

1) The microspores remain permanently attached to one another and do not separate as the anther matures and dehydrates.

A) True

B) False

2) In a typical angiosperm anther, four microsporangia are present, with two located in each lobe.

A) True

B) False

3) The tapetum is the outermost wall layer of a microsporangium and its main role is protection.

A) True

B) False

4) Microsporogenesis is the process in which cells of the sporogenous tissue undergo meiotic divisions to form microspore tetrads.

A) True

B) False

5) The process that forms microspores from a pollen mother cell through meiosis is called ____.

- 6) The male gametophytes of flowering plants are the ____.
- 7) The male reproductive organ of a flower is the ____.
- 8) The long, slender stalk of a typical stamen is called the ____.
- 9) In a typical angiosperm anther, the innermost wall layer that nourishes the developing pollen grains is the ____.
- 10) In over 60% of angiosperms, pollen grains are released at the ____ stage.
- 11) A young anther is examined in transverse section. It is bilobed, each lobe contains two theca, and four microsporangia are present at the corners. Which description best matches this structure?
- A) A tetragonal anther
 - B) A dicotyledonous ovule
 - C) A terminal stigma
 - D) A unilobed anther
- 12) A microsporangium has four wall layers. The outer three layers help protect the developing pollen and assist in anther dehiscence, while the innermost layer provides nutrition to the developing pollen grains. Which layer does this nutritional role belong to?
- A) Middle layers
 - B) Endothecium

C) Epidermis

D) Tapetum

13) A pollen mother cell in a developing anther completes meiosis and produces a cluster of four cells. What is the ploidy of each cell in that cluster?

A) Diploid

B) Tetraploid

C) Triploid

D) Haploid

14) As an anther matures, the microspores separate from one another, the anther dries, and the pollen is released. Which event directly follows the separation of the microspores into individual pollen grains?

A) The sporogenous tissue becomes the tapetum

B) Anther dehiscence releases the pollen grains

C) The pollen grains undergo fertilisation inside the anther

D) The gynoecium develops from the filament

15) A pollen grain is observed to have been released from an opened anther of Hibiscus. Which statement is most accurate about that structure?

A) It is a cluster of four diploid cells

B) It represents the female reproductive organ of the flower

C) It is the outer protective wall of the microsporangium

D) It represents the male gametophyte of the flower

16) A pollen grain survives after release in one species, but in another it loses viability within about 30 minutes. Which factor from the material best explains why the survival time can differ so much between these species?

A) The amount of sporopollenin in the intine

B) Prevailing temperature and humidity

C) The color of the pollen grain wall

D) The number of apertures in the exine

17) A mature pollen grain is released at the two-celled stage. One cell is large, has abundant food reserve, and a large irregular nucleus; the other is small, spindle shaped, and floats in the cytoplasm of the first cell. Which outcome describes what happens next in species that do not shed pollen at the two-celled stage?

A) The vegetative cell degenerates and the pollen grain becomes a one-celled structure

B) The vegetative cell divides mitotically to produce two female gametes before pollen is shed

C) The generative cell divides mitotically to produce two male gametes before pollen is shed

D) The generative cell undergoes meiosis to produce four male gametes before pollen is shed

18) A student compares two pollen grains. One has a hard outer wall made of a highly resistant substance and shows tiny openings where that substance is absent. Which pair of features best matches that pollen grain?

A) Exine made of sporopollenin and germ pores

B) Intine made of cellulose and pectin and pollen tubes

C) Nucellus made of reserve food and a micropyle

D) Hilum made of protective integuments and a chalaza

19) A flower has one pistil whose swollen base contains an ovarian cavity, and inside that cavity is the placenta. Which statement correctly identifies the part of the pistil just above the ovary and its role?

A) The ovary is the landing platform for pollen grains

B) The stigma is the elongated slender part beneath the ovary

C) The placenta is the terminal receptive surface for pollen grains

D) The style is the elongated slender part beneath the stigma

20) An ovule is examined and shows two protective envelopes, a small opening at one tip, and the chalaza at the opposite end. The ovule body is attached to the placenta by a stalk. Which statement best identifies the opening and the stalk?

A) The opening is the hilum, and the stalk is the chalaza

B) The opening is the chalaza, and the stalk is the nucellus

C) The opening is the embryo sac, and the stalk is the integument

D) The opening is the micropyle, and the stalk is the funicle