus

Answer: C



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118. Apomixis is

A. formation of seeds by fusion of gametes

B. formation of seeds without syngamy and

meiosis

C. formation of seeds with syngamy but no
meiosis

D. None of the above

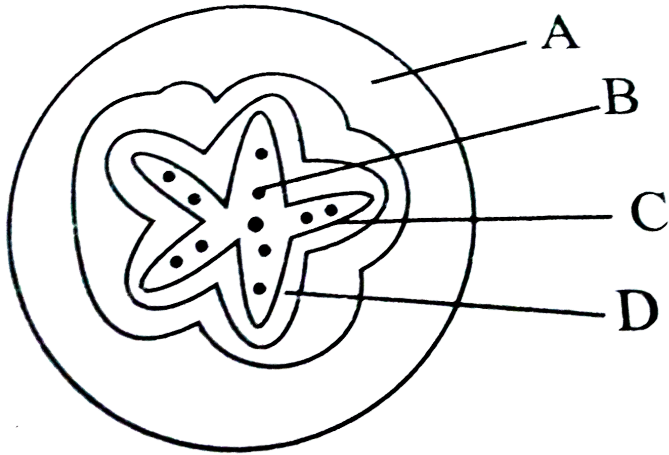
Answer: B



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119. Which of the following correctly represent the labelling of A, B, C and D w.r.t given

diagram.



A. A-Thalamus, B- Seed

C-Endocarp, D-Mesocarp

B. A-Seed, B-Thalamus,

C-Endocarp, D- Mesocarp

C. A-Endocarp, B-Mesocarp,

C-Thalamus, D- Seed

D. A-Thalamus, B- Seed

C-Mesocarp, D-Endocarp

Answer: A



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120. Match the column and choose the correct option.

Column I	Column II
Walnut	(I)cotyledon
Coconut	(II)Endosperm
Orange	(III)Endocarp
Strawberry	(IV)Thalamus

A. (i)-(I),(ii)-(II), (iii)-(III), (iv)-(IV)

B. (i)-(II),(ii)-(III),(iii)-(I),(iv)-(IV)

C. (i)-(III),(ii)-(II),(iii)-(IV),(iv)-(I)

D. (i)-(I),(ii)-(II),(iii)-(IV),(iv)-(III)

Answer: A



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121. In a practical test, a student has to identify the organisms in which syngamy does not occur. In those organisms the female gamete undergoes development to form new organisms without fertilization. This phenomenon is called "X". Identify the organisms and the phenomenon "X".

- A. Frog, Parthenogenesis
- B. Lizards, Gametogenesis
- C. Rotifers, Embryogenesis
- D. Rotifers, Embryogenesis

Answer: D



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

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

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If the assertion is false but the reason is true.

Answer: D



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123. Assertion : Insects visit flowers to gather honey

Reason : Attraction of flower prevents the insect from damaging other part of the plant.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both the assertion and reason are false.

Answer: D



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124. Assertion : Chasmogamous flowers require pollinating agents

Reason : Cleistogamous flowers do not expose their sex organs.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both the assertion and reason are false.

Answer: B



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125. Assertion : Leaves of Bryophyllum, Begonia help in vegetative multiplication

Reason : Leaves of these plants possess adventitious buds.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both the assertion and reason are false.

Answer: A



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126. Assertion : Endothecium layer of anther wall plays an important role in dehiscence of anther Reason : The presence of fibrous bands and differential expansion of inner and outer tangential walls of endothelial cells cause dehiscence of anther.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both the assertion and reason are false.

Answer: A



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127. Assertion : Storage of seeds at low temperature is possible.

Reason : Respiration and enzymatic activity of seeds are very high at low temperature.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of the assertion.

C. If the assertion is true but reason is false.

D. If both the assertion and reason are false.

Answer: C



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128. Assertion : Endosperm is a nutritive tissue and it is triploid

Reason : Endosperm is formed by fusion of secondary nucleus to second male gamete. It is used by developing embryo.

A. If both assertion and reason are true and the reason is a correct explanation of the assertion.

B. If both assertion and reason are true but reason is not a correct explanation of

the assertion.

C. If the assertion is true but reason is false.

D. If both the assertion and reason are false.

Answer: A



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