Sexual Reproduction in Flowering Plants

Question1

Which part of the ovule stores reserve food materials?

[NEET 2024 Re]

Options:

A.

Nucellus

B.

Integument

C.

Placenta

D.

Funicle

Answer: A

Solution:

Nucellus is a mass of cell enclosed within the integument and it has abundant food reserves.

Each ovule has one or more protective layer called integuments.

The ovule is a small structure attached to the placenta by means of a stalk called funicle.

Question2

Pollen grains remain preserved as fossils due to the presence of :

[NEET 2024 Re]

Options:

A.

Epidermal layer

B.

Tapetum

C.

Exine layer

D.

Intine layer

Answer: C

Solution:

Pollen grains are well-preserved as fossils because of the presence of sporopollenin, which is found in the outer layer of pollen, i.e., exine.

Question3

Match List-I with List-II :

	List-I		List-II
A.	China rose	I	Free central
B.	Mustard	II	Basal
C.	Primrose	III	Axile
D.	Marigold	IV	Parietal

Choose the correct answer from the options given below :

[NEET 2024 Re]

Options:

A.

A-IV, B-III, C-II, D-I

B.

A-II, B-III, C-IV, D-I

C.

A-III, B-IV, C-I, D-II

D.

A-III, B-IV, C-II, D-I

Answer: C

Solution:

China rose exhibits axile placentation.

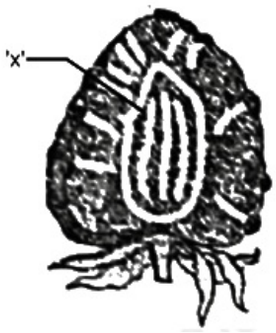
Mustard exhibits parietal placentation.

Primrose exhibits free central placentation.

Marigold exhibits basal placentation.

Question4

The part marked as ‘x’ in the given figure is



[NEET 2024 Re]

Options:

A.

Endosperm

B.

Thalamus

C.

Endocarp

D.

Mesocarp

Answer: B

Solution:

The given figure is of the false fruit, strawberry and ‘x’ represents the thalamus.

Question5

Identify the set of correct statements:
A. The flowers of Vallisneria are colourful and produce nectar.
B. The flowers of water lily are not pollinated by water.
C. In most of water-pollinated species, the pollen grains are protected from wetting.
D. Pollen grains of some hydrophytes are long and ribbon like.
E. In some hydrophytes, the pollen grains are carried passively inside water.

Choose the correct answer from the options given below.

[NEET 2024]

Options:

A.

C, D and E only

B.

A, B, C and D only

C.

A, C, D and E only

D.

B, C, D and E only

Answer: D

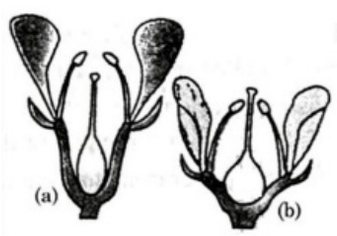
Solution:

Flowers of Vallisneria are not colourful and do not produce nectar. Waterlily is pollinated by insect or wind. In water-pollinated species, pollen grains are protected from wetting by a mucilaginous covering.

In some hydrophytes such as Vallisneria pollen grains are carried passively by water current.

Question6

Identify the type of flowers based on the position of calyx, corolla and androecium with respect to the ovary from the given figures (a) and (b)



[NEET 2024]

Options:

A.

(a) Epigynous; (b) Hypogynous

B.

(a) Hypogynous; (b) Epigynous

C.

(a) Perigynous; (b) Epigynous

D.

(a) Perigynous; (b) Perigynous

Answer: D

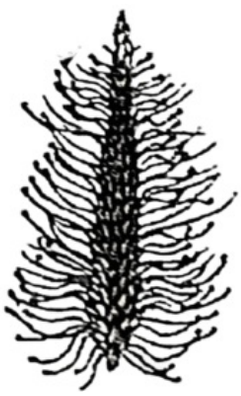
Solution:

If gynoecium is situated in the centre and other parts of the flower are located on the rim of the thalamus almost at the same level, it is called perigynous.

Both diagram shows perigynous condition.

Question7

Identify the correct description about the given figure:



[NEET 2024]

Options:

A.

Wind pollinated plant inflorescence showing flowers with well exposed stamens.

B.

Water pollinated flowers showing stamens with mucilaginous covering.

C.

Cleistogamous flowers showing autogamy.

D.

Compact inflorescence showing complete autogamy

Answer: A

Solution:

The given diagram shows a wind pollinated plant showing compact inflorescence and well exposed stamens.

Stamens are exposed so complete autogamy does not occur.

Question8

In which of the following sets of families, the pollen grains are viable for months?

[NEET 2023 mpr]

Options:

A.

Solanaceae, Poaceae and Liliaceae

B.

Brassicaceae, Liliaceae and Poaceae

C.

Rosaceae, Liliaceae and Poaceae

D.

Leguminosae, Solanaceae and Rosaceae

Answer: D

Solution:

In some members of Rosaceae, Solanaceae, Leguminosae pollen maintain viability for months.

In some cereals like rice and wheat belonging to Poaceae family to pollen loose viability within 30 minutes of their release.

Question9

Transfer of pollen grains from anther to stigma of another flower of same plant is known as :

[NEET 2023 mpr]

Options:

A.

Geitonogamy

B.

Xenogamy

C.

Autogamy

D.

Cleistogamy

Answer: A

Solution:

Explanation :

Geitonogamy refers to the transfer of pollen from the anther of one flower to the stigma of another flower on the same plant. While this process involves pollination between different flowers, because it occurs on the same plant, it does not increase genetic diversity.

Here's a quick overview of the other terms :

Xenogamy refers to the transfer of pollen grains from the anther of a flower to the stigma of a flower on a different plant. This is cross-pollination and promotes genetic diversity.

Autogamy refers to the transfer of pollen from the anther to the stigma of the same flower. This is self-pollination.

Cleistogamy refers to a type of automatic self-pollination where the flowers do not open and are therefore self-pollinated before they open.

Question10

In angiosperms the correct sequence of events in formation of female gametophyte in the ovule is :
(A) 3 successive free nuclear divisions functional megaspore.
(B) Degeneration of 3 megaspores.
(C) Meiotic division in megaspore mother cell.
(D) Migration of 3 nuclei towards each pole.
(E) Formation of wall resulting in seven celled embryosac.

Choose the correct answer from the options given below :

[NEET 2023 mpr]

Options:

A.

(A), (B), (C), (D), (E)

B.

(C),(E),(A),(D),(B)

C.

(B),(C),(A),(D),(E)

D.

(C), (B), (A), (D), (E)

Answer: D

Solution:

The process of female gametophyte formation in angiosperms, also known as megagametogenesis, involves several

steps :

1. Meiotic division in the megaspore mother cell (megasporocyte) - This division leads to the production of four haploid cells, which are the megaspores.

2. Degeneration of three of the four megaspores - Typically, three of these megaspores degenerate, leaving a single functional megaspore.

3. Successive mitotic divisions (not meiotic) in the functional megaspore - These divisions are typically free-nuclear (the nuclear membrane does not break down between divisions), and result in a multinucleate cell.

4. Migration of the nuclei to the cell periphery and formation of cell walls - This results in the creation of a seven-celled structure known as an embryo sac or female gametophyte.

5. The final structure of the female gametophyte includes an egg apparatus (one egg cell and two synergids), two polar nuclei in the central cell, and three antipodal cells.

Given these steps, the correct sequence of events in the formation of the female gametophyte is :

Question11

Large, colourful, fragrant flowers with nectar are seen in [NEET 2023]

Options:

A. Bird pollinated plants

B. Bat pollinated plants

C. Wind pollinated plants

D. Insect pollinated plants

Answer: D

Solution:

Solution:

Large, colourful, fragrant flowers with nectar attract biotic pollinators (insects), thus, they are seen in insect pollinated plants.

Question12

What is the function of tassels in the corn cob? [NEET 2023]

Options:

A. To trap pollen grains

B. To disperse pollen grains

C. To protect seeds

D. To attract insects

Answer: A

Solution:

Tassels in the com cob represents stigma and style which wave in the wind to trap pollen grains.

Question13

In angiosperm, the haploid, diploid and triploid structures of a fertilized embryo sac sequentially are :
[NEET 2023]

Options:

A. Antipodals, synergids, and primary endosperm nucleus

B. Synergids, Zygote and Primary endosperm nucleus

C. Synergids, antipodals and Polar nuclei

D. Synergids, Primary endosperm nucleus and zygote

Answer: B

Solution:

Solution:

Synergids are the cells of gametophyte and hence these are haploid Zygote is formed by fusion of two gametes and thus it is diploid.

Primary endosperm nucleus is formed by the fusion of diploid secondary nucleus with a male gamete.

Therefore, it is triploid.

Question14

Given below are two statements: One labelled as Assertion A and the other labelled as Reason R :
Assertion A : In gymnosperms the pollen grains are released from the microsporangium and carried by air currents.
Reason R : Air currents carry the pollen grains to the mouth of the archegonia where the male gametes are discharged and pollen tube is not formed.

In the light of the above statements, choose the correct answer from the options given below :
[NEET 2023]

Options:

A. Both A and R are true but R is NOT the current explanation of A

B. A is true but R is false

C. A is false but R is true

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

Answer: B

Solution:

Solution:

Assertion is correct but reason is false as in gymnosperms the pollen grains are released from the microsporangium and they are carried in air currents. They come in contact with the opening of the ovules borne on megasporophylls. The pollen tube carrying the male gametes grows towards archegonia in the ovules and discharge their contents near the mouth of the archegonia.

Question15

The residual persistent part which forms the perisperm in the seeds of beet is:
[NEET Re-2022]

Options:

A. Integument

B. Calyx

C. Endosperm

D. Nucellus

Answer: D

Solution:

Solution:

Perispermic Seeds - Seeds in which remains of nucellus are seen. The residual, persistent nucellus is called perisperm.Eg:- Black pepper, beet.

Question16

To ensure that only the desired pollens fall on the stigma in artificial hybridization process
(a) the female flower buds of plant producing unisexual flowers need not be bagged.
(b) there is no need to emasculate unisexual. flowers of selected female parent
(c) emasculated flowers are to be bagged immediately after cross pollination
(d) emasculated flowers are to be bagged after removal of anthers bisexual flowers, showing protogyny are never selected for cross

Choose the correct answer from the options given below:
[NEET Re-2022]

Options:

A. (a), (d) and (e) only

B. (a), (b) and (c) only

C. (b), (c) and (d) only

D. (b), (c) and (e) only

Answer: C

Solution:

Solution:

In Bisexual flower:

(1) Emasculation → Removal of anther from bisexual flower in immature stage.

(2) Bagging → Emasculated flowers are covered by bags. It is done to prevent undesirable cross pollination

(3) Desired pollination

(4) Rebagging

(5) Tagging

In unisexual flower all the steps are same but emasculation is not done because it is not required

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Question17

In general the egg apparatus of embryo sac in angiosperm consists of
[NEET Re-2022]

Options:

A. One egg cell, two synergids, two antipodal cells, two Polar nuclei

B. One egg cell, two synergids, three antipodal cells, two Polar nuclei

C. One egg cell, two synergids, two antipodal cells, three Polar nuclei

D. One egg cell, three synergids, two antipodal cells, two Polar nuclei

Answer: B

Question18

Which of the following can be expected if scientists succeed in introducing apomictic gene varieties of crops
[NEET Re-2022]

Options:

A. There will be segregation of the desired characters only in the progeny

B. Polyembryony will be seen and each seed will produce many plantlets

C. Seeds of hybrid plants will show longer dormancy

D. Farmers can keep on using the seeds produced by the hybrids to raise new crop year after year

Answer: D

Solution:

Solution:

Apomixis is a phenomenon in which seeds are formed from unfertilized nucleus or egg cell, such seeds produce plantlets identical to parent plant (hybrid plant) So, farmers can keep using these apomictic seeds to raise new crops year after year.

Question19

Given below are two statements :
Statement I :
Cleistogamous flowers are invariably autogamous
Statement II :
Cleistogamy is disadvantageous as there is no chance for cross pollination

In the light of the above statements, choose the correct answer from the options given below
[NEET-2022]

Options:

A. Both Statement I and Statement II are correct

B. Both Statement I and Statement II are incorrect

C. Statement I is correct but Statement II is incorrect

D. Statement I is incorrect but Statement II is correct

Answer: A

Solution:

Solution:

Cleistogamous flowers does not open at all. In such flowers autogamy occurs. Lack of cross pollinationis a disadvantage of cleistogamy.

Question20

Identify the incorrect statement related to Pollination :
[NEET-2022]

Options:

A. Pollination by water is quite rare in flowering plants

B. Pollination by wind is more common amongst abiotic pollination

C. Flowers produce foul odours to attract flies and beetles to get pollinated

D. Moths and butterflies are the most dominant pollinating agents among insects

Answer: D

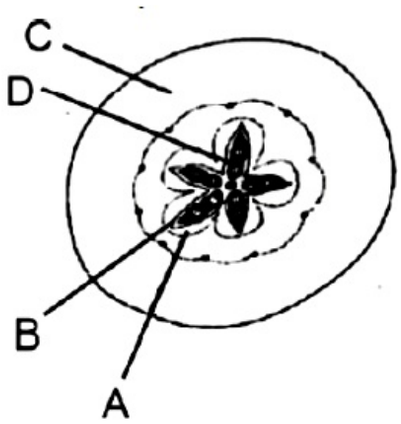
Solution:

Solution:

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

Question21

Which part of the fruit, labelled in the given figure makes it a false fruit?



[NEET-2022]

Options:

A. A → Mesocarp

B. B → Endocarp

C. C → Thalamus

D. D → Seed

Answer: C

Solution:

Solution:

The given figure is of a false fruit. False fruit develops from other floral parts and thalamus along with the development of ovary wall.

Question22

The term used for transfer of pollen grains from anthers of one plant to stigma of a different plant which, during pollination, brings genetically different types of pollen grains to stigma, is :
[NEET 2021]

Options:

A. Xenogamy

B. Geitonogamy

C. Chasmogamy

D. Cleistogamy

Answer: A

Solution:

Solution:

• Xenogamy refers to the transfer to pollen grains from anthers of one plant to stigma of a different plant which during pollination, brings genetically different types of pollen grains to stigma.

• Cleistogamy is a condition is which flower does not open.

• Geitonogamy refers to the transfer of pollen grain from anther to stigma of another flower of the same plant.

• Chasmogamy is a condition in which flowers remain open.

Question23

Diadelphous stamens are found in
[NEET 2021]

Options:

A. China rose

B. Citrus

C. Pea

D. China rose and citrus

Answer: C

Solution:

Solution:

• Stamens are said to be diadelphous when these are united in two bundles e.g. Pea.

• China rose has monoadelphous stamens while, Citrus has polyadelphous stamens.

Monoadelphous stamens are grouped in single bundle whereas polyadelphous stamens occur in more than two bundles.

Question24

A typical angiosperm embryo sac at maturity is:
[NEET 2021]

Options:

A. 8-nucleate and 7-celled

B. 7-nucleate and 8-celled

C. 7-nucleate and 7-celled

D. 8-nucleate and 8-celled

Answer: A

Solution:

Solution:

A typical angiospermic embryo sac has seven cells that are three antipodals, one central cell, one egg cell and two synergids.

The central cell has two polar nuclei, hence the embryo sac is eight nucleated.

Question25

In some members of which of the following pairs of families, pollen grains retain their viability for months after release?
[NEET 2021]

Options:

A. Poaceae ; Rosaceae

B. Poaceae ; Leguminosae

C. Poaceae ; Solanaceae

D. Rosaceae ; Leguminosae

Answer: D

Solution:

• In members of some plant families like Solanaceae, Rosaceae and Leguminosae the pollen grains retain their viability for several months.
• In cereals (Poaceae) pollen grains retain viability for around 30 minutes.

Question26

The body of the ovule is fused within the funicle at
[NEET-2020]

Options:

A. Micropyle

B. Nucellus

C. Chalaza

D. Hilum

Answer: D

Solution:

Ovule, an integument megasporangium consists of a nucellus invested by one or two integuments and funiculus (stalk). The funicle attaches the ovule to the placenta, while the body of the ovule fused with the funicle is called as hilum,

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Question27

The plant parts which consist of two generations - one within the other
(a) Pollen grains inside the anther
(b) Germinated pollen grain with two male gametes
(c) Seed inside the fruit
(d) Embryo sac inside the ovule
[NEET-2020]

Options:

A. (a), (b) and (c)

B. (c) and (d)

C. (a) and (d)

D. (a) only

Answer: C

Solution:

Solution:

The plant parts which consist of two generations one within the other are pollen grains inside the anther and embryo sac inside the ovule

Pollen grain is haploid inside the diploid anther.

Embryo sac is haploid inside the diploid ovule.

Question28

What type of pollination takes place in Vallisneria?
[NEET OD 2019]

Options:

A. Pollination occurs in submerged condition by water

B. Flowers emerge above surface of water, and pollination occurs by insects.

C. Flowers emerge above water surface, and pollen is carried by wind.

D. Male flowers are carried by water currents to female flowers at surface of water

Answer: D

Question29

In which one of the following, both autogamy and geitonogamy are prevented?
[NEET OD 2019]

Options:

A. Wheat

B. Papaya

C. Castor

D. Maize

Answer: B

Question30

What is the fate of the male gametes discharged in the synergid?
[NEET 2019]

Options:

A. All fuse with the egg.

B. One fuses with the egg, other(s) fuse(s) with synergid nucleus.

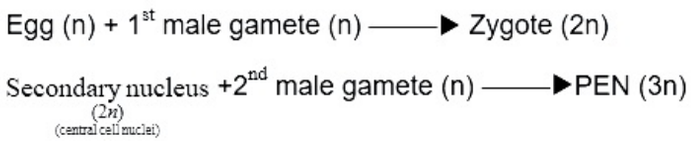
C. One fuses with the egg and other fuses with central cell nuclei.

D. One fuses with egg other(s) degenerate (s) in the synergid.

Answer: C

Solution:

In flowering plants, out of the two malegametes discharged in synergids, one fuseswith the egg and other fuses with thesecondary or definitive nucleus present incentral cell.



Question31

Which one of the following statements regarding post-fertilization development in flowering plants is incorrect? [NEET 2019]

Options:

A. Zygote develops into embryo

B. Central cell develops into endosperm

C. Ovules develop into embryo sac

D. Ovary develops into fruit

Answer: C

Solution:

Following are the post-fertilisation changes.

• Ovule → Seed

• Ovary → Fruit

• Zygote → Embryo

• Central cell → Endosperm

Question32

Persistent nucellus in the seed is known as [NEET 2019]

Options:

A. Perisperm

B. Hilum

C. Tegmen

D. Chalaza

Answer: A

Solution:

Persistent Nucellus is called Perisperm e.g.: Black pepper, Beet

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Question33

Which is the most common type of embryo sac in angiosperms? [NEET OD 2019]

Options:

A. Tetrasporic with one mitotic stage of divisions

B. Monosporic with three sequential mitotic divisions

C. Monosporic with two sequential mitotic divisions

D. Bisporic with two sequential mitotic divisions

Answer: B

Question34

Pollen grains can be stored for several years in liquid nitrogen having a temperature of [NEET 2018]

Options:

A. –120°C

B. –80°C

C. –160°C

D. –196°C

Answer: D

Solution:

Solution:

Pollen grains can be stored for several years in liquid nitrogen at –196°C (Cryopreservation)

Question35

Double fertilization is [NEET 2018]

Options:

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. Syngamy and triple fusion

D. Fusion of two male gametes with one egg

Answer: C

Solution:

Double fertilization is a unique phenomenon that occur in angiosperms only.

Syngamy + Triple fusion = Double fertilization

Question36

Functional megaspore in an angiosperm develops into ? [NEET 2017]

Options:

A. Endosperm

B. Embryo sac

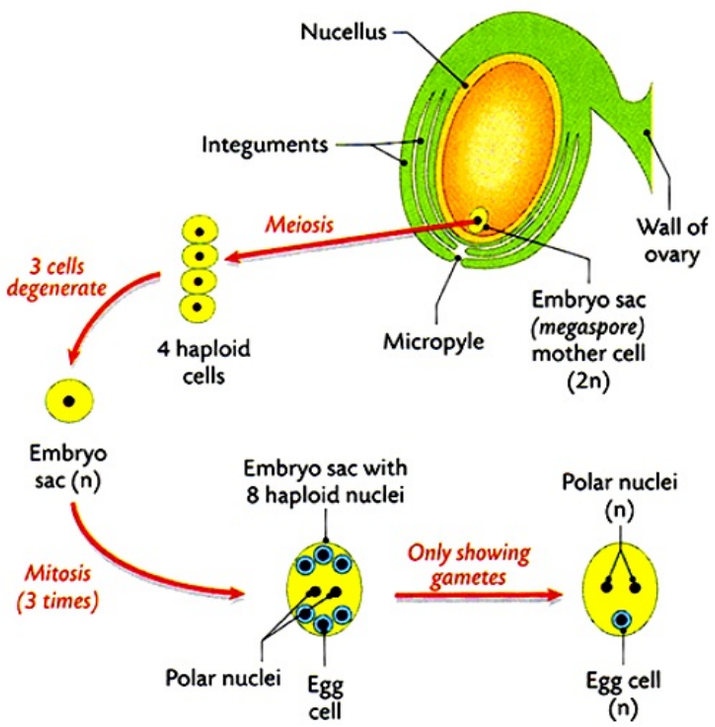
C. Embryo

D. Ovule

Answer: B

Solution:

In angiosperms or flowering plants, the megaspore mother cell produces a functional megaspore that develops into an embryo sac through two distinct processes megasporogenesis (formation of the megaspore in the nucellus, or megasporangium), and megasporogenesis (development of the megaspore into the embryo sac, or megagametophyte).



Question37

Attractants and rewards are required for :
[NEET 2017]

Options:

A. Entomophily

B. Hydrophily

C. Cleistogamy

D. Anemophily

Answer: A

Question38

Flowers which have single ovule in the ovary and are packed into inflorescence are usually pollinated by:
[NEET 2017]

Options:

A. Bee

B. Wind

C. Bat

D. Water

Answer: B

Question39

A dioecious flowering plant prevents both :
[NEET 2017]

Options:

A. Autogamy and geitonogamy

B. Geitonogamy and xenogamy

C. Cleistogamy and xenogamy

D. Autogamy and xenogamy

Answer: A

Question40

Double fertilization is exhibited by: [NEET 2017]

Options:

A. Algae

B. Fungi

C. Angiosperms

D. Gymnosperms

Answer: C

Question41

In majority of angiosperms [NEET 2016 P2]

Options:

A. a small central cell is present in the embryo sac:

B. egg has a filiform apparatus

C. there are numerous antipodal cells

D. reduction division occurs in the megaspore mother cells

Answer: D

Question42

Pollination in water hyacinth and water lily is brought about by the agency of
[NEET 2016 P2]

Options:

A. bats

B. water

C. insects or wind

D. birds

Answer: C

Question43

The ovule of an angiosperm is technically equivalent to
[NEET 2016 P2]

Options:

A. megaspore

B. megasporangium

C. megasporophyll

D. megaspore mother cell

Answer: B

Question44

The coconut water from tender coconut represents :
[NEET 2016 P1]

Options:

A. Free nuclear endosperm

B. Endocarp

C. Fleshy mesocarp

D. Free nuclear proembryo

Answer: A

Solution:

Solution:

In tender coconut, edible part is liquid endosperm that represents free nuclear endosperm

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Question45

Which one of the following statements is not true ?
[NEET 2016 P1]

Options:

A. Stored pollen in liquid nitrogen can be used in the crop breeding programmes

B. Tapetum helps in the dehiscence of anther

C. Exine of pollen grains is made up of sporopollenin

D. Pollen grains of many species cause severe allergies

Answer: B

Solution:

Solution:

Dehiscence of anther occur due to stomium cells of endothecium

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Question46

Seed formation without fertilization in flowering plants involves the process of :
[NEET 2016 P1]

Options:

A. Apomixis

B. Sporulation

C. Budding

D. Somatic hybridization

Answer: A

Question47

Which of the following statements is not correct? [NEET 2016 P1]

Options:

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

B. 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.

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

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

Answer: B

Solution:

Solution:

Pollen grains of other species are not compatible and do not germinate on the stigma of a flower of different species. A number of pollen tube of the same species can grow into a style. A pollen grain germinates and the pollen tube grows down the style toward the ovary. The pollen tube passes through the micropyle and discharges a pair of sperm into the female gametophyte within an ovule. The style is the elongated part of the pistil, i.e. the female reproductive organ of a flower which connects the stigma of a plant to the ovary of that plant, whereas a pollen tube is a tube which is formed by the pollen grains after the landing on the stigma. Pollen grains are male gametes. These are formed in another sac-like structure called anther by meiosis. Each microspore mother cell produces four microspores or pollen grains. Pollen is the powder-like substance that consists of pollen grains which are male microgametophytes that produce male gametes. Pollen in plants is used for transferring haploid male genetic material from the anther of a single flower to that of the stigma of another in cross-pollination. Pollen grains of one species can't germinate on a stigma of some other species. The stigma of a flower may receive much pollen even from other species also, but they do not get germinated because they do not get the required conditions.

Question48

Proximal end of the filament of stamen is attached to the : [NEET 2016 P1]

Options:

A. Thalamus or petal

B. Anther

C. Connective

D. Placenta

Answer: A

Question49

Filiform apparatus is characteristic feature of [NEET 2015]

Options:

A. aleurone cell

B. synergids

C. generative cell

D. nucellar embryo.

Answer: B

Solution:

Solution:
Filliform apparatus is a mass of finger like projections of the wall into the cytoplasm. It is present in synergids (help cells) of the embryo sac, in the micropylar region. It guards the pollen tube inside the ovule towards the embryo sac.

Question50

In angiosperms, microsporogenesis and mega-sporogenesis [NEET 2015]

Options:

A. involve meiosis

B. occur in ovule

C. occur in anther

D. form gametes without further divisions.

Answer: A

Solution:

Solution:
In angiosperms, microsporogenesis i.e., formation of microspores (or pollen grains) occurs by the meiotic divisions of diploid microspore mother cells (or pollen mother cells). Microsporogenesis takes place in the anther. Megasporogenesis i.e. formation of megaspores occurs by the meiotic divisions of diploid megaspore mother cells. Megasporogenesis takes place in the ovule.

Question51

Flowers are unisexual in
[NEET 2015]

Options:

A. China rose

B. onion

C. pea

D. cucumber.

Answer: D

Solution:

Solution:
The flowers of cucumber are unisexual, it means they have only male flowers or only female flowers.

Question52

Coconut water from a tender coconut is
[NEET 2015]

Options:

A. innermost layers of the seed coat

B. degenerated nucellus

C. immature embryo

D. free nuclear endosperm.

Answer: D

Solution:

Solution:
Coconut water is the free nuclear endosperm which is used.

Question53

Which one of the following fruits is parthenocarpic? [NEET 2015]

Options:

A. Jackfruit

B. Banana

C. Brinjal

D. Apple

Answer: B

Solution:

Solution:
Parthenocarpic fruits are the fruits which are formed without fertilisation. These fruits are naturally seedless, e.g., banana.

Question54

Male gametophyte in angiosperms produces [NEET 2015]

Options:

A. single sperm and two vegetative cells

B. three sperms

C. two sperms and a vegetative cell

D. single sperm and a vegetative cell.

Answer: C

Solution:

The protoplast of the male gametophyte divides mitotically to produce two unequal cells — a small generative cell and a large vegetative cell. The generative cell divides later into two non-motile male gametes (or sperms). Thus, the male gametophyte in angiosperms produces two sperms and a vegetative cell. The vegetative cell, later on, grows to produce pollen tube.

Question55

Which of the following are the important floral rewards to the animal pollinators?
[NEET 2015 C]

Options:

A. Nectar and pollen grains

B. Floral fragrance and calcium crystals

C. Protein pellicle and stigmatic exudates

D. Colour and large size flower

Answer: A

Question56

Which one of the following may require pollinators,but is genetically similar to autogamy ?
[NEET 2015 C]

Options:

A. Xenogamy

B. Apogamy

C. Cleistogamy

D. Geitonogamy

Answer: D

Question57

Which one of the following statements is not true?
[NEET 2015 C]

Options:

A. Pollen grains of some plants cause severe allergies and bronchial afflictions in some people

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

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

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

Answer: C

Solution:

Solution:
Honey bees convert nectar into honey by a process of regurgitation and evaporation. They store it as a primary food source in wax honeycombs inside the beehive.

Question58

The hilum is a scar on the :
[NEET 2015 C]

Options:

A. Fruit, where it was attached to pedicel

B. Fruit, where style was present

C. Seed, where micropyle was present

D. Seed, where funicle was attached

Answer: D

Question59

Transmission tissue is characteristic feature of:-

[NEET 2015 C]

Options:

A. Solid style

B. Dry stigma

C. Mitochondria

D. Chloroplast

Answer: A

Question60

Which one of the following shows isogamy with non-flagellated gametes?
[NEET 2014]

Options:

A. Sargassum

B. Ectocarpus

C. Ulothrix

D. Spirogyra

Answer: D

Solution:

Solution:
Spirogyra shows isogamy with non-lagellated gametes.

Question61

Geitonogamy involves
(2014)

Options:

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

B. fertilization of a flower by the pollen from 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

Solution:

(a) : Geitonogamy is the pollination taking place between the two flowers of the same plant or genetically similar plant. Hence, genetically it is self pollination but since the agency is involved, it is ecologically, cross pollination.

Question62

An aggregate fruit is one which develops from (2014)

Options:

A. multicarpellary syncarpous gynoecium

B. multicarpellary apocarpus gynoecium

C. complete inflorescence

D. multicarpellary superior ovary.

Answer: B

Solution:

Solution:
(b) : An aggregate fruit or etaerio is a group of simple fruitlets that develop from free ovaries (apocarpus condition) of a single flower (single gynoecium

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Question63

Pollen tablets are available in the market for (2014)

Options:

A. in vitro fertilization

B. breeding programmes

C. supplementing food

D. ex situ conservation.

Answer: C

Solution:

Solution:
(c) : Pollen grains are believed to be rich in nutrients (protein 7 − 26% carbohydrates 24 − 48% fats 0.9 − 14.5%). They are taken as tablets or syrups to improve health. They also enhance performance of athletes and race horses.

Question64

Function of filiform apparatus is to (2014)

Options:

A. recognize the suitable pollen at stigma

B. stimulate division of generative cell

C. produce nectar

D. guide the entry of pollen tube.

Answer: D

Solution:

Solution:
(d) : In the ovule, the pollen tube is attracted by secretions of synergids. Usually the pollen tube enters the embryo sac by passing into one of the two synergids and is guided by the filiform apparatus of the synergids in their movement. Pollen tube then breaks open and releases its contents in the embryo sac. Antipodals and synergids later degenerate.

Question65

Non-albuminous seed is produced in (2014)

Options:

A. maize

B. castor

C. wheat

D. pea.

Answer: D

Solution:

(d) : In majority of dicot seeds, including pea, the endosperm is consumed during seed development and the food is stored in cotyledons and other regions. They are called nonendospermic or exalbuminous seeds.

Question66

Which one of the following statements is correct? [KN NEET 2013]

Options:

A. Geitonogamy involves the pollen and stigma of flowers of different plants

B. Cleistogamous flowers are always autogamous

C. Xenogamy occurs only by wind pollination

D. Chasmogamous flowers do not open at all

Answer: B

Solution:

Solution:
(b) Cleistogamous flowers do not expose their reproductive parts. Anthers and stigma lie close to each other. Pure autogamy occurs since there is no chance of cross-pollination. Cleistogamy is the most efficient floral adaptation for promoting self-pollination. E.g., Viola mirabilis and Oxalis autosella

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Question67

Megaspores are produced from the megaspore mother cells after [KN NEET 2013]

Options:

A. Meiotic division

B. Mitotic division

C. Formation of a thick wall

D. Differentiation

Answer: A

Solution:

(a) Single Megaspore Mother Cell (MMC) with dense cytoplasm and a prominent nucleus gets differentiated from nucellus near the micropylar region. This Megaspore Mother Cell (MMC) undergoes meiosis to form '4' haploid cells called megaspores and the process of formation is known as megasporogenesis.

Question68

Animal vectors are required for pollination in [KN NEET 2013]

Options:

A. Maize

B. Vallisneria

C. Mulberry

D. Cucumber

Answer: D

Solution:

Solution:
(d) There are different types of vectors involved in pollination.
For example, maize, mulberry → pollination by wind. Vallisneria → pollination through water (hydrophily). Cucumber → Bees are brought for the commercial plantings of cucumber

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Question69

Which of the following statements is correct? [KN NEET 2013]

Options:

A. Sporopollenin can withstand high temperatures but not strong acids

B. Sporopollenin can be degraded by enzymes

C. Sporopollenin is made up of inorganic materials

D. Sporopollenin can withstand high temperatures as well as strong acids and alkalis

Answer: D

Solution:

Solution:
(d) Pollen grains are generally spherical and a prominent two-layered wall. The hard outer layer called the exine is made up of sporopollenin which is one of the most resistant organic material known. It can withstand high temperatures and

strong acids and alkali.

Question70

The viability of seeds is tested by (KN NEET 2013)

Options:

A. Safranine

B. 2, 6 dichlorophenol indophenols

C. 2, 3, 5 triphenyl tetrazolium chloride

D. DMSO

Answer: C

Solution:

Solution:
(c) Dehydrogenase enzymes present in living tissue reduce the tetrazolium chloride to formazan, a reddish, water insoluble compound. This reaction occurs in or near living cells which are releasing hydrogen in respiration processes. Viable tissues produce a normal red-colour, weak living tissue produce an abnormal colour. Dead tissues do not stain, remaining usually white.

Question71

Albuminous seeds store their reserve food mainly in [KN NEET 2013]

Options:

A. Perisperm

B. Endosperm

C. Cotyledons

D. Hypocotyl

Answer: B

Solution:

Solution:
(b) Endosperm is the nutritive tissue which provides nourishment to the embryo in seed plant. Albuminous seeds retain a part of endosperm as it is not completely used up during embryo development (e.g., wheat, maize, barley, castor, sunflower).

Question72

Which of the following statements is not true about somatic embryogenesis?
[KN NEET 2013]

Options:

A. A somatic embryo develops from a somatic cell

B. The pattern of development of a somatic embryo is comparable to that of a zygotic embryo

C. Somatic embryos can develop from microspores

D. Somatic embryo is induced usually by an auxin such as 2, 4-D

Answer: C

Solution:

Solution:
(c) Somatic embryogenesis is a process where a plant or embryo is derived from a single somatic cell or group of somatic cells. Somatic embryos are formed from plant cells that are not normally involved in the development of embryos, i.e., ordinary plant tissue. No endosperm or seed coat is formed around a somatic embryo.

Question73

Meiosis takes place in
(NEET 2013)

Options:

A. gemmule

B. megaspore

C. meiocyte

D. conidia.

Answer: C

Solution:

Solution:
(c) : Gemmule and conidia are asexual propagules thus no meiosis takes place in them. Megaspores are haploid which are formed as a result of meiosis of diploid megaspore mother cell. Meiocyte is any cell that undergoes meiosis.

Question74

Seed coat is not thin membranous in (NEET 2013)

Options:

A. groundnut

B. gram

C. maize

D. coconut.

Answer: D

Solution:

Solution:
The seed coat develops from integuments originally surrounding the ovule. It is thick and hard in coconut which protect the embryo from mechanical injury and from drying out.

Question75

Perisperm differs from endosperm in (NEET 2013)

Options:

A. being a diploid tissue

B. its formation by fusion of secondary nucleus with several sperms

C. being a haploid tissue

D. having no reserve food.

Answer: A

Solution:

Solution:
(a) : Both perisperm and endosperm are nutritive layers. Perisperm is residual persistent nucellus of seed prior to fertilization while endosperm develops when one of the sperm cells fuses with two haploid polar nuclei. Thus perisperm is diploid while endosperm is a triploid tissue.

Question76

Advantage of cleistogamy is (NEET 2013)

Options:

A. no dependence on pollinators

B. vivipary

C. higher genetic variability

D. more vigorous offspring.

Answer: A

Solution:

Solution:
(a) : Cleistogamy is the process of pollination and fertilization before the flower has opened. In such flowers, the anther and stigma lie close to each other. When anthers dehisce in the flower buds, pollen grains come in contact with the stigma to effect pollination. Thus, cleistogamous flowers are invariably autogamous as there is no chance of cross-pollen landing on the stigma. Cleistogamous flowers produce assured seed-set even in the absence of pollinators.

Question77

Megasporangium is equivalent to (NEET 2013)

Options:

A. nucellus

B. ovule

C. embryo sac

D. fruit.

Answer: B

Solution:

Solution:
In angiosperms, body of the ovule consists of a mass of parenchymatous cells called nucellus, which is equivalent to megasporangium. A megasporangium alongwith its protective integuments is called as an ovule.

Question78

Which one of the following statements is correct? (NEET 2013)

Options:

A. Endothecium produces the microspores.

B. Tapetum nourishes the developing pollen.

C. Hard outer layer of pollen is called intine.

D. Sporogenous tissue is haploid.

Answer: B

Solution:

Solution:
(b) : A microsporangium is generally surrounded by four wall layers - the epidermis, endothecium, middle layers and the tapetum. The outer three wall layers perfom the function of protection and help in dehiscence of anther to release the pollen. The innermost wall layer is the tapetum. It nourishes the developing pollen grains. Cells of the tapetum are food rich and possess dense cytoplasm and generally have more than one nucleus. They disintegrate to liberate the contents which is absorbed by the developing spores.

Question79

Product of sexual reproduction generally generates (NEET 2013)

Options:

A. new genetic combination leading to variation

B. large biomass

C. longer viability of seeds

D. prolonged dormancy.

Answer: A

Solution:

Solution:
(a) : Sexual reproduction always involves meiosis (zygotic in case of haploid individuals and gametic in case of diploid individuals). Meiosis results in crossing over between chromosomes during prophase I generating new recombinations. Besides, sexual reproduction generally involves combination of genes from two different organisms. Thus, sexual reproduction generates new genetic combinations leading to variations.

Question80

Animal vectors are required for pollination in (KN NEET 2013)

Options:

A. Vallisneria

B. mulberry

C. cucumber

D. maize.

Answer: C

Solution:

Solution:
(c) : In Vallisneria, water pollination occurs while mulberry and maize undergo wind pollination. In cucumber, animal pollination is observed.

Question81

Albuminous seeds store their reserve food mainly in (KN NEET 2013)

Options:

A. endosperm

B. cotyledons

C. hypocotyl

D. perisperm.

Answer: A

Solution:

Solution:
(a) : In some seeds, the endosperm persists in the seed as food storage tissue. Such seeds are called endospermic or albuminous, e.g., castor, maize, wheat, barley, rubber, coconut.

Question82

Megaspores are produced from the megaspore mother cells after (KN NEET 2013)

Options:

A. mitotic division

B. formation of thick wall

C. differentiation

D. meiotic division.

Answer: D

Solution:

Solution:
Single Megaspore Mother Cell (MMC) with dense cytoplasm and a prominent nucleus gets differentiated from nucellus near the micropylar region. This Megaspore Mother Cell (MMC) undergoes meiosis to form '4' haploid cells called megaspores and the process of formation is known as megasporogenesis.

Question83

Which one of the following statements is correct? (KN NEET 2013)

Options:

A. Cleistogamous flowers are always autogamous.

B. Xenogamy occurs only by wind pollination.

C. Chasmogamous flowers do not open at all.

D. Geitonogamy involves the pollen and stigma of flowers of different plants.

Answer: A

Solution:

Solution:
(a) : In cleistogamy, as the flowers never open so there is no alternative of self pollination. It is invariably autogamous. In xenogamy, pollination takes between two flowers of different plants (genetically and ecologically). It can ocur by wind, water, insects and animals. Chasmogamy occurs when the flowers expose their mature anther and stigma to the pollinating agents. Geitonogamy is the pollination taking place between the two flowers of the same plant or genetically similar plant. Genetically, it is self pollination but as the agency is involved it is ecologically cross pollination.

Question84

Which of the following statements is correct? (KN NEET 2013)

Options:

A. Sporopollenin can be degraded by enzymes.

B. Sporopollenin is made up of inorganic materials.

C. Sporopollenin can withstand high temperatures as well as strong acids and alkalis.

D. Sporopollenin can withstand high temperatures but not strong acids.

Answer: C

Solution:

Solution:
(c) : Pollen grain is a haploid, unicellular body. It is cuticularised and the cutin is of special type called sporopollenin, which is resistant to chemical and biological decomposition. It can withstand high temperatures as well as strong acids and alkalis. This is why, pollen wall is preserved for long periods in fossil deposits. In addition pollen wall possesses proteins for enzymatic and compatability reactions.

Question85

Both, autogamy and geitonogamy are prevented in (2012)

Options:

A. papaya

B. cucumber

C. castor

D. maize.

Answer: A

Solution:

Solution:
(a) : Autogamy and geitonogamy are two forms of self pollination. In autogamy, pollen falls on stigma of the same flower. While in geitonogamy pollens from a flower fall on the stigma of some other flower on the same plant. Papaya is a dioecious plants thus both autogamy and geitonogamy are prevented in it.

Question86

An organic substance that can withstand environmental extremes and cannot be degraded by any enzyme is (2012)

Options:

A. cuticle

B. sporopollenin

C. lignin

D. cellulose.

Answer: B

Solution:

(b) : Sporopollenin is a major component of the tough outer (exine) walls of spores and pollen grains. It is chemically very stable and is usually well preserved in soils and sediments. It can withstand environmental extremes and cannot be degraded by enzymes and strong chemical reagents.

Question87

Which one of the following is correctly matched? (2012)

Options:

A. Onion-Bulb

B. Ginger-Sucker

C. Chlamydomonas-Conidia

D. Yeast-Zoospores

Answer: A

Solution:

Solution:
Yeast and other ascomycetes characteristically produce ascospores. Chlamydomonas is an alga and conidia are not found in algae. Ginger propagates by rhizome not by sucker. Onion propagates by bulb which is an underground, modified stem.

Question88

Even in absence of pollinating agents seedsetting is assured in (2012)

Options:

A. Commelina

B. Zostera

C. Salvia

D. fig.

Answer: A

Solution:

(a) : Some plants such as Viola (common pansy), Oxalis, and Commelina produce two types of flowers- chasmogamous flowers which are similar to flowers of other species with exposed anthers and stigma, and cleistogamous flowers which do not open at all. In such flowers, the anthers and stigma lie close to each other. When anthers dehisce in the flower buds, pollen grains come in contact with the stigma to effect pollination. Thus, cleistogamous flowers are invariably autogamous as there is no chance of cross-pollen landing on the stigma. Cleistogamous flowers produce assured seed-set even in the absence of pollinators.

Question89

What is the function of germ pore? (Mains 2012)

Options:

A. Emergence of radicle

B. Absorption of water for seed germination

C. Initiation of pollen tube

D. Release of male gametes

Answer: C

Solution:

Solution:
(c) : In a pollen grain, exine is thin or absent at certain places. These areas may have thickened intine or deposition of callose. They are called germ pores (if rounded) or germinal furrows (if elongated). After pollination, the pollen grain on the stigma absorbs water and nutrients from the stigmatic secretion through its germ pores. The tube or vegetative cell enlarges and comes out of pollen grains through germ pore to form a pollen tube.

Question90

Which one of the following statements is wrong? (Mains 2012)

Options:

A. When pollen is shed at two-celled stage, double fertilization does not take place.

B. Vegetative cell is larger than generative cell.

C. Pollen grains in some plants remain viable for months.

D. Intine is made up of cellulose and pectin.

Answer: A

Solution:

Solution:
(a) : In 60% of flowering plants, the pollen grains are shed at two-celled stage (tube cell + generative cell). Further, development of male gametophyte (pollen grain) occurs on stigma. Pollen grain gives rise to pollen tube which absorbs nourishment from the cells of style for its growth. Generative cell divides to give rise to two male gametes. Out of these, one fuses with the egg to form diploid zygote (generative fertilization or syngamy) whereas the second male gamete fuses with the two haploid polar nuclei or diploid secondary nucleus of the central cell to form primary endosperm nucleus (vegetative fertilization or triple fusion). These two acts of fertilization occur in the same embryo sac and are referred to as double fertilization.

Question91

Plants with ovaries having only one or a few ovules, are generally pollinated by
(Mains 2012)

Options:

A. bees

B. butterflies

C. birds

D. wind.

Answer: D

Solution:

(d) : Anemophily is an abiotic means of pollination by wind and, being non-directional, a wasteful process as the pollen would reach the stigma through wind is a hit-or-miss affair. During the transit of pollen through wind, a considerable amount of pollen is lost because it never reaches a proper stigma. To stand this loss, anemophilous plants have to produce enormous quantities of pollen. Anemophily is also associated with reduction in the number of ovules per ovary. Some models predict that plants benefit from numerous inexpensive flowers distributed throughout the inflorescence, each with a single ovule or a few ovules. In grasses there is just one ovule per ovary. This is to increase the probability of successful pollination of each ovule.

Question92

Filiform apparatus is a characteristic feature of
(2011)

Options:

A. suspensor

B. egg

C. synergid

D. zygote.

Answer: C

Solution:

Solution:
(c) A synergid cell wall forms a highly thickened structure called the filiform apparatus at the micropylar end consisting of numerous finger like projections into synergid cytoplasm. These synergid cells are necessary for pollen tube guidance in ovule.

Question93

Nucellar polyembryony is reported in species of (2011)

Options:

A. Citrus

B. Gossypium

C. Triticum

D. Brassica.

Answer: A

Solution:

Solution:
(a) : In nucellar polyembryony, some of the nucellar cells surrounding the embryo sac start dividing. Then it protrudes into the embryo sac and develop into the embryos. In such species, each ovule contains many embryos. Occurrence of more than one embryo in a seed is referred as polyembryony. Nucellar polyembryony is found in many of the Citrus and mango varieties.

Question94

Which one of the following pollinations is autogamous? (2011)

Options:

A. Geitonogamy

B. Xenogamy

C. Chasmogamy

D. Cleistogamy

Answer: D

Solution:

(d) : Autogamy is a kind of pollination in which the pollen from the anthers of a flower are transferred to stigma of the same flower. Cleistogamy, homogamy, bud pollination are three methods of the autogamy. Cleistogamy occurs in those plants, which never open and ensure complete self-pollination. E.g., Commelina bengalensis, Oxalis, Viola etc.

Question95

The "eyes" of the potato tuber are (2011)

Options:

A. root buds

B. flower buds

C. shoot buds

D. axillary buds.

Answer: D

Solution:

Solution:
(d) : Potato is the common example of stemtuber. It stores starch as reserve food material. The potato-tubers are used for vegetative propagation. These possess axillary buds over their nodes or eyes. The buds produce new plantlets when a stem-tuber or a part of it having an eye is placed in the soil.

Question96

Wind pollination is common in (2011)

Options:

A. legumes

B. lilies

C. grasses

D. orchids.

Answer: C

Solution:

Solution:
(c) : Anemophily is pollination of a flower in which the pollen is carried by the wind. Examples of anemophilous flowers are those of grasses and conifers.

Question97

In angiosperms, functional megaspore develops into (Mains 2011)

Options:

A. embryo sac

B. ovule

C. endosperm

D. pollen sac.

Answer: A

Solution:

Solution:
(a) During megagametogenesis functional megaspore (mostly chalazal) gives rise to embryo sac. This is the mature female gametophyte generation.

Question98

What is common between vegetative reproduction and apomixis? (Mains 2011)

Options:

A. Both are applicable to only dicot plants

B. Both bypass the flowering phase

C. Both occur round the year

D. Both produce progeny identical to the parent

Answer: D

Solution:

Solution:
(d) : Apomixis is a reproductive process in plants that superficially resembles normal sexual reproduction but in which there is no fusion of gametes. The embryos develop simply by division of a diploid cell the ovule. So, the progenies produced are identical to the parent. In vegetative reproduction also progenies produced are identical to the parent.

Question99

Apomictic embryos in Citrus arise from (2010)

Options:

A. synergids

B. maternal sporophytic tissue in ovule

C. antipodal cells

D. diploid egg.

Answer: B

Solution:

Solution:
(b) : Apomixis is abnormal kind of sexual reproduction in which egg or other cells associated with egg (synergids, antipodals, etc.) develop into embryo without fertilization and meiosis. Development of embryos directly from sporophytic tissues like nucellus and integuments is called adventive embryony which is also a type of apoximis. E.g., Citrus, mango.

Question100

Transfer of pollen grains from the anther to the stigma of another flower of the same plant is called (2010)

Options:

A. xenogamy

B. geitonogamy

C. karyogamy

D. autogamy.

Answer: B

Solution:

Solution:
(b) : Geitonogamy is the transfer of pollen grains from the anther to stigma of another flower on the same plant or genetically similar plant, e . g. in maize.

Question101

Wind pollinated flowers are (2010)

Options:

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

B. small, producing large number of dry pollen grains

C. large producing abundant nectar and pollen

D. small, producing nectar and dry pollen.

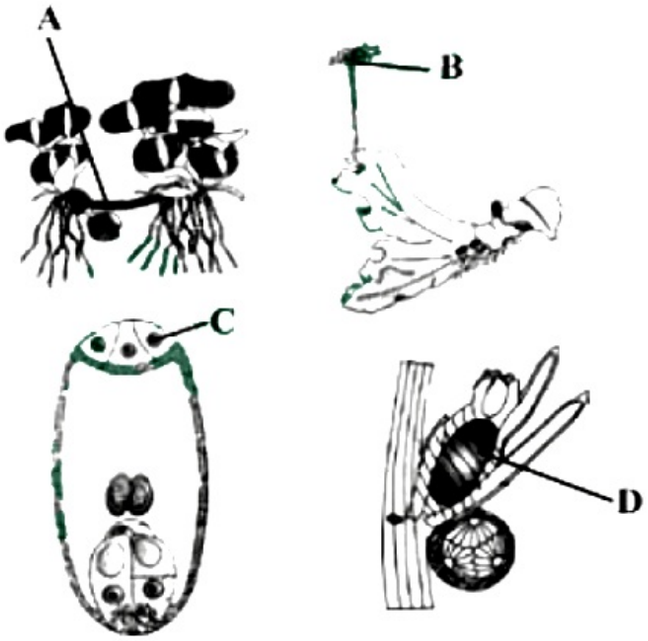
Answer: B

Solution:

Solution:
(b) : Pollination by wind is called anemophily and such plants in which pollination occurs by wind are called anemophilous plants. Anemophilous plants are characteristized by small flowers, pollens present in large number which are small, dry and light in weight (carried upto $1300 \mathrm{Km}$ by wind), number of ovules generally reduced in ovary (biological significance), feathery or brushy stigma (to receive the pollen). Grasses and palms are generally anemophilous.

Question102

Examine the figures (A-D) given below and select the right option out of (a − d), in which all the four structures A, B, C and D are identified correctly.



	A	B	C	D
(a)	Rhizome	Sporangiophore	Polar cell	Globule
(b)	Runner	Archegoniophore	Synergid	Antheridium
(c)	offset	Antheridiophore	Antipodals	Oogonium
(d)	Sucker	Seta	Megaspore mother cell	Gemma cup

(Mains 2010)

Options:

A. (a)

B. (b)

C. (c)

D. (d)

Answer: C

Solution:

A - offset of water hyacinth (Eichhornia)
B – Antheridiophore of Marchantia
C – Antipodals of the mature embryo sac
D – Oogonium of Chara

Question103

Vegetative propagation in Pistia occurs by (Mains 2010)

Options:

A. stolon

B. offset

C. runner

D. sucker.

Answer: B

Solution:

Solution:
(b) : In Pistia (water lettuce) vegetative propagation occurs by offset where one internode long runners grows horizontally along the soil surface and gives rise to new plants either from axillary or terminal buds.

Question104

Vegetative propagation in mint occurs by (2009)

Options:

A. offset

B. rhizome

C. sucker

D. runner.

Answer: C

Solution:

(c) : Vegetative propagation in mint occurs through sucker.

Question105

Which one of the following pairs of plant structures has haploid number of chromosomes?
(2008)

Options:

A. Nucellus and antipodal cells

B. Egg nucleus and secondary nucleus

C. Megaspore mother cell and antipodal cells

D. Egg cell and antipodal cells

Answer: D

Question106

What does the filiform apparatus do at the entrance into ovule?
(2008)

Options:

A. It brings about opening of the pollen tube.

B. It guides pollen tube from a synergid to egg.

C. It helps in the entry of pollen tube into a synergid.

D. It prevents entry of more than one pollen tube into the embryo sac.

Answer: C

Solution:

Filiform system assists in entering a pollen tube into an ovule synergy. The filiform device is a finger-like projection consisting of an enclosed core of microfibrils in a sheath. The filiform apparatus resembles the transfer cells “meaning the movement of metabolites at short distances. The filiform system which extracts food from the nucleus.

Question107

Unisexuality of flowers prevents (2008)

Options:

A. geitonogamy, but not xenogamy

B. autogamy and geitonogamy

C. autogamy, but not geitonogamy

D. both geitonogamy and xenogamy.

Answer: C

Solution:

Solution:
(c) : Unisexuality or dicliny is a condition in which two types of unisexual flowers are presenti.e., staminate (male flower) and pistillate (female flower). The plant may be monoecious or dioecious. This is a device for cross pollination (or xenogamy). Both xenogamy and geitonogamy (i.e. transfer of pollen from anther of one flower to stigma of another flower of either the same or genetically similar plant) are included under allogamy/cross pollination. Autogamy or self pollination (i.e. transfer of pollen from anther to stigma of the same flower) occurs in bisexual flower.

Question108

Which one of the following is resistant to enzyme action? (Mains 2008)

Options:

A. Pollen exine

B. Leaf cuticle

C. Cork

D. Wood fibre

Answer: A

Solution:

Pollen exine is resistant to enzyme action. The hard outer layer called the exine is made up of sporopollenin which is one of the most resistant organic material known. It can withstand high temperatures and strong acids and alkali. No enzymes that degrade sporopollenin are so far known.

Question109

Male gametes in angiosperms are formed by the division of (2007)

Options:

A. generative cell

B. vegetative cell

C. microspore mother cell

D. microspore.

Answer: A

Solution:

Solution:
(a) : In the pollen sac (microsporangium) of the anther, haploid microspores are formed by mitosis. Mitosis then follows to produce a twocelled pollen grain with a small generative cell and a large vegetative cell. This generative cell will undergo further mitosis to form two male gametes (nuclei). The pollen tube grows through a spore in the pollen grain, with the tube (vegetative) nucleus at its tips and the male nuclei behind.

Question110

Two plants can be conclusively said to belong to the same species if they (2007)

Options:

A. have more than 90 percent similar genes

B. look similar and possess identical secondary metabolites

C. have same number of chromosomes

D. can reproduce freely with each other and form seeds.

Answer: D

Solution:

(d) : If two plants can reproduce freely with each other and form seeds, they are concluded to belong to same species. Plants belonging to same species have mostly every character common and will be able to reproduce freely with each other to produce new generations.

Question111

Which one of the following is surrounded by a callose wall? (2007)

Options:

A. Male gamete

B. Egg

C. Pollen grain

D. Microspore mother cell

Answer: D

Solution:

Solution:
(d) : Anther consists of microsporangia or pollen sacs. The archesporium gives rise to parietal cells and primary sporogenous tissue. Sporogenous cells divide to form pollen grain or microspore mother cells. They are diploid and connected by plasmodesmata. The microspore, mother cells consists of a callose wall inner to the cell wall. The mother cell then undergoes meiosis and forms tetrads of microspores. Finally the wall of the mother cell degenerates and pollen grains are separated.

Question112

Parthenocarpic tomato fruits can be produced by (2006)

Options:

A. treating the plants with phenylmercuric acetate

B. removing androecium of flowers before pollen grains are released

C. treating the plants with low concentrations of gibberellic acid and auxins

D. raising the plants from vernalized seeds.

Answer: C

Solution:

(c) : Development of fruits without fertilization is called parthenocarpy and such fruits are called parthenocarpic fruits. Parthenocarpic fruits are seedless. A flower is emasculated and auxins are applied to the stigma of the flower, it forms a parthenocarpic fruit. For parthenocarpy induction by auxins, these should be applied after anthesis (first opening of flower) and by gibberellins, these should be applied earlier i . e., at anthesis.

Question113

In a cereal grain the single cotyledon of embryo is represented by (2006)

Options:

A. coleoptile

B. coleorhiza

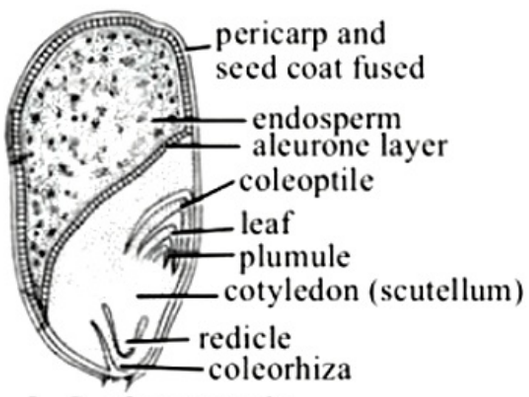
C. scutellum

D. prophyll.

Answer: C

Solution:

(c) : The cotyledons are known as seed leaves, they are attached to the embryonic axis. Dicotyledons typically have two cotyledons and monocotyledons have only one cotyledon. The single shield shaped cotyledon in grains is known as scutellum. The scutellum does not contain food and its function is to absorb food from the endosperm and transfer it to the growing parts of the embryo. The plumule consists of growing tip of the shoot along with few young leaf primordia. It is covered by a sheath called coleoptile. The radicle which lies at the base of the grain is also covered with a sheath called coleorhiza. The hypocotyl is very short and is represented by a short axis in between radicle and plumule.



L. S. of corn grain

Question114

The arrangement of the nuclei in a normal embryo sac in the dicot plants is (2006)

Options:

A. 3 + 3 + 2

B. 2 + 4 + 2

C. 3 + 2 + 3

D. 2 + 3 + 3

Answer: C

Solution:

In angiosperms, the Polygonumtype of embryo sac is most common. In this embryo sac, the arrangement of the nuclei is 3 + 2 + 3. Three (3) in antipodal cells, two (2) as polar nuclei and three (3) in egg apparatus. So, the correct answer is 3 + 2 + 3

Question115

In a type of apomixis known as adventive embryony, embryos develop directly from the
(2005)

Options:

A. nucellus or integuments

B. zygote

C. synergids or antipodals in an embryo sac

D. accessory embryo sacs in the ovule.

Answer: A

Solution:

Solution:
(a) : Normal type of sexual reproduction having two regular features, i.e., meiosis and fertilization, is called amphimixis. But in some plants, this normal sexual reproduction (amphimixis) is replaced by some abnormal type of sexual reproduction called apomixis. Apomixis may be defined as, 'abnormal kind of sexual reproduction in which egg or other cells associated with egg (synergids, antipodals, etc.) develop into embryo without fertilization and with or without meiosis'. Adventive embryony is a type of apomixis in which development of embryos directly takes place from sporophytic tissues like nucellus and integuments,e.g., Citrus, mango, etc.

Question116

Which one of the following represents an ovule, where the embryo sac becomes horseshoe shaped and the funiculus and micropyle are close to each other?
(2005)

Options:

A. Amphitropous

B. Circinotropous

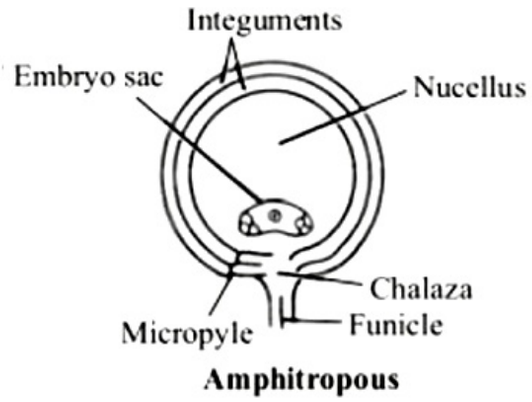
C. Atropous

D. Anatropous

Answer: A

Solution:

Solution:
(a) : Depending upon position of micropyle in relation to chalaza, ovules are of 6 types in angiosperms. In amphitropous type the curvature is observed both in body of ovule and embryo sac. The embryo sac assupres horse shoe-shape. Micropyle is directed downwards. It is commonly found in families Papaveracerae, Alismaceae and Butomaceae.



Amphitropous

Circinotropous ovule is characteristic of family Cactaceae. Here the ovule is straight first but due to more growth on one side gets inverted and later becomes straight again.
Orthotropous ovule is the most primitive and of simplest type. It is also known as atropous or straight ovule.
Anatropous ovule is the most common type of ovule found in angiosperms. Here the body of the ovule gets inverted and micropyle is on lower side.

Question117

Through which cell of the embryo sac, does the pollen tube enter the embryo sac?
(2005)

Options:

A. Egg cell

B. Persistant synergid

C. Degenerated synergids

D. Central cell

Answer: C

Solution:

Solution:
(c) : The pollen tube enters into the embryo sac at the micropylar end. This entry may be between egg and one synergid

or between wall of embryo sac and synergid or through one synergid. So one synergid is always degenerated to allow the entry of the pollen tube.

Question118

When a diploid fernale plant is crossed with a tetraploid male, the ploidy of endosperm cells in the resulting seed is (2004)

Options:

A. tetraploidy

B. pentaploidy

C. diploidy

D. triploidy.

Answer: A

Solution:

Solution:
(a) : Endosperm is formed due to fusion of the haploid male gamete with the polar nucleus of the embryo sac. But in this case the male plant is tetraploid so that its gametes would be diploid. When these diploid gametes fuse with two polar nuclei of the embryo sac the resultant endosperm would be tetraploid.

Question119

An ovule which becomes curved so that the nucellus and embryo sac lie at right angles to the funicle is (2004)

Options:

A. hemitropous

B. campylotropous

C. anatropous

D. orthotropous.

Answer: A

Solution:

Solution:
(a) : In hemianatropous or hemitropous ovule, the nucellus and integuments are at right angles to stalk or funiculus so

that the ovule becomes curved. It is commonly found is Primulaceae and Ranunculus. In campylotropous ovule the body of the ovule gets curved and micropyle is directed downwards. Atropous ovule is erect and micropyle, chalaza and funiculus are in the same straight line. Anatropous ovule is the most common type of ovule in angiosperms. In this the body of the ovule gets inverted and the micropyle is on lower side.

Question120

Anthesis is a phenomenon which refers to (2004)

Options:

A. reception of pollen by stigma

B. formation of pollen

C. development of anther

D. opening of flower bud

Answer: D

Solution:

Solution:
(d) : Anthesis is the process of opening floral buds. Reception of pollen by stigma is called pollination. Formation of pollen is called microsporogenesis.

Question121

In a flowering plant, archesporium gives rise to (2003)

Options:

A. only the wall of the sporangium

B. both wall and the sporogenous cells

C. wall and the tapetum

D. only tapetum and sporogenous cells.

Answer: B

Solution:

Solution:
(b) : In flowering plants, archesporial cells are vertical rows of hypodermal cells at four angles of anther. These undergo periclinal (transverse) division to form an outer primary parietal cell and inner sporogenous cell. Primary parietal wall after few more periclinal divisions forms anther wall and sporogenous cells give rise to sporogenous tissue.

Question122

In angiosperms pollen tube liberate their male gametes into the (2002)

Options:

A. central cell

B. antipodal cells

C. egg cell

D. synergids.

Answer: D

Solution:

Solution:
(d) : On reaching of pollen tube inside the embryo sac, the 2 male gametes are discharged through a sub-terminal pore in pollen tube. The contents of pollen tube are discharged in the synergid and the pollen tube does not grow beyond it in the embryo sac. Further the cytoplasm of pollen tube is restricted to chalazal end of this synergid cell.

Question123

In angiosperm all the four microspores of tetrad are covered by a layer which is formed by (2002)

Options:

A. pectocellulose

B. callose

C. cellulose

D. sporopollenin.

Answer: A

Solution:

Solution:
(a) : Each microspore or pollen is having a two layered wall. Outer layer is thick tough cuticularised called exine, which is chiefly composed of a material called 'sporopollenin'. Inner layer is thin, delicate and smooth called intine, which is made of pectocellulose.
Exine is not uniform but is thin at one or more places in the form of germ pores. Whereas intine made of pectocellulose covers the entire surface of pollen grains.

Question124

What is the direction of micropyle in anatropous ovule? (2002)

Options:

A. Upward

B. Downward

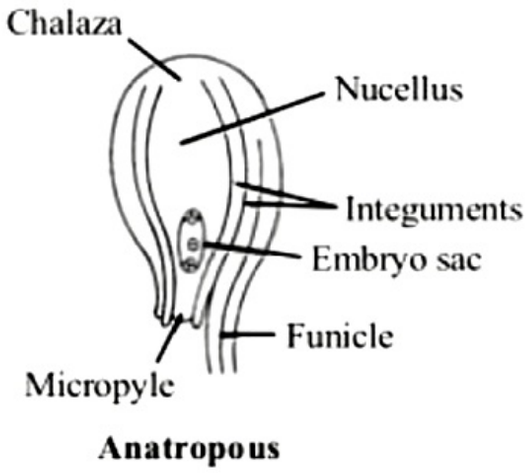
C. Right

D. Left

Answer: B

Solution:

(b) : Anatropus ovule is the most common type of ovule found in angiosperms. Here the body of the ovule gets inverted and micropyle is on lower side. It comes very close to the hilum and the chalaza is upwardly directed.



Question125

Adventive embryony in Citrus is due to (2001)

Options:

A. nucellus

B. integuments

C. zygotic embryo

D. fertilized egg.

Answer: A

Solution:

(a) : Presence of more than one embryo inside the seed is called polyembryony. It is more common in gymnosperms than angiosperms. In angiosperms, it is generally present as an unusual feature in few cases like Citrus, mango etc. In Citrus many embryos are formed from the structures outside the embryo (like nucellus). This is commonly called adventive polyembryony. In Citrus upto 10 nucellar embryos are formed.

Question126

In grasses what happens in microspore mother cell for the formation of mature pollen grains?
(2001)

Options:

A. One meiotic and two mitotic divisions

B. One meiotic and one mitotic divisions

C. One meiotic division

D. One mitotic division

Answer: B

Solution:

Solution:
(b) : Grass is a monocot plant. Primary sporogenous cell gives rise to microspore mother cells or pollen mother cells. Each MMC on reduction division gives rise to 4 microspores or pollens and this formation of microspores or pollens is called microsporogenesis. Karyokinesis is of successive type. The successive type of cytokinesis is common in monocots. Here both meiotic I and II nuclear divisions are followed by wall formation and it leads to isobilateral tetrad.

Question127

Anemophily type of pollination is found in
(2001)

Options:

A. Salvia

B. bottle brush

C. Vallisneria

D. coconut.

Answer: D

Solution:

(d) : Anemophily is the pollination by wind. Anemophilous plants are characterized by small flowers, pollens present in large number which are small, dry and light in weight, number of ovules generally reduced in ovary, feathery or brushy stigma to recieve the pollen. All these features are shown by coconut flower. In Vallisneria pollination occurs outside water called epihydrophily. Callistemon (Bottle brush) is pollinated by birds and is an example of ornithophily. Salvia is insect pollinated and is an example of entomophily.

Question128

Endosperm is formed during the double fertilization by (2000)

Options:

A. two polar nuclei and one male gamete

B. one polar nuclei and one male gamete

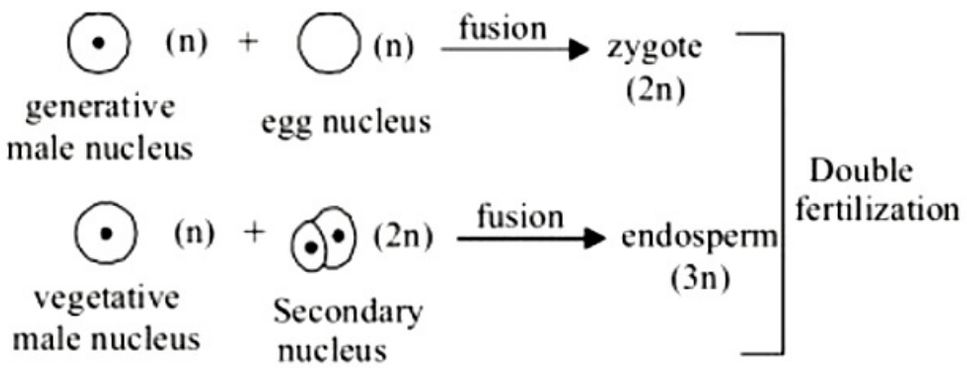
C. ovum and male gamete

D. two polar nuclei and two male gametes.

Answer: A

Solution:

(a) : Double fertilization is the simultaneous occurrence of syngamy and triple fusion. Syngamy involves fusion of one male gamete with egg cell to form zygote. The result of syngamy is zygote (2n) which ultimately develops into embryo. The second male gamete fuses with 2 polar nuclei or secondary nucleus to form triploid primary endosperm nucleus and this is called triple fusion. This primary endosperm nucleus (3n) ultimately develops into a nutritive tissue for developing embryo called endosperm.



Question129

Eight nucleated embryo sac is (2000)

Options:

A. only monosporic

B. only bisporic

C. only tetrasporic

D. any of these.

Answer: D

Solution:

(d) : On the basis of number of megaspore nuclei taking part in development of female gametophyte or embryo sac, there are 3 types of embryo sacs-
(i) Monosporic type - In this type the single nucleus of functional megaspore undergoes 3 mitotic divisions to form 8 nuclei, 7 cells.
(ii) Bisporic type - Here embryo sac develops from 2 megaspore nuclei out of 4 nuclei formed after reduction division of MMC. It is also 8 nucleated.
(iii) Tetrasporic type − Here all the 4 megaspore nuclei formed after reduction division of megaspore mother cell are functional and take part in development of embryo sac. It is further of different types. Fritillaria type, Plumbago type and Adoxa type are 8 nucleated.

Question130

The endosperm of gymnosperm is (1999)

Options:

A. diploid

B. polyploid

C. triploid

D. haploid.

Answer: D

Solution:

(d) : The endosperm of gymnosperms is haploid. It is a pre-fertilisation tissue and is equivalent to female gametophyte, hence it is haploid in nature but in angiosperms it is postfertilization tissue and is generally triploid in nature.

Question131

An interesting modification of flower shape for insect pollination occurs in some orchids in which a male insect mistakes the pattern on the orchid flower for the female species and tries to copulate with it, thereby pollinating the flower. This phenomenon is called (1998)

Options:

A. pseudopollination

B. pseudoparthenocarpy

C. mimicry

D. pseudocopulation.

Answer: D

Solution:

(d) : In an orchid Ophrys speculum, there is most interesting and unique mechanism of pollination. Here pollination occurs by a wasp called Culpa aurea. In this orchid, pollination occurs by act of pseudocopulation. The appearance and odour of Ophrys is similar to female wasp and are mistake by male wasps and they land on Ophrys flowers to perform act of pseudocopulation and thus pollination takes place. This plant-insect relationship is useful only to plant.

Question132

The embryo in sunflower has (1998)

Options:

A. two cotyledons

B. many cotyledons

C. no cotyledon

D. one cotyledon

Answer: A

Solution:

Solution:
(a) : Sunflower (Helianthus) belongs to Family Asteraceae of dicotyledons. A dicot embryo has an embryonal axis and 2 cotyledon's attached to it laterally. So the number of cotyledons in sunflower will be two.

Question133

The role of double fertilization in angiosperms is to produce (1998,1996)

Options:

A. cotyledons

B. endocarp

C. endosperm

D. integuments.

Answer: C

Question134

If an angiospermic male plant is diploid and female plant tetraploid, the ploidy level of endosperm will be (1997)

Options:

A. tetraploid

B. pentaploid

C. haploid

D. triploid.

Answer: B

Solution:

Solution:
(b) : If the female plant is tetraploid, then the central cell of embryo sac, which is a fused polar nuclei, will also be tetraploid. Fusion of the tetraploid central cell to the haploid male gamete forms a pentaploid endosperm in the given example.

Question135

If there are 4 cells in anthers, what will be the number of pollen grains? (1996)

Options:

A. 16

B. 12

C. 8

D. 4

Answer: A

Solution:

Solution:
(a) : Pollen grains or microspores are formed inside anther, which is the fertile portion of stamen or microsporophyll. Inside the anther, primary sporogenous cell gives rise to microspore mother cells or pollen mother cells (MMC or PMC). Each MMC on reduction division gives rise to 4 microspores or pollens. So, these four cells will give rise to $4 \times 4 = 16$ pollen grains.

Question136

The anthesis is a phenomenon, which refers to (1996)

Options:

A. development of anthers

B. opening of flower bud

C. stigma receptors

D. all of these.

Answer: B

Solution:

Solution:
(d) Anthesis is the period during which a flower is fully open and functional. It may also refer to the onset of that period.

Question137

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

(1995)

Options:

A. 75

B. 100

C. 25

D. 50

Answer: C

Solution:

Solution:
(c) : Pollen grains or microspores are formed inside anther, which is the fertile portion of stamen or microsporophyll. The formation of microspores or pollens is called microsporogenesis. The primary sporogenous cell gives rise to microspore mother cells or pollen mother cells. Each microspore mother cell on reduction division gives rise to 4 microspores or pollens. So for the formation of 100 pollen grains, 25 MMC are required. It involves karyokinesis followed by cytokinesis.

Question138

The polyembryony commonly occurs in
(1995)

Options:

A. tomato

B. potato

C. Citrus

D. turmeric.

Answer: C

Solution:

Solution:
Polyembryony refers to the formation of more than one embryo within a seed of a flowering plant. e.g. Citrus.

Question139

When pollen of a flower is transferred to the stigma of another flower of the same plant, the pollination is referred to as
(1994)

Options:

A. autogamy

B. geitonogamy

C. xenogamy

D. allogamy.

Answer: B

Question140

Embryo sac represents
(1994)

Options:

A. megaspore

B. megagametophyte

C. megasporophyll

D. megagamete.

Answer: B

Solution:

Solution:
•Megaspores are produced by meiosis in megaspore mother cell. Megaspore then develops into female gametophyte or embryo sac.
•Megagametophyte or the female gametophyte is the embryo sac that develops from the megaspore through megagametogenesis.
•Megasporangium is a structure which along with its protective coverings forms the ovule.
•Female gamete is the egg cell which upon fusion with male gamete forms a diploid zygote.
Hence, embryo sac represents megagametophyte.

Question141

Number of meiotic divisions required to produce $\frac{200}{400}$ seeds of pea would be
(1993)

Options:

A. $\frac{200}{400}$

B. $\frac{400}{800}$

C. $\frac{300}{600}$

D. $\frac{250}{500}$

Answer: D

Solution:

Solution:
(d) : Number of meiotic divisions required to produce $\frac{200}{400}$ seeds of pea would be $\frac{250}{500}$.
200 seeds of pea would be produced from 200 pollen grains and 200 eggs.
200 pollen grains will be formed by 50 microspore mother cell while 200 eggs will be formed by 200 megaspore mother cell so $\frac{250}{500}$.

Question142

Double fertilization is characteristic of (1993)

Options:

A. angiosperms

B. anatropous

C. gymnosperms

D. bryophytes.

Answer: A

Solution:

Solution:
(a) : Double fertilisation is the characteristic feature of angiosperms. This phenomenon first observed by Nawaschin, 1898 in Lilium and Fritillaria. In angiosperms one male gamete fuses with the two polar nuclei to form triploid primary endosperm nucleus. The process is called triple fusion. These two acts together are known as double fertilisation.

Question143

Ovule is straight with funiculus, embryo sac, chalaza and micropyle lying on one straight line. It is
(1993)

Options:

A. orthotropous

B. anatropous

C. campylotropous

D. amphitropous.

Answer: A

Solution:

Solution:
(a) It is a Polygonum type ovule in which the body of ovule is straight i.e. funiculus, chalaza, embryo sac and micropyle lie in the same vertical axis.

Question144

Study of formation, growth and development of new individual from an egg is
(1993)

Options:

A. apomixis

B. embryology

C. embryogeny

D. cytology.

Answer: B

Solution:

Solution:
(b) : Study of formation, growth and development of new individual from an egg is embryology. Study of an individuals life cycle after the fertilization takes place till it develops into a new organism.

Question145

Meiosis is best observed in dividing

(1992)

Options:

A. cells of apical meristem

B. cells of lateral meristem

C. microspores and anther wall

D. microsporocytes.

Answer: D

Solution:

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

Question146

Double fertilization is fusion of
(1991)

Options:

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

Solution:

Solution:
(d) In angiosperms one male gamete fuses with the egg to form diploid zygote. The process is called syngamy. The other male gamete fuses with the two polar nuclei to form triploid primary endosperm nucleus. The process is called triple fusion. These two acts together known as double fertilization. The process was Ist demonstrated by Nawaschin & Guignard in Fritillaria & Lilium.

Question147

Syngamy means
(1991)

Options:

A. fusion of gametes

B. fusion of cytoplasms

C. fusion of two similar spores

D. fusion of two dissimilar spores.

Answer: A

Solution:

Solution:
(a) : Syngamy means fusion of gametes. Syngamy is the phenomenon in which male gamete fuses with an egg.

Question148

Point out the odd one.
(1991)

Options:

A. Nucellus

B. Embryo sac

C. Micropyle

D. Pollen grain

Answer: D

Solution:

Solution:
Nucellus ,Embryo sac and micropyle these all are found inside of ovule But Pollen grain found in male gametophytic structure.

Question149

Which of the following pair have haploid structures?
(1991)

Options:

A. Nucellus and antipodal cells

B. Antipodal cells and egg cell

C. Antipodal cells and megaspore mother cell

D. Nucellus and primary endosperm nucleus

Answer: B

Solution:

Solution:
(b) Antipodal cells and egg cell are haploid structures as they are formed after meiosis while the others nucellus, megaspore mother cell and primary endosperm nucleus are diploid structures.

Question150

Embryo sac occurs in (1991)

Options:

A. embryo

B. axis part of embryo

C. ovule

D. endosperm.

Answer: C

Solution:

Solution:
(c) : Embryo sac occurs in ovule. Ovule is integumented megasporangium. It consists of nucleus covered by one or two integuments, mounted on a funicle, chalaza and micropyle. The ovule is vascularised.

Question151

Pollination occurs in (1991)

Options:

A. bryophytes and angiosperms

B. pteridophytes and angiosperms

C. angiosperms and gymnosperms

D. angiosperms and fungi.

Answer: C

Solution:

(c) : The term pollination refers to the transfer of pollen from anther to stigma. Because pollens are found only in angiosperms and gymnosperms so this phenomenon relates to angiosperms and gymnosperms only.

Question152

Entry of pollen tube through micropyle is (1990)

Options:

A. chalazogamy

B. mesogamy

C. porogamy

D. pseudogamy.

Answer: C

Solution:

Solution:
(c) : In most of the plants the pollen tube enters the ovule through the micropyle and the phenomenon is called as porogamy. Entry through chalaza is chalazogamy and through integuments or funiculus is mesogamy.

Question153

Sperm and egg nuclei fuse due to (1990)

Options:

A. base pairing of their DNA and RNA

B. formation of hydrogen bonds

C. mutual attraction due to differences in electrical charges

D. attraction of their protoplasts.

Answer: D

Solution:

(d) : The two gametes i.e., sperm released by pollen tube and egg move in opposite direction by an unknown mechanism but most probably by streaming currents of cytoplasm i.e., due to attraction of their protoplasts. The nucleus of one male gamete fuses with the egg nucleus and the phenomenon is called fertilisation.

Question154

Female gametophyte of angiosperms is represented by (1990)

Options:

A. ovule

B. megaspore mother cell

C. embryo sac

D. nucellus.

Answer: C

Solution:

Solution:
(c) : Female gametophyte of angiosperms is represented by embryo sac. The polygonum type of embryo sac contains 8 -nuclei and 7 -cells. It is found in more than 80% plant families. The nucleus of megaspore undergoes division and give rise to embryosac or female gametophyte by the process of megagametogenesis.

Question155

Male gametophyte of angiosperms/monocots is (1990)

Options:

A. microsporangium

B. nucellus

C. microspore

D. stamen.

Answer: C

Solution:

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

Question156

Which ones produce androgenic haploids in anther cultures? (1990)

Options:

A. Anther wall

B. Tapetal layer of anther wall

C. Connective tissue

D. Young pollen grains

Answer: D

Solution:

Solution:
(d) : Young pollen grains produce androgenic haploids in anther cultures. Because rest all i . e. anther wall, tapetal layer of anther wall and connective tissue are the diploid tissue as they are part of anther pollen grains produced by meiosis.

Question157

Which is correct? (1989)

Options:

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

Solution:

(a) : Gametes are invariably haploid. Spores are formed in lower plants by mitotic division and they may be diploid but gametes are always be made by meiosis and they are always haploid.

Question158

Generative cell was destroyed by laser but a normal pollen tube was still formed because
(1989)

Options:

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

Solution:

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

Question159

Nucellar embryo is
(1989)

Options:

A. amphimictic haploid

B. amphimictic diploid

C. apomictic haploid

D. apomictic diploid.

Answer: D

Solution:

(d) : Nucellar embryo is apomictic diploid. Substitution of usual sexual reproduction by a form of reproduction which does not include meiosis and syngamy is called apomixis. In this process, embryo is developed by some other tissue without fertilisation e . g., nucellus or integuments or infertilised egg. Nucellus is a diploid tissue so nucellar embryo is apomictic diploid.

Question160

Development of an organism from female gamete/egg without involving fertilization is
(1989)

Options:

A. adventitive embryony

B. polyembryony

C. parthenocarpy

D. parthenogenesis.

Answer: D

Solution:

Solution:
(d) : Development of an organism from female gamete/egg without involving fertilisation is parthenogenesis and when a fruit is developed by this technique it is called parthenocarpy.

Question161

Perisperm is
(1989,1988)

Options:

A. remnant of endosperm

B. persistent nucellus

C. peripheral part of endosperm

D. disintegrated secondary nucleus.

Answer: B

Solution:

Solution:
(b) : Perisperm is persistent nucellus. Endosperm formation is accompanied by degeneration of nucellus.

Question162

Double fertilization and triple fusion were discovered by (1988)

Options:

A. Hofmeister

B. Nawaschin and Guignard

C. Leeuwenhoek

D. Strasburger.

Answer: B

Question163

Total number of meiotic divisions required for forming 100 zygotes/100 grains of wheat is (1988)

Options:

A. 100

B. 75

C. 125

D. 50

Answer: C

Solution:

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

Question164

Male gametophyte of angiosperms is shed at (1988)

Options:

A. four celled pollen grain

B. three celled pollen grain

C. microspore mother cell

D. anther.

Answer: B

Solution:

Solution:
(b) : The male gametophyte or microspore is shed at 3 -nucleate stage. The microspore undergoes only two mitotic divisions.

Question165

Parthenogenesis is (1988)

Options:

A. development of embryo without fertilization

B. development of fruit without fertilization

C. development of fruit without hormones

D. development of embryo from egg without fertilization.

Answer: D

Solution:

Solution:
(d) It is involved in apomixis (asexual reproduction).

Question166

Formation of gametophyte directly from sporophyte without meiosis is (1988)

Options:

A. apospory

B. apogamy

C. parthenogenesis

D. amphimixis.

Answer: A

Solution:

(a) : Formation of gametophyte directly from sporophyte without meiosis and spore formation is apospory. The gametophyte thus has diploid number of chromosomes. Such gametophyte may form viable gametes which fuse to form tetraploid sporophyte. Apogamy is development of sporophyte directly from gametophytic tissue without fusion of gametes. Amphimixis is normal sexual reproduction. Parthenogenesis is development of embryo from egg without fertilisation.
