7. REPRODUCTION IN PLANTS

Solutions

TEACHING TASK

1. The function of suspensor of the embryo is
   A) Absorption of nutrients B) Formation of secondary embryos
   C) Pushing the embryo in to the nutritive tissue D) All the above

Answer: D

Solution: The suspensor helps push the embryo into nutritive tissue, absorbs nutrients, and may form secondary embryos.

2. The first division of zygote in dicots and monocots in normally
   A) Transvers B) Longitudinal C) Oblique D) Meiotic

Answer: A

Solution: The first division of a zygote is transverse in both dicots and monocots.

3. Polyembryony was first reported in
   A) Citrus B) Mango C) Cocos D) Opuntia

Answer: A

Solution: Polyembryony was first reported in Citrus, where multiple embryos form in a single seed.

4. The lower cell of suspensor lying above the embryonal cell (apical cell) during embryogeny in dicot is
   A) Haustorial cellB) Hypophysis C) Hypocotyl D)Epiblast

Answer: B

Solution: Hypophysis is derived from the suspensor and gives rise to parts of the root.

5. The word scutellum refers to
   A) Embryo of dicot B) Embryonic shoot of monocot embryo
   C) Outer most layer of endosperm in cereals
   D) cotyledon of monocot embryo

Answer: D

Solution: The scutellum is the single cotyledon found in monocot embryos like cereals.

6. Remains of second cotyledon which occurs in some grasses is called
   A) Coleoptile B) Hypophysis C) epiblast D) Scutellum

Answer: C

Solution: Epiblast is a small projection near the scutellum, representing the rudimentary second cotyledon.

7. The term “Tigellum” refers to
   A) Axis of the embryo
   B) Part of embryonal axis below the cotyledonary node
   C) Part of the embryonal axis above the cotyledonary node
   D) Upper cell of suspensor of dicot embryo

Answer: A

Solution: Tigellum is the embryonic axis that includes plumule and radicle.

8. Which of the following is generally considered as artificial method of vegetative prolongation
   A) Cutting B) Layering C) Grafting D) All the above

Answer: D

Solution: Cutting, layering, and grafting are artificial vegetative propagation methods.

9. Nuclear or cellular nature of endospenrm can be known at a stage
   A) Mature B) Cordate stage of embryo
   C) Beginning of divisions in embryo D) Following division of primary endosperm

Answer: D

Solution: The nuclear/cellular nature of endosperm is determined after division of the primary endosperm nucleus.

10. Perisperm is
    A) Outer part of embryosac B) Degenerate synergid
    C) Degenerate secondarynucleus D) Remains of nucellus

Answer: D

Solution: Perisperm is the remnant of the nucellus tissue, seen in seeds like black pepper.

11. Development of seedless fruit in an unfertilized flower is called
    A) Parthenocarpy B) sporophytic budding
    C) Polyembryony D) Micropropagation

Answer: A

Solution: Parthenocarpy is the development of seedless fruits without fertilization.

12. Fusion of a male gamete with egg in embryo sac is
    A) Autogamy B) Syngamy C) Double fertilization D) Triple fusion

Answer: B

Solution: Syngamy refers to the fusion of one male gamete with the egg cell.

13. Identify the wrong statement regarding post fertilization development
    A) Ovary wall develops into pericarp
    B) Outer integument of ovule develops into tegmen
    C) Fusion nucleus (Triple nucleus) develops into endosperm
    D) Ovule develops into seed

Answer: B

Solution: The outer integument forms the testa, not the tegmen; hence this statement is wrong.

14. During development of male gametophyte from pollen mother cell, there occurs
    A) Two meiotic divisions and one mitotic division
    B) Two mitotic divisions C) One meiotic and two mitotic divisions
    D) One meiotic cell division and one mitotic cell division

Answer: D

Solution: One meiotic division forms microspores; each microspore undergoes one mitotic division to form two cells.

15. Pericarp of fruit develops from
    A) Wall of ovary B) Nucellus C) Funicle D) Seed coat

Answer: A

Solution: The ovary wall develops into the pericarp (fruit wall) after fertilization.

16. Embryo sac develops from megaspore mother cell through

A) 1 meiosis and 2 mitosis B) 1 meiosis and 3 mitosis
C) 2 meiosis and 2 mitosis D) 2 meiosis and 3 mitosis

Answer: B

Solution: One meiosis produces four megaspores; one functional megaspore undergoes three mitoses to form embryo sac.

17. What statement is true about microspore of angisperms
A) Resultant of mitotic division B) First cell of gametophytic generation
C) Resultant of double fertilization D) First cell of endosperm

Answer: B

Solution: Microspore is the first cell of the male gametophytic generation.

18. Which one is surrounded by cellulose wall
A) Male gamete B) pollen grain C) Egg D) Microspore tetrads

Answer: D

Solution: Microspore tetrads are enclosed within a cellulose wall before separation.

19. Doulbe fertilization and triple fusion were discovered by
A) Hofmeister B) Nawaschin and Guignard
C) Leeuwenhoek D) Strasburger

Answer: B

Solution: Double fertilization and triple fusion were discovered by Nawaschin and Guignard.

20. Parthenocarpic fruits are produced by
A) Treating plants with phenyl mercuric acetate
B) Treating plants with low concentrations of gibberellic acid and auxin
C) Removing androecium of flowers before release of pollen grains
D) Raising plants from vernalised seeds.

Answer: B

Solution: Application of gibberellins or auxins can induce parthenocarpic (seedless) fruit development.

21. Cleistogamous flowers are
A) Wind pollinated B) Insect pollinated C) Bird pollinated D) Self pollinated

Answer: D

Solution: Cleistogamous flowers are closed and self-pollinate without opening.

22. In angiosperm ovule, central cell of embryo sac, prior to entry of pollen tube, contains
A) Two haploid secondary nuclei B) One diploid secondary nucleus
C) Single haploid nucleus D) One diploid and one haploid nuclei

Answer: A

Solution: Before fertilization, the central cell has two haploid secondary nuclei.

23. Phenomenon of polyembryony was first observed in
A) Citrus B) Cucurbita C) Mangifera D) Euphorbia

Answer: A

Solution: Polyembryony was first observed in Citrus.

24. In angisperms, endoperm is formed by
A) Division of fused polar nuclei
B) Free nuclear division of megaspore

C) Division of fused synergids and male gamete
D) Division of fused polar nuclei and male gamete

Answer: D
Solution: Endosperm forms after fusion of two polar nuclei (haploid each) and a male gamete ? triploid.

25. Endosperm/endosperm nucleus of angiosperms is generally
A) Haploid B) Diploid C) Triploid D) Tetraploid

Answer: C
Solution: The resulting endosperm is triploid (3n) in most angiosperms.

26. Pollen grains are shed at
A) One-celled stage B) 2-3 celled stage C) 3-celled stage D) 4- celled stage.

Answer: B
Solution: Pollen grains are shed at the 2 or 3-celled stage, depending on species.

27. Function of suspensor of embryo is
A) Absorptionf nourishment
B) Push the embryo into nutritive endosperm region
C) Formation of secondary embryos
D) All the above

Answer: D
Solution: Suspensor absorbs nutrients, pushes embryo into endosperm, and may initiate secondary embryos.

28. Pollen tube discharges its male gametes into
A) Egg B) Healthy synergid
C) Degenerating synergid D) Central cell

Answer: C
Solution: Male gametes are released into a degenerating synergid during fertilization.

29. During double fertilization, pollen tube enters embryo sac
A) By penetrating egg B) Through one of the synergids
C) By destroying antipodal D) Between synergid and central cell

Answer: B
Solution: Pollen tube enters the embryo sac through one of the synergids.

30. Fibrous thickening of hygroscopic nature are found in this part of anther
A) Epidermis B) Tapeturm C) Middle layer D) endothecium

Answer: D
Solution: Endothecium has fibrous thickenings which help in anther dehiscence.

31. Double fertilization results in production of
A) Haploid nucleus B) Diploid nucleus
C) Triploid nucleus D) tetraploid nucleus

Answer: C
Solution: Double fertilization produces a diploid zygote and a triploid endosperm nucleus.

32. In a type of apomixes known as adventitive embryony, embryos develp directly from

A) Nucellus or integument B) Zygote

C) Synergids or antipodals of embryo sac D) Accessory embryo sacs in the ovule.

Answer: A

Solution: In adventive embryony, embryos arise directly from nucellus or integuments, bypassing fertilization.

33. Double fertilization involves

A) Fertilization of egg by two male gametes

B) Fertilization of two sperms brought by one pollen tube

C) Fertilization of the egg and the central cell by two sperms brought by the same pollen tube

D) Fertilization of the egg and the central cell by two sperms brought by two different polentubes.

Answer: C

Solution: Both egg and central cell are fertilized by two male gametes from the same pollen tube.

34. For self pollination, a flower should be

A) A sexual B) Monosexual C) Unisexual D) Bisexual

Answer: D

Solution: Self-pollination requires bisexual (hermaphrodite) flowers.

35. Arrangement of nuclei in normal dicot embryo sac is

A) 3+3+2 B) 2+4+2 C) 3+2+3 D) 2+3+3

Answer: C

Solution: The typical embryo sac has 3 antipodals + 2 polar nuclei + 3 egg apparatus = 3+2+3.

36. Milky water of green coconut is

A) Liquid chalaza B) Liquid nucellus

C) Liquid endosperm D) Liquid female gametophyte

Answer: C

Solution: The milky water inside coconut is free-nuclear liquid endosperm.

37. A diploid female plant is crossed with tetraploid male plant. The ploidy of endosperm will be

A) Tetraploidy B) Pentaploidy C) Triploidy D) Diploidy

Answer: B

Solution: 2n female + 4n male ? endosperm gets 2n from polar nuclei + 2n from male ? total 5n = pentaploid.

38. In oogamy, fertilization occurs between

A) Small nonmotile female gamete and large motile male gamete

B) Large nonmotile female gamete and small motle male gamete

C) A large nonmotile female gamete and small nonmotile male gamete

D) A large motile female gamete and a small nonmotile male gamete.

Answer: B

Solution: Oogamy involves fusion between large non-motile female and small motile male gamete.

39. Fragrant flowers with well developed nectarines are an adaptation for
A) Zoophily B) Anemophily C) Entomophily D) Hydrophily

Answer: C

Solution: Insect pollination (entomophily) is aided by fragrant flowers and nectar.

40. During formation of pollen grains, a microscope 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

Solution: Pollen mother cell undergoes meiosis to form 4 microspores.

41. 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

Solution: Sporopollenin is a tough, decay-resistant component in the pollen exine.

42. Plant part having tow generations, one within the other is
A) Seed B) Germinated pollen grain C) Embryo D) Unfertilsed ovule

Answer: A

Solution: A seed contains an embryo (next generation) within seed coat from the previous generation

43. Wind pollinated flowers are
A) small, scented and colourless B) Small, nonscented and colourless
C) Big, scented and colourless D) Big, nonscented and colourless

Answer: B

Solution: Wind-pollinated flowers are small, not scented, and dull-colored to minimize attraction.

44. Vegetative fertilization, which involves formations of endosperm, is fusion of
A) One male gamete with diploid secondary nucleus
B) Two vegetative cells C) Two male gameties
D) Female gamete with secondary nucleus

Answer: A

Solution: Endosperm is formed when one male gamete fuses with diploid secondary nucleus (2 polar nuclei).

45. Number of prothallial cells present in male gametophyte of flowering plants is
A) Three B) Two C) One D) zero

Answer: D

Solution: Flowering plants do not have prothallial cells in male gametophytes.

46. If meiosis occurs inside pollen grain, it will be
A) Zygotic meiosis B) Gametic meiosis C) Sporic meiosis D) None of the above

Answer: B

Solution: Meiosis in pollen mother cells is a type of gametic meiosis.

47. Pollen grains are non green due to
A) Absence of plastids B) Degeneration of plastids

C) Conversion of plastids D) Attraction of vectors

Answer: A

Solution: Pollen grains are non-green due to lack of plastids.

48. Which is wrong
    A) Seed cannot be formed after one fertilization
    B) Seed is formed after one fertilization
    C) Seeds is formed without double fertilization
    D) Fruit is produced after double fertilization

Answer: C

Solution: Seed formation requires double fertilization; without it, seeds don't form (statement is wrong).

49. Filiform apparatus occurs in
    A) Synergids B) Secondary nucleus C) Antipodals D) Egg nucleus

Answer: A

Solution: Filiform apparatus in synergids guides pollen tube entry into the embryo sac.

50. In which of the following plant pollen grains cause pollen allergy and leads to asthma, bronchitis
    A) Solanum surathines B) Atropa belladona
    C) Parthenium hysterophorus D) Digitalis purpurea

Answer: C

Solution: Parthenium hysterophorus produces highly allergenic pollen, causing respiratory issues.

51. From which part of the plant can gardeners take cuttings to produce new plants?
    a) Flowers b) Leaves c) Roots d) Fruits

Answer: C

Solution: Gardeners use stem or root cuttings to grow new plants.

52. What type of underground storage structure do onions and tulips grow from?
    a) Tubers b) Rhizomes c) Bulbs d) Runners

Answer: C

Solution: Onions and tulips store food in bulbs, which are underground structures.

53. How do gardeners typically propagate plants using the cutting method?
    a) By placing a piece of the fruit in soil
    b) By taking a section of the flower and planting it
    c) By placing a stem or leaf in soil or water
    d) By burying a section of the root underground

Answer: C

Solution: In the cutting method, stems or leaves are placed in water or soil to grow roots.

54. What is parthenogenesis?
    a) Regeneration of lost body parts b) Reproduction through budding
    c) Reproduction without fertilization d) Reproduction through fragmentation

Answer: C

Solution: Parthenogenesis is reproduction without fertilization, seen in some animals.

55. Which animals can reproduce without fertilization?
    a) Worms b) Coral c) Planarians
    d) Certain species of insects, reptiles, and fish

Answer: D

Solution: Some insects, reptiles, and fish can reproduce by parthenogenesis.

56. What happens when a small bud forms on the parent organism and eventually detaches to become a new individual?
    a) Regeneration b) Fragmentation c) Parthenogenesis d) Budding

Answer: D

Solution: Budding occurs when a new organism grows from a bud on the parent.

LEARNER'S TASK

1. This is a character of flower.
    A) Presence of condensed axis B) Showing limited growth
    C) Taking part in sexual reproduction D) All of the above

Answer: D

Solution: All the given statements are true — flowers have a condensed axis, show limited growth, and are the sites of sexual reproduction.

2. The idea that flower is a modified shoot was expressed by
    A) Linnaeus B) Gaspard Bauhin C) de Candolle & Goethe D) All of them

Answer: C

Solution: The flower is considered a modified shoot, as proposed by de Candolle and Goethe.

3. Torus is
    A) Axis of flower B) Stalk of flower C) Axis of the plant D) All

Answer: A

Solution: The swollen part of the floral axis where floral whorls are arranged is called the torus or thalamus.

4. The total number of sets of floral leaves present in a normal flower is
    A) Four B) One C) Three D) Two

Answer: A

Solution: A complete flower has four whorls: calyx, corolla, androecium, and gynoecium.

5. The first and second whorls of the flower respectively consist of
    A) Calyx, Androecium B) Corolla, Calyx
    C) Corolla, Androecium D) Calyx, Corolla

Answer: D

Solution: The outermost two whorls of a flower are the calyx and corolla

6. Both calyx and corolla together known as
    A) Perianth B) Chlamydeon C) Non-essential organs D) All of them

Answer:D

Solution: Calyx and corolla together form the perianth or non-essential floral whorls.

7. Essential organs of the flower are present in one of the following whorls.
    A) Calyx, Androecium B) Corolla, Calyx

C) Gynoecium, Androecium D) Gynoecium, Corolla

Answer: C

Solution: Androecium (male part) and gynoecium (female part) are essential reproductive organs of a flower.

8. A bisexual flower is

A) Complete B) Incomplete

C) Usually incomplete rarely complete D) Complete or incomplete

Answer: A

Solution: A bisexual flower contains both androecium and gynoecium and is therefore also complete.

9. Microsporophyll is commonly known as

A) Stamen B) Carpel C) Petal D) Sepal

Answer: A

Solution: Microsporophyll refers to the stamen, which produces microspores (pollen grains).

10. A dithecous anther has

A) Two lobes B) Two microsporangia C) Two filaments D) Two an

Answer: A

Solution: A dithecous anther has two lobes, each containing two pollen sacs.

11. Monothecous anthers are seen in

A) Cassia B) Datura C) Hibiscus D) Argemone

Answer: D

Solution: Monothecous anthers (having only one lobe) are present in Argemone.

12. In an angiospermic plant flowers are developed on

A) Male gametophyte B) Thalamus C) Sporophyte D) Female gametophyte

Answer: C

Solution: In angiosperms, the flower develops from the diploid sporophyte generation.

13. In angiosperms meiotic division takes place in

A) Zygote B) Spore mother cells C) Gamete mother cells D) All

Answer: B

Solution: Meiosis occurs in microspore and megaspore mother cells to form haploid spores.

14. One of the following is developed from nucellus.

A) Male gamete B) Female gamete C) Zygote D) Megaspore mother cell

Answer: D

Solution: The megaspore mother cell originates from the nucellus of the ovule.

15. The haploid structures in the life cycle of angiosperms is

A) Microspores B) Megaspores C) Male gametophyte D) All

Answer: D

Solution: Microspores, megaspores, and male gametophytes are all haploid.

16. In angiosperms the adult sporophyte is directly formed from

A) Microspore B) Megaspore C) Zygote D) Embryo

Answer: C

Solution: The diploid zygote undergoes mitosis to develop into a new sporophyte.

17. In angiosperms the seed contains

A) Zygote B) Seed ling C) Embryo D) Female gametophyte

Answer: C

Solution: The seed contains the embryo, which represents the young sporophyte.

18. Pollen grains are also known as
    A) Microspores B) Megaspores
    C) Microspore mother cell D) Megaspore mother cell

Answer: A

Solution: Pollen grain is another name for the microspore.

19. The number of pollen sacs preset in a dithecous anther is
    A) Two B) One C) Three D) Four

Answer: D

Solution: A dithecous anther contains a total of four pollen sacs.

20. Male gametes are formed by
    A) Pollen grains B) Megaspores C) Tapetum D) Connective

Answer: A

Solution: Male gametes are produced inside the pollen grain after its germination.

22. Stomium is an integral part of
    A) Middle layers B) Tapetum C) Endothecium D) Epidermis

Answer: C

Solution: The stomium is the region of the anther that facilitates dehiscence.

23. Microspore mother cells show meiosis during the degeneration of
    A) Tapetum B) Endothecium C) Stomium D) Middle layers

Answer: D

Solution: Microspore mother cells are formed during the degeneration of the middle layers.

24. Fibrous thickenings are present in
    A) Endothecium B) Tapetum C) Epidermis D) Middle layers

Answer: A

Solution: Endothecium cells develop fibrous thickenings that help in anther dehiscence.

25. This is multilayered structure of anther wall
    A) Middle layers B) Tapetum C) Endothecium D) Epidermis

Answer: A

Solution: The anther wall contains two to three middle layers.

26. This is hygroscopic structure of anther.
    A) Tapetum B) Endothecium C) Middle layers D) Tapetum

Answer: B

Solution: The endothecium is hygroscopic and helps in the dehiscence of the anther.

27. This structure of anther wall helps in the breakage of anther.
    A) Endothecium B) Tapetum C) Middle layers D) Epidermis

Answer: A

Solution: The endothecium facilitates the breaking of the anther to release pollen.

28. These cells show contraction during the breakage of anther.

A) Tapetum B) Endothecium C) Middle layers D) Epidermis

Answer: B

Solution: Endothecium cells contract and cause tension that splits the anther.

29. The innermost layer of anther wall is called as

Answer: A

Solution: The tapetum is the innermost layer of the anther wall, nourishing pollen.

A) Tapetum B) Endothecium C) Middle layers D) Epidermis

30. It is the nutritive tissue of anther wall.

A) Endothecium B) Tapetum C) Epidermis D) Middle layers

Answer: B

Solution: Tapetum provides nutrients to developing pollen grains.

31. Radially elongated cells are present in

A) Epidermis B) Tapetum C) Middle layers D) Endothecium

Answer: D

Solution: Endothecium cells become radially elongated and develop fibrous bands.

32. Meiosis takes place in one of the following cells

A) Microspores B) All sporogenous cells

C) Microspore mother cells D) Tapetal cells

Answer: C

Solution: Meiosis takes place in the microspore mother cells.

33. Nucellar cells surrounding the embryosac start dividing and protrude into the embryosac and develop in the embryos in

A) Coconut,Mango B) Citrus,Mango

C) Cinchona.Mangifera D) Annona,Citrus,Mango

Answer: D

Solution: Nucellar embryos are observed in Citrus, Mango, and Annona.

34. The usual shape of pollen grain is

A) Spherical or thread like B) Spherical or oval

C) Spherical or rectangular D) Triangular or oval

Answer: B

Solution: Pollen grains are generally spherical or oval in shape.

35. Pollen grain wall is

A) Single layered B) Double layered C) Triple layered D) Four layered

Answer: B

Solution: The pollen wall consists of two layers: exine and intine.

36. Exine is chemically made of

A) Protein B) Sporopollenin C) Carbohydrate D) Glycolipid

Answer: B

Solution: The exine is composed of sporopollenin, a highly durable substance.

37. Intine is chemically made of

A) Pectin B) Cellulose C) Pectin and Cellulose D) Lignin

Answer: C

Solution: The intine is made up of cellulose and pectin.

38 Germ pores are seen in

A) Exine B) Intine

C) Sometimes in exine and sometimes in intine D) None of them

Answer: A

Solution: Germ pores are areas in the exine where pollen tubes emerge during germination.

39. The first cell of male gametophyte of angiosperms is

A) Megaspore B) Pollen grain C) Male gametophyte D) Female gametophyte

Answer: B

Solution: The pollen grain is the first cell of the male gametophyte.

40. The first division in the microspore is

A) Equal, anticlinal B) Unequal, Anticlinal

C) Equal, Periclinal D) Unequal, Periclinal

Answer: D

Solution: The first division of the microspore is asymmetric, forming a large vegetative cell and a small generative cell.

41. Pollen tube is formed by

A) Exine B) Intine C) Both Exine & Intine D) Plasma membrane

Answer: B

Solution: The pollen tube grows through the intine, which is the inner wall layer.

42. Fully developed male gametophyte of angiosperms has

A) 2-cells B) 3-cells C) 5-cells D) Several cells

Answer: B

Solution: The mature male gametophyte has three cells: one vegetative cell and two male gametes.

43. Pollen enters into the embryosac through

A) Egg cell B) Antipodals C) Synergid D) Central cell

Answer: C

Solution: The pollen tube enters the ovule through a synergid cell at the micropyle.

44 The point of attachment of funicle with the ovule body is called as

A) Hilum B) Strophiole C) Raphe D) Integument

Answer: A

Solution: The hilum is the scar where the seed is attached to the fruit wall or ovary.

45 The ridge present between the funicle and the body of the ovule is called as

A) Raphe B) Hilum C) Strophiole D) Nucellus

Answer: A

Solution: Raphe is the ridge formed due to the fusion of the funicle with the ovule body.

46. The region of the ovule where the lateral side of integuments and the funicle are united is called as

A) Micropyle B) Chalaza C) Nucellus D) Raphe

Answer: B

Solution: The chalaza is the point where the integuments and nucellus merge.

47. Meiosis occurs during the following phenomenon of plants.

A) Embryogenesis B) Megasporangiogenesis
C) Megasporogenesis D) Nucellogenesis

Answer: C

Solution: Meiosis takes place in the megaspore mother cell during megasporogenesis.

48. Megaspores of a tetrad are arranged in this manner.

A) Tetrahedral B) Decussate C) Isobilateral D) Linear

Answer: D

Solution: In angiosperms, megaspores are arranged in a linear tetrad.

49. One of the following events does not occur during divisions in functional megaspore.

A) Karyokinesis B) Metaphase C) Telophase D) Cytokinesis

Answer: B

Solution: Free nuclear division does not involve metaphase as it skips karyokinesis steps.

50. The total number of generations of nuclear divisions that occur during the formation of embryosac from megaspore is

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

Answer: A

Solution: Three mitotic divisions of the nucleus occur during embryo sac development.

51. Embryosac is

A) Two nucleated stage of megaspore
B) Four nucleated stage of megaspore
C) Single nucleated stage of megaspore
D) Eight nucleated stage of megaspore

Answer: D

Solution: The mature embryo sac is formed after three mitotic divisions of the functional megaspore, resulting in 8 nuclei (7 cells). Hence, it is an eight-nucleated structure.

52. Secondary nucleus of embryosac is fusion product of

A) Synergids B) Antipodals C) Polar nuclei D) Megaspores

Answer: C

Solution: The secondary nucleus is formed by the fusion of two polar nuclei in the central cell of the embryo sac.

53. The female gametophyte of angiosperms is

A) 7-celled, 8-nucleated B) 8-celled, 8-nucleated
C) 7-celled, 7-nucleated D) 8-celled, 9-nucleated

Answer: A

Solution: The mature embryo sac contains 7 cells (3 antipodals, 2 synergids, 1 egg, and 1 central cell) and 8 nuclei, hence described as 7-celled, 8-nucleated.

54. Presence of filiform apparatus is a feature of

A) Antipodals B) Synergids C) Central cell D) Egg cell

Answer: B

Solution: Synergids have a filiform apparatus, which guides the pollen tube into the embryo sac.

55. The structure of embryosac of angiosperms that helps in absorption and conduction of food materials from nucellus is

A) Antipodals B) Synergids C) Egg cell D) Central cell

Answer: B

Solution: Synergids, with their filiform apparatus, help in absorption and conduction of nutrients from the nucellus to the embryo sac.““

56. The function of filiform apparatus of synergids is

A) Guiding the pollen tube into the embryosac

B) Absorption of food materials from the nucellus

C) Conduction of food materials into the embryosac D) All the above

Answer: D

Solution: The filiform apparatus in synergids performs all three functions: guiding the pollen tube, absorbing, and conducting food materials.

57. The smallest cell/s of embryosac are/is

A) Synergid B) Central cell C) Antipodals D) Egg cell

Answer: A

Solution: Synergids are the smallest cells in the embryo sac, located adjacent to the egg cell.

58. These cells of embryosac perish even before fertilization.

A) Synergids B) Egg cell C) Central cell D) Antipodals

Answer: D

Solution: Antipodal cells are ephemeral and degenerate before fertilization.

59. Vegetative cells of embryosac are

A) Synergids B) Egg apparatus C) Antipodals D) Central cells

Answer: C

Solution: Antipodal cells are considered vegetative cells of the embryo sac.

60. The second largest cell of embryosac is

A) Egg cell B) Synergid C) Central cell D) Antipodal

Answer: A

Solution: The central cell is the largest, and the egg cell is the second largest cell of the embryo sac.““

61. The only dikaryotic cell of embryosac is

A) Synergid B) Egg cell C) Central cell D) Antipodal

62. The diploid cell of embryosac is

A) Central cell B) Egg cell C) Synergid D) Antipodal

Answer: C

Solution: The central cell contains two polar nuclei before triple fusion and is thus dikaryotic.

63. Karyogamy between genetically similar structures is seen in one of the following cells of embryosac.

A) Egg cell B) Synergid C) Central cell D) Antipodal

Answer: C

Solution:"Karyogamy (fusion of nuclei) between genetically similar polar nuclei occurs in the central cell, forming the secondary nucleus. So, the central cell undergoes karyogamy.

64. This cell of embryosac is not having its own wall.

A) Central cell B) Egg cell C) Synergid D) Antipodal

Answer: A

Solution:"The central cell initially lacks its own cell wall, and the two polar nuclei float freely in the cytoplasm before fusing.

65. Direct pollination is seen in

A) Dicots B) Monocots C) Angiosperms D) Gymnosperms

Answer: D

Solution:"Direct pollination (pollen falls directly onto the ovule) is seen in gymnosperms because they lack enclosed ovaries. Angiosperms have indirect pollination due to closed carpel.

66. Self pollinating flowers must be

A) Cleistogamous B) Chasmogamous C) Bisexual D) Xenogamous

Answer: A

Solution:"Cleistogamous flowers are closed, ensuring self-pollination without exposure to external pollen.

67 If the pollen grains of one flower of a plant fall on the stigma of another flower of the same plant it is described as

A) Xenogamy B) Geitonogamy C) Allogamy D) Autogamy

Answer: B

Solution:"When pollen of one flower falls on the stigma of another flower of the same plant, it is geitonogamy.

68. Only Xenogamy takes place in

A) Acalypha B) Vallisnaria C) Hibiscus D) Ficus

Answer: B

Solution:"In Vallisneria, only xenogamy (cross-pollination between different plants) occurs through hydrophily (pollination by water).

69. Find the correct statement

A) All autogamous flowers are bisexual
B) All bisexual flowers are autogamous
C) All bisexual flowers are allogamous
D) All Allogamous flowers are bisexual

Answer: A

Solution:"Only autogamous flowers must be bisexual (as self-pollination requires both male and female parts), but not all bisexual flowers are autogamous.

70. The plants with both Cleistogamous and Chasmogamous flowers are

A) Viola,Oxalis,Commelina B) Ficus,Viola,Oxalis
C) Commelina,Carica,Cassia D) Viola,Vallisneria, Oxalis

Answer: A

Solution:"Plants like Viola, Oxalis, and Commelina produce both cleistogamous (closed) and chasmogamous (open) flowers to ensure both self- and cross-pollination.

71. The plants which are mostly pollinated by water
    A) Vallisneri,Borassus, Cocos B) Zostera, Hydrilla,Vallisnera
    C) Hydrilla,Acalypha,Vallisneria D) Zostera,Nicotiana,Vallisneria

Answer: B

Solution:"Zostera, Hydrilla, Vallisneria are hydrophilous aquatic plants, mainly pollinated by water.

72. The pollen tube enters into the embryosac by destroying
    A) Egg cell B) Central cell C) Antipodal D) Synergid

Answer: D

Solution:"The pollen tube enters the embryo sac via the micropyle and destroys one synergid to release the male gametes into the embryo sac.

73. Pollen grains of angiosperms are released from the microsporangium at
    A) 2-celled stage B) 1-celled stage C) 3-celled stage D) 4-celled stage

Answer: A

Solution:"Pollen grains in most angiosperms are released at the 2-celled stage: a vegetative cell and a generative cell.

74. Strasburger discovered
    A) Double fertiliszation B) Syngamy
    C) Triple fusion D) Vegetative fertilization

Answer: A

Solution: Eduard Strasburger discovered double fertilization, a unique feature of angiosperms

75. Nawaschin discovered
    A) Syngamy in *Allium* B) Zygotic fertilization in *Fritillaria*
    C) Triple fusion in *Lilium* D) Vegetative fertilization in *Polygonum*

Answer: C

Solution: Nawaschin discovered triple fusion in Lilium, confirming double fertilization in angiosperms.

76. This is triploid.
    A) Zygote B) Secondary nuclus
    C) Primary endosperm nucleus D) Egg cell

Answer: C

Solution: The primary endosperm nucleus is triploid (3n), formed after the second male gamete fuses with the diploid secondary nucleus (2n).

77. Presence of double fertilization is a feature of
    A) Gymnosperms B) Angiosperms C) Bryophytes D) All Phanerogams

Answer: B

Solution: Double fertilization is a characteristic of angiosperms only.

78. Ex-albuminous seeds are seen in
    A) Ricinus B) Cocos C) Capsella D) Datura

Answer: C

Solution: Capsella is an example of exalbuminous seed (endosperm is absent in the mature seed).""

79. The tissue that acts as nutritive tissue for the development of embryo is
    A) Nucellus B) Tapetum C) Endosperm D) Perisperm

Answer: C

Solution: The endosperm is the tissue that provides nutrition to the developing embryo in most angiosperms.

80. Albuminous seeds are seen in

Answer: D

Solution: Cocos, Ricinus, and Datura all produce albuminous seeds (endosperm persists in the mature seed).““

Answer: D

Solution: Cocos, Ricinus, and Datura all produce albuminous seeds (endosperm persists in the mature seed).““

81. In Pyrus malus the false fruit is developed from

A) Thalamus B) Pedicel C) Peduncle D) Calyx

Answer: A

Solution: In Pyrus malus (apple), the thalamus develops into the edible, false fruit.““

82. The succulent part in Anacardium occidental*is* is

A) Peduncle B) Pedicel C) Calyx D) Thalamus

Answer: A

Solution: In Anacardium occidentale (cashew), the peduncle becomes succulent and fleshy, forming the cashew apple.““

83. Drupe is a

A) Fleshy fruit B) Dry dehiscent fruit
C) Dry indehiscent fruit D) Schizocarpic fruit

Answer: A

Solution: A drupe (like mango or coconut) is a fleshy fruit with a stony endocarp (stone fruit).

84. The thalamus contributes in the formation fruits in

A) Apple,Strawberry,Cashew nut B) Apple.Annona.Naravelia
C) Strawberry.Solanum,Artocarpus D) Cashewnut,Artabotrys,Artocarpus

Answer: A

Solution: In apple, strawberry, and cashew nut, the thalamus contributes to the formation of the fruit, making them false fruits.

85. A plant with parthenocarpic fruit is

A) Pyrus malus B) Anacardium occidentalis
C) Musa paradisiaca D) Annona squamosa

Answer: C

Solution: Musa paradisiaca (banana) forms parthenocarpic fruit, i.e., fruit develops without fertilization.

86. A plant where the seeds show around 10,000 years of dormancy

A) Lentinous edodes B) Lupinus arcticus
C) Lycopersicon esculentum D) Leucas aspera

Answer: B

Solution: Lupinus arcticus seeds have been found viable even after 10,000 years, showing extreme seed dormancy.““

87. The process formation of seeds without fertilization is

A) Apospory B) Parthenocarpy C) Parthenogenesis D) Apomixis

Answer: D

Solution:“Apomixis is the formation of seeds without fertilization, bypassing both syngamy and meiosis. It is a type of asexual reproduction through seeds.

88. The protective structures present around the nucellus are called as
A) Strophiole B) Chalaza C) Funiculii D) Integuments

Answer: D

Solution:“Integuments are the protective layers surrounding the nucellus in the ovule. They develop into the seed coat after fertilization.

89. How do strawberries and spider plants reproduce?
a) Through leaf cuttings b) By forming tubers
c) Via stems called runners d) Through rhizomes

Answer: C

Solution:“Strawberries and spider plants reproduce asexually through modified stems called runners, which grow horizontally and give rise to new plants.““

90. Which of the following plants can sprout new shoots and roots from underground stems?

Answer: B

Solution:“Ginger has underground stems (rhizomes) from which new shoots and roots can sprout, helping in vegetative propagation.