

# REPRODUCTION IN FLOWERING PLANTS

## Teaching Task (Page 85 – 89)

### 1. The function of suspensor of the embryo is

**Answer: C) Pushing the embryo into the nutritive tissue Explanation:**

The suspensor is a structure in the embryo that anchors it to the embryo sac and pushes the developing embryo into the nutrient-rich endosperm to facilitate nutrient absorption. It does not directly absorb nutrients or form secondary embryos.

### 2. The first division of zygote in dicots and monocots is normally

**Answer: A) Transverse Explanation:** In both dicots and monocots, the zygote undergoes a transverse division to form a basal cell (towards the micropyle) and an apical cell (towards the embryo sac), which further differentiate into the suspensor and embryo proper, respectively.

### 3. Polyembryony was first reported in

**Answer: A) Citrus Explanation:** Polyembryony, the formation of multiple embryos in a single seed, was first reported in *Citrus* (e.g., oranges) by Strasburger in 1878.

### 3. The lower cell of suspensor lying above the embryonal cell (apical cell) during embryogeny in dicot is

**Answer: B) Hypophysis Explanation:** The hypophysis is the cell in the suspensor just above the embryonal cell in dicot embryos. It contributes to the formation of the root apex and root cap.

### 4. The word scutellum refers to

**Answer: D) Cotyledon of monocot embryo Explanation:** The scutellum is a specialized cotyledon in monocot embryos (e.g., grasses) that absorbs nutrients from the endosperm during germination.

### 5. Remains of second cotyledon which occurs in some grasses is called

**Answer: C) Epiblast Explanation:** The epiblast is a small, vestigial structure in some monocot embryos (e.g., grasses), considered a remnant of the second cotyledon.

### 6. The term “Tigellum” refers to

**Answer: A) Axis of the embryo Explanation:** The tigellum is the main axis of the embryo, consisting of the plumule (shoot) and radicle (root), connecting the cotyledons.

**7. Which of the following is generally considered as artificial method of vegetative prolongation**

**Answer: D) All the above Explanation:** Cutting, layering, and grafting are all artificial methods of vegetative propagation used to reproduce plants asexually.

**8. Nuclear or cellular nature of endosperm can be known at a stage**

**Answer: D) Following division of primary endosperm Explanation:** The nuclear or cellular nature of the endosperm (free nuclear or cellular type) is determined after the primary endosperm nucleus divides, as the pattern of division (free nuclear or with cell wall formation) becomes evident.

**9. Perisperm is**

**Answer: D) Remains of nucellus Explanation:** Perisperm is the persistent nucellar tissue in some seeds that serves as a nutritive tissue, distinct from the endosperm.

**10. Development of seedless fruit in an unfertilized flower is called**

**Answer: A) Parthenocarpy Explanation:** Parthenocarpy is the development of seedless fruits without fertilization, often induced naturally or artificially.

**11. Fusion of a male gamete with egg in embryo sac is**

**Answer: B) Syngamy Explanation:** Syngamy is the fusion of a male gamete with the egg cell to form the zygote, which develops into the embryo.

**12. Identify the wrong statement regarding post fertilization development**

**Answer: B) Outer integument of ovule develops into tegmen**

**Explanation:** The outer integument develops into the testa (outer seed coat), while the inner integument forms the tegmen (inner seed coat). Thus, the statement is incorrect.

**13. During development of male gametophyte from pollen mother cell, there occurs**

**Answer: C) One meiotic and two mitotic divisions Explanation:** The pollen mother cell undergoes one meiotic division to form a tetrad of microspores. Each microspore then undergoes two mitotic divisions: one to form the generative and vegetative cells, and another (in the generative cell) to form two sperm cells.

**14. Pericarp of fruit develops from Answer:**

**A) Wall of ovary Explanation:** The pericarp, the fruit wall, develops from the ovary wall after fertilization.

**15. Embryo sac develops from megaspore mother cell through**

**Answer: B) 1 meiosis and 3 mitosis Explanation:** The megaspore mother cell undergoes one meiosis to form four megaspores (one functional). The functional megaspore undergoes three mitotic divisions to form the eight-nucleate embryo sac.

**16. What statement is true about microspore of angiosperms**

**Answer: B) First cell of gametophytic generation Explanation:** The microspore (pollen grain) is the first cell of the male gametophytic generation in angiosperms.

**17. Which one is surrounded by cellulose wall**

**Answer: D) Microspore tetrads Explanation:** Microspore tetrads (formed after meiosis of the pollen mother cell) are surrounded by a callose wall, which is primarily cellulose-based.

**18. Double fertilization and triple fusion were discovered by**

**Answer: B) Nawaschin and Guignard Explanation:** Double fertilization and triple fusion were discovered by Nawaschin and Guignard in 1898-1899 in angiosperms.

**19. Parthenocarpic fruits are produced by**

**Answer: B) Treating plants with low concentrations of gibberellic acid and auxin Explanation:** Parthenocarpy can be induced by applying plant hormones like gibberellic acid and auxin, which stimulate fruit development without fertilization.

**20. Cleistogamous flowers are**

**Answer: D) Self pollinated Explanation:** Cleistogamous flowers are closed flowers that do not open and undergo self-pollination within the bud.

**21. In angiosperm ovule, central cell of embryo sac, prior to entry of pollen tube, contains**

**Answer: B) One diploid secondary nucleus Explanation:** The central cell contains a diploid secondary nucleus formed by the fusion of two polar nuclei before fertilization.

**22. Phenomenon of polyembryony was first observed in**

**Answer: A) Citrus Explanation:** Polyembryony was first observed in *Citrus* species, where multiple embryos develop in a single seed.

**23. In angiosperms, endosperm is formed by**

**Answer: D) Division of fused polar nuclei and male gamete Explanation:**

The endosperm forms after the triple fusion of one male gamete with the diploid secondary nucleus (formed by fusion of two polar nuclei).

**24. Endosperm/endosperm nucleus of angiosperms is generally**

**Answer: C) Triploid Explanation:** The endosperm nucleus is triploid, resulting from the fusion of one male gamete (haploid) with the diploid secondary nucleus ( $2n$ ).

**25. Pollen grains are shed at**

**Answer: B) 2-3 celled stage Explanation:** In angiosperms, pollen grains are typically shed at the 2-celled stage (vegetative and generative cells) or 3-celled stage (vegetative cell and two sperm cells after generative cell division).

**26. Function of suspensor of embryo is**

**Answer: B) Push the embryo into nutritive endosperm region**

**Explanation:** The suspensor pushes the embryo into the endosperm for nutrient absorption, as explained earlier (similar to Q1).

**27. Pollen tube discharges its male gametes into**

**Answer: C) Degenerating synergid Explanation:** The pollen tube enters the embryo sac through a degenerating synergid and releases its male gametes there.

**28. During double fertilization, pollen tube enters embryo sac**

**Answer: B) Through one of the synergids Explanation:** The pollen tube penetrates one of the synergids to enter the embryo sac and release the male gametes.

**29. Fibrous thickening of hygroscopic nature are found in this part of anther**

**Answer: D) Endothecium Explanation:** The endothecium layer in the anther wall has fibrous thickenings that are hygroscopic and aid in anther dehiscence.

**30. Double fertilization results in production of**

**Answer: C) Triploid nucleus Explanation:** Double fertilization produces a diploid zygote (from syngamy) and a triploid endosperm nucleus (from triple fusion).

**31. In a type of apomixis known as adventitive embryony, embryos develop directly from**

**Answer: A) Nucellus or integument Explanation:** Adventitive embryony involves the formation of embryos directly from nucellar or integument cells, bypassing fertilization.

**32. Double fertilization involves**

**Answer: C) Fertilization of the egg and the central cell by two sperms brought by the same pollen tube Explanation:** Double fertilization involves one sperm fertilizing the egg (syngamy) and the other fertilizing the central cell (triple fusion), both from the same pollen tube.

**33. For self pollination, a flower should be**

**Answer: D) Bisexual Explanation:** Self-pollination requires a bisexual flower (having both male and female reproductive organs) to allow pollen transfer within the same flower.

**34. Arrangement of nuclei in normal dicot embryo sac is**

**Answer: C) 3+2+3 Explanation:** A typical dicot embryo sac has 8 nuclei arranged as 3 antipodal cells, 2 synergids + 1 egg cell (egg apparatus), and 2 polar nuclei in the central cell (3+2+3).

**35. Milky water of green coconut is**

**Answer: C) Liquid endosperm Explanation:** The milky water in green coconuts is the liquid endosperm, which provides nourishment to the developing embryo.

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

**Answer: B) Pentaploidy Explanation:** The endosperm is formed by the fusion of one male gamete ( $2n$ , from tetraploid male) with the diploid secondary nucleus ( $2n$ , from diploid female), resulting in a pentaploid ( $5n$ ) endosperm.

**37. In oogamy, fertilization occurs between**

**Answer: B) Large nonmotile female gamete and small motile male gamete Explanation:** Oogamy involves fertilization between a large, non-motile female gamete (egg) and a small, motile male gamete (sperm).

**38. Fragrant flowers with well developed nectarines are an adaptation for**

**Answer: C) Entomophily Explanation:** Fragrant flowers with nectar are adaptations for entomophily (insect pollination), attracting insects like bees.

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

**Answer: D) One meiotic and two mitotic divisions Explanation:** Same as Q14; one meiosis forms microspores, followed by two mitotic divisions to form the mature pollen grain.

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

**Answer: C) Sporopollenin Explanation:** The exine of pollen grains is made of sporopollenin, a highly resistant polymer that protects pollen from environmental stresses.

**41. Plant part having two generations, one within the other is**

**Answer: A) Seed Explanation:** The seed contains the embryo (sporophyte,  $2n$ ) and the endosperm (gametophytic tissue,  $3n$ ), representing two generations.

**42. Wind pollinated flowers are**

**Answer: B) Small, nonscented and colourless Explanation:** Wind-pollinated flowers are typically small, lack scent and color, and produce large amounts of lightweight pollen.

**43. Vegetative fertilization, which involves formations of endosperm, is fusion of**

**Answer: A) One male gamete with diploid secondary nucleus**

**Explanation:** Vegetative fertilization (triple fusion) involves the fusion of one male gamete with the diploid secondary nucleus to form the triploid endosperm.

**44. Number of prothallial cells present in male gametophyte of flowering plants is**

**Answer: D) Zero Explanation:** Angiosperm male gametophytes (pollen grains) lack prothallial cells, unlike gymnosperms, and consist of vegetative and generative cells.

**45. If meiosis occurs inside pollen grain, it will be**

**Answer: D) None of the above Explanation:** Meiosis does not occur inside the pollen grain; it occurs in the pollen mother cell to form microspores. The pollen grain undergoes mitosis.

**46. Pollen grains are non green due to**

**Answer: A) Absence of plastids Explanation:** Pollen grains lack chloroplasts or plastids, making them non-green.

**47. Which is wrong**

**Answer: A) Seed cannot be formed after one fertilization Explanation:** Seeds in angiosperms require double fertilization (syngamy for zygote and triple fusion for endosperm). Thus, the statement is incorrect.

**48. Filiform apparatus occurs in**

**Answer: A) Synergids Explanation:** The filiform apparatus is a structure in the synergids that guides the pollen tube into the embryo sac.

**50. In which of the following plant pollen grains cause pollen allergy and leads to asthma, bronchitis**

**Answer: C) Parthenium hysterophorus Explanation:** *Parthenium hysterophorus* (Congress grass) is notorious for causing pollen allergies, leading to asthma and bronchitis.

**Learner's Task (Page 90 – 96)**

**1. This is a character of flower.**

**Answer: D) All of the above Explanation:** A flower has a condensed axis (thalamus), shows limited growth, and is involved in sexual reproduction, making all options correct.

**2. The idea that flower is a modified shoot was expressed by**

**Answer: C) de Candolle & Goethe Explanation:** The concept of the flower as a modified shoot was proposed by de Candolle and Goethe, based on morphological similarities between leaves and floral organs.

**3. Torus is**

**Answer: A) Axis of flower Explanation:** The torus (or thalamus) is the swollen axis of the flower that bears the floral organs.

**4. The total number of sets of floral leaves present in a normal flower is**

**Answer: A) Four Explanation:** A typical flower has four whorls: calyx, corolla, androecium, and gynoecium.

**5. The first and second whorls of the flower respectively consist of**

**Answer: D) Calyx, Corolla Explanation:** The first whorl is the calyx (sepals), and the second is the corolla (petals).

**6. Both calyx and corolla together known as**

**Answer: A) Perianth Explanation:** The calyx and corolla together are called the perianth, the non-reproductive whorls of the flower.

**7. Essential organs of the flower are present in one of the following whorls.**

**Answer: C) Gynoecium, Androecium Explanation:** The essential organs for reproduction are the androecium (stamens) and gynoecium (carpels).

**8. A bisexual flower is**

**Answer: D) Complete or incomplete Explanation:** A bisexual flower has both male and female organs but can be complete (all four whorls) or incomplete (missing some whorls).

**9. Microsporophyll is commonly known as**

**Answer: A) Stamen Explanation:** The microsporophyll in angiosperms is the stamen, which produces pollen in the anther.

**10. A ditheous anther has**

**Answer: A) Two lobes Explanation:** A ditheous anther has two lobes, each typically containing two pollen sacs (microsporangia).

**11. Monotheous anthers are seen in**

**Answer: C) Hibiscus Explanation:** Monotheous anthers (with one lobe) are characteristic of *Hibiscus* and other members of the Malvaceae family.

**12. In an angiospermic plant flowers are developed on**

**Answer: C) Sporophyte Explanation:** Flowers develop on the sporophyte generation (diploid plant body) in angiosperms.

**13. In angiosperms meiotic division takes place in**

**Answer: B) Spore mother cells Explanation:** Meiosis occurs in microspore mother cells (to form pollen) and megaspore mother cells (to form the embryo sac).

**14. One of the following is developed from nucellus.**

**Answer: D) Megaspore mother cell Explanation:** The megaspore mother cell develops from the nucellus within the ovule and undergoes meiosis to form megaspores.



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

**Answer: D) All** **Explanation:** Microspores, megaspores, and the male gametophyte (pollen grain) are all haploid structures in angiosperms.

**16. In angiosperms the adult sporophyte is directly formed from**

**Answer: C) Zygote** **Explanation:** The zygote, formed after fertilization, develops into the embryo, which grows into the adult sporophyte.

**17. In angiosperms the seed contains**

**Answer: C) Embryo** **Explanation:** The seed contains the embryo (developing sporophyte), along with endosperm and seed coat in some cases.

**18. Pollen grains are also known as**

**Answer: A) Microspores** **Explanation:** Pollen grains are mature microspores, the first cells of the male gametophyte.

**19. The number of pollen sacs present in a dithecal anther is**

**Answer: D) Four** **Explanation:** A dithecal anther has two lobes, each with two pollen sacs, totaling four.

**20. Male gametes are formed by**

**Answer: A) Pollen grains** **Explanation:** The generative cell in the pollen grain divides to form two male gametes (sperm cells).

**21. This is not an integral part of anther wall**

**Answer: A) Sporogenous tissue** **Explanation:** Sporogenous tissue forms the pollen mother cells and is not considered part of the anther wall, which includes the epidermis, endothecium, middle layers, and tapetum.

**22. Stomium is an integral part of**

**Answer: C) Endothecium** **Explanation:** The stomium is the region in the endothecium where the anther splits to release pollen.

**23. Microspore mother cells show meiosis during the degeneration of**

**Answer: D) Middle layers** **Explanation:** The middle layers of the anther wall degenerate during microspore mother cell meiosis, providing space and nutrients.

**24. Fibrous thickenings are present in**

**Answer: A) Endothecium** **Explanation:** Fibrous thickenings in the endothecium aid in anther dehiscence.

**25. This is multilayered structure of anther wall**

**Answer: A) Middle layers Explanation:** The middle layers of the anther wall are typically multilayered and degenerate during pollen development.

**26. This is hygroscopic structure of anther.**

**Answer: B) Endothecium Explanation:** The endothecium's fibrous thickenings are hygroscopic, aiding in anther dehiscence.

**27. This structure of anther wall helps in the breakage of anther.**

**Answer: A) Endothecium Explanation:** The endothecium's hygroscopic nature and fibrous thickenings facilitate anther dehiscence.

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

**Answer: B) Endothecium Explanation:** Endothecium cells contract due to their hygroscopic nature, causing the anther to split.

**29. The innermost layer of anther wall is called as**

**Answer: A) Tapetum Explanation:** The tapetum is the innermost layer of the anther wall, providing nourishment to developing pollen grains.

**30. It is the nutritive tissue of anther wall.**

**Answer: B) Tapetum Explanation:** The tapetum provides nutrients and materials to the developing pollen grains.

**31. Radially elongated cells are present in**

**Answer: D) Endothecium Explanation:** Endothecium cells are radially elongated and have fibrous thickenings.

**32. Meiosis takes place in one of the following cells**

**Answer: C) Microspore mother cells Explanation:** Meiosis occurs in microspore mother cells to produce microspores (pollen grains).

**33. Nucellar cells surrounding the embryo sac start dividing and protrude into the embryo sac and develop in the embryos in**

**Answer: B) Citrus, Mango Explanation:** Nucellar embryony (a type of polyembryony) occurs in *Citrus* and *Mango*, where embryos develop from nucellar cells.

**34. The usual shape of pollen grain is**

**Answer: B) Spherical or oval Explanation:** Pollen grains are typically spherical or oval, depending on the species.

**35. Pollen grain wall is**

**Answer: B) Double layered Explanation:** The pollen grain wall consists of two layers: the outer exine and inner intine.

**36. Exine is chemically made of**

**Answer: B) Sporopollenin Explanation:** The exine is composed of sporopollenin, a durable polymer resistant to environmental stress.

**37. Intine is chemically made of**

**Answer: C) Pectin and Cellulose Explanation:** The intine is composed of pectin and cellulose, making it flexible and supportive.

**38. Germ pores are seen in**

**Answer: A) Exine Explanation:** Germ pores (apertures) are found in the exine, allowing pollen tube germination.

**39. The first cell of male gametophyte of angiosperms is**

**Answer: B) Pollen grain Explanation:** The pollen grain (microspore) is the first cell of the male gametophyte.

**40. The first division in the microspore is**

**Answer: D) Unequal, Periclinal Explanation:** The first division in the microspore is unequal and periclinal, forming a larger vegetative cell and a smaller generative cell.

**41. Pollen tube is formed by**

**Answer: B) Intine Explanation:** The pollen tube grows from the intine layer of the pollen grain during germination.

**42. Fully developed male gametophyte of angiosperms has**

**Answer: B) 3-cells Explanation:** The mature male gametophyte consists of one vegetative cell and two sperm cells.

**43. Pollen enters into the embryo sac through**

**Answer: C) Synergid Explanation:** The pollen tube enters the embryo sac through one of the synergids.

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

**Answer: A) Hilum Explanation:** The hilum is the point where the funicle attaches to the ovule.

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

**Answer: A) Raphe Explanation:** The raphe is the ridge formed by 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**

**Answer: B) Chalaza Explanation:** The chalaza is the region opposite the micropyle where the integuments and funicle meet.

**47. Meiosis occurs during the following phenomenon of plants.**

**Answer: C) Megasporogenesis Explanation:** Meiosis occurs during megasporogenesis in the megaspore mother cell to form megaspores.

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

**Answer: A) Tetrahedral Explanation:** Megaspores in a tetrad are typically arranged tetrahedrally after meiosis.

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

**Answer: D) Cytokinesis Explanation:** The functional megaspore undergoes three mitotic divisions without cytokinesis initially, forming a multinucleate structure before cell walls form.

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

**Answer: A) Three Explanation:** The functional megaspore undergoes three mitotic divisions to form the eight-nucleate embryo sac.

**51. Embryo sac is**

**Answer: D) Eight nucleated stage of megaspore Explanation:** The mature embryo sac is an eight-nucleate, seven-celled structure formed from the functional megaspore.

**52. Secondary nucleus of embryo sac is fusion product of**

**Answer: C) Polar nuclei Explanation:** The secondary nucleus is formed by the fusion of two polar nuclei in the central cell.

**54. The female gametophyte of angiosperms is**

**Answer: A) 7-celled, 8-nucleated Explanation:** The angiosperm embryo sac (female gametophyte) has seven cells (three antipodals, two synergids, one egg, one central cell) and eight nuclei (two in the central cell).

**55. Presence of filiform apparatus is a feature of**

**Answer: B) Synergids Explanation:** The filiform apparatus is a characteristic feature of synergids, aiding pollen tube guidance.

**56. The structure of embryo sac of angiosperms that helps in absorption and conduction of food materials from nucellus is**

**Answer: B) Synergids Explanation:** The synergids, via the filiform apparatus, facilitate nutrient absorption from the nucellus.

**57. The function of filiform apparatus of synergids is**

**Answer: A) Guiding the pollen tube into the embryo sac Explanation:** The filiform apparatus guides the pollen tube to enter the embryo sac through the synergid.

**58. The smallest cell/s of embryo sac are/is**

**Answer: C) Antipodals Explanation:** Antipodal cells are typically the smallest cells in the embryo sac.

**59. These cells of embryo sac perish even before fertilization.**

**Answer: D) Antipodals Explanation:** Antipodal cells often degenerate before or soon after fertilization in many angiosperms.

**60. Vegetative cells of embryo sac are**

**Answer: C) Antipodals Explanation:** Antipodals are considered vegetative cells in the embryo sac, as they do not participate directly in fertilization.

**61. The second largest cell of embryo sac is**

**Answer: A) Egg cell Explanation:** The egg cell is typically the second largest cell in the embryo sac, after the central cell.

**62. The only dikaryotic cell of embryo sac is**

**Answer: C) Central cell Explanation:** The central cell contains two polar nuclei (dikaryotic) before fertilization.

**63. The diploid cell of embryo sac is**

**Answer: A) Central cell Explanation:** The central cell is diploid due to the fusion of two polar nuclei.

**64. Karyogamy between genetically similar structures is seen in one of the following cells of embryo sac.**

**Answer: C) Central cell Explanation:** Karyogamy in the central cell involves the fusion of a male gamete with the diploid secondary nucleus (formed from genetically similar polar nuclei).

**65. This cell of embryo sac is not having its own wall.**

**Answer: A) Central cell Explanation:** The central cell lacks its own cell wall and is surrounded by the walls of adjacent cells in the embryo sac.

**66. Direct pollination is seen in**

**Answer: C) Angiosperms Explanation:** Direct pollination (pollen transfer to stigma) is characteristic of angiosperms, unlike gymnosperms where pollen reaches the ovule directly.

**67. Self pollinating flowers must be**

**Answer: C) Bisexual Explanation:** Self-pollinating flowers must be bisexual to allow pollen transfer within the same flower.

**68. 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**

**Answer: B) Geitonogamy Explanation:** Geitonogamy is the transfer of pollen between flowers on the same plant, a form of self-pollination.

**69. Only Xenogamy takes place in**

**Answer: B) Vallisneria Explanation:** *Vallisneria* is a dioecious plant, ensuring xenogamy (cross-pollination between different plants).

**70. Find the correct statement**

**Answer: A) All autogamous flowers are bisexual Explanation:** Autogamy (self-pollination within a flower) requires bisexual flowers, but not all bisexual flowers are autogamous.

**71. The plants with both Cleistogamous and Chasmogamous flowers are**

**Answer: A) Viola, Oxalis, Commelina Explanation:** *Viola*, *Oxalis*, and *Commelina* produce both cleistogamous (closed, self-pollinating) and chasmogamous (open, cross-pollinating) flowers.

**72. The plants which are mostly pollinated by water**

**Answer: B) Zostera, Hydrilla, Vallisneria Explanation:** *Zostera*, *Hydrilla*, and *Vallisneria* are hydrophilous plants, primarily pollinated by water.

**73. The pollen tube enters into the embryo sac by destroying**

**Answer: D) Synergid Explanation:** The pollen tube destroys one synergid to enter the embryo sac and release male gametes.

**74. Pollen grains of angiosperms are released from the microsporangium at**

**Answer: A) 2-celled stage Explanation:** Pollen grains are typically released at the 2-celled stage (vegetative and generative cells) in most angiosperms.

**75. Strasburger discovered**

**Answer: B) Syngamy Explanation:** Strasburger discovered syngamy (fusion of male gamete with egg) in angiosperms.

**76. Nawaschin discovered**

**Answer: C) Triple fusion in Liliium Explanation:** Nawaschin discovered triple fusion (fusion of a male gamete with the secondary nucleus) in *Lilium*.

**77. This is triploid.**

**Answer: C) Primary endosperm nucleus Explanation:** The primary endosperm nucleus is triploid, formed by the fusion of one male gamete with the diploid secondary nucleus.

**78. Presence of double fertilization is a feature of**

**Answer: B) Angiosperms Explanation:** Double fertilization (syngamy and triple fusion) is unique to angiosperms.

**79. Ex-albuminous seeds are seen in**

**Answer: C) Capsella Explanation:** Ex-albuminous seeds (non-endospermic) lack endosperm at maturity, as in *Capsella*, where the embryo consumes the endosperm.

**80. The tissue that acts as nutritive tissue for the development of embryo is**

**Answer: C) Endosperm Explanation:** The endosperm provides nutrients to the developing embryo in angiosperm seeds.

**81. Albuminous seeds are seen in**

**Answer: D) All Explanation:** *Cocos*, *Ricinus*, and *Datura* all have albuminous (endospermic) seeds with persistent endosperm.

**82. In *Pyrus malus* the false fruit is developed from**

**Answer: A) Thalamus Explanation:** In *Pyrus malus* (apple), the fleshy part of the false fruit develops from the thalamus, not the ovary.

**83. The succulent part in *Anacardium occidentale* is**

**Answer: D) Thalamus Explanation:** In *Anacardium occidentale* (cashew), the succulent part is the enlarged thalamus (cashew apple).

**84. Drupe is a**

**Answer: A) Fleshy fruit Explanation:** A drupe is a fleshy fruit with a single pit (e.g., mango, peach), where the pericarp has a fleshy mesocarp and hard endocarp.

**85. The thalamus contributes in the formation fruits in**

**Answer: A) Apple, Strawberry, Cashew nut Explanation:** In apple, strawberry, and cashew, the thalamus contributes significantly to the fruit structure (false fruits).

**86. A plant with parthenocarpic fruit is**

**Answer: C) *Musa paradisiaca* Explanation:** *Musa paradisiaca* (banana) produces parthenocarpic fruits, which are seedless due to lack of fertilization.

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

**Answer: B) *Lupinus arcticus* Explanation:** Seeds of *Lupinus arcticus* (Arctic lupine) have been reported to remain viable for approximately 10,000 years.

**88. The process formation of seeds without fertilization is**

**Answer: D) Apomixis Explanation:** Apomixis is the formation of seeds without fertilization, producing genetically identical offspring.

**89. The protective structures present around the nucellus are called as**

**Answer: D) Integuments Explanation:** The integuments are protective layers surrounding the nucellus in the ovule, later forming the seed coat.