

Sexual Reproduction in Flowering Plants

Question 1

A typical angiosperm anther is bilobed and ditheous. How many microsporangia are present in this tetragonal structure?

Question 2

The outermost layer of the pollen grain wall, the exine, is composed of a highly resistant organic material called:

Question 3

In the majority of flowering plants (60%), pollination occurs when the pollen grain is at which stage?

Four-celled stage

Single-celled stage

Three-celled stage

Two-celled stage

Question 4

What is the ploidy of the Primary Endosperm Nucleus (PEN) formed after triple fusion?

n

$4n$

$2n$

$3n$

Question 5

Which of the following is considered a 'false fruit' because the thalamus contributes to fruit formation?

Banana

Mango

Guava

Apple

Question 6

The single large cotyledon found in a monocot embryo (such as in grass) is specifically called the:

Coleorrhiza

Scutellum

Epiblast

Coleoptile

Question 7

In which specific region of the ovule does the Megaspore Mother Cell (MMC) usually differentiate?

Funicle

Chalazal region of the nucellus

Integumentary layer

Micropylar region of the nucellus

Question 8

Which phenomenon involves the development of seeds without fertilization, effectively mimicking sexual reproduction while remaining asexual?

Parthenocarpy

Apomixis

Amphimixis

Polyembryony

Question 9

Identify the outbreeding device where the male and female flowers are present on different plants (e.g., Papaya), preventing both autogamy and geitonogamy.

Self-incompatibility

Dioecy

Monoecy

Dichogamy

Question 10

What is the function of the filiform apparatus located at the micropylar part of the synergids?

Stimulating the division of the zygote

Providing nutrition to the egg cell

Developing into the endosperm

Guiding the entry of the pollen tube

Question 11

TRUE or FALSE: Autogamy requires the synchrony of pollen release and stigma receptivity in open flowers.

True

False

Question 12

TRUE or FALSE: The liquid endosperm found in a coconut is composed of thousands of free nuclei.

True

False

Question 13

TRUE or FALSE: In aquatic plants like Water Hyacinth and Water Lily, pollination is achieved through water currents.

False

True

Question 14

TRUE or FALSE: Emasculation, the removal of anthers from the flower bud, is a necessary step even for female flowers in artificial hybridization.

True

False

Question 15

TRUE or FALSE: Some seeds, such as those of the date palm (*Phoenix dactylifera*), can remain viable for as long as 2,000 years.

True

False

Question 16

Define 'Double Fertilization' and name the two distinct fusion events that occur within the embryo sac.

Question 17

Explain the difference between albuminous and non-albuminous seeds based on endosperm consumption.

Question 18

Describe the process of megasporogenesis and the subsequent formation of the female gametophyte in a typical angiosperm.

Question 19

What is 'Inbreeding Depression' and how do outbreeding devices help a plant avoid it?

Question 20

What is 'Cryopreservation' in the context of pollen grains, and why is it useful?