Advanced Botanical and Natural World Knowledge

Plants & Nature · Answer Key · 18 Questions

1. Which plant hormone is primarily responsible for inducing fruit ripening and the abscission of leaves and flowers?

A) Auxin
B) Gibberellin
C) Ethylene
D) Cytokinin

2. In the context of plant anatomy, what is the primary function of the casparian strip found in the roots?

A) Conducting photosynthesis
B) Storing starch granules
C) Regulating water and mineral uptake
D) Anchoring the plant in soil

3. What is the specific term for plants that complete their entire life cycle, from germination to seed production, within a single growing season?

A) Perennials
B) Biennials
C) Ephemerals
D) Monocarpic

4. Which genus of flowering plants is known for producing the largest unbranched inflorescence in the world, often called the 'corpse flower'?

A) Amorphophallus
B) Rafflesia
C) Victoria
D) Nepenthes

5. In C4 photosynthesis, carbon dioxide is initially fixed into which four-carbon compound?

A) Phosphoglycerate
B) Oxaloacetate
C) Ribulose bisphosphate
D) Citrate

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6. What is the scientific name for the symbiotic association between fungi and the roots of vascular plants?

A) Rhizobia
B) Mycorrhiza
C) Lichens
D) Endophytes

7. Which specialized plant cells regulate the opening and closing of stomata to control gas exchange?

A) Palisade cells
B) Xylem vessels
C) Guard cells
D) Sieve tubes

8. What substance, found in the cell walls of plants, is the most abundant organic polymer on Earth?

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

9. Which evolutionary adaptation allows plants to avoid self-pollination by ensuring the male and female parts of a flower mature at different times?

A) Dichogamy
B) Cleistogamy
C) Apomixis
D) Parthenocarpy

10. What type of root system is characterized by a single, thick primary root that grows straight down, common in dicots like carrots?

A) Fibrous
B) Adventitious
C) Taproot
D) Aerial

11. What is the chemical process by which plants convert atmospheric nitrogen into a form they can absorb, typically facilitated by bacteria in the root nodules of legumes?

A) Nitrification
B) Nitrogen fixation
C) Denitrification
D) Assimilation

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12. Which plant pigment is responsible for the red, purple, and blue colors found in many flowers and fruits?

A) Chlorophyll
B) Carotenoid
C) Anthocyanin
D) Xanthophyll

13. What is the term for the movement of water through a plant, driven by the evaporation of water from the leaves?

A) Transpiration
B) Osmosis
C) Diffusion
D) Active transport

14. In mosses and ferns, what is the dominant, multicellular stage of the life cycle that produces spores?

A) Gametophyte
B) Sporophyte
C) Prothallus
D) Zygote

15. Which specific botanical family includes economically significant crops such as tomatoes, potatoes, and tobacco?

A) Brassicaceae
B) Fabaceae
C) Solanaceae
D) Lamiaceae

16. What do plants utilize to detect the direction of gravity, allowing roots to grow downwards (positive gravitropism)?

A) Statoliths
B) Phytochrome
C) Auxin transporters
D) Mycelium

17. What is the technical term for the study of the timing of recurring biological events, such as flowering and migration, in relation to climate?

A) Ecology
B) Phenology
C) Taxonomy
D) Palynology

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18. Which type of plant tissue is responsible for the secondary growth, increasing the diameter of the stems and roots in woody plants?

A) Apical meristem

B) Vascular cambium

C) Epidermis

D) Parenchyma

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