

Botany: Scientific Fundamentals

Botany · Answer Key · 18 Questions

1. Which plant tissue is primarily responsible for the transport of water and dissolved minerals from the roots to the leaves?

- A) Phloem
- B) Xylem**
- C) Parenchyma
- D) Collenchyma

2. What is the primary function of the stomata found on the surface of plant leaves?

- A) Structural support
- B) Gas exchange**
- C) Seed dispersal
- D) Nutrient storage

3. In photosynthesis, which pigment is primarily responsible for the absorption of light energy in the blue and red regions of the spectrum?

- A) Carotene
- B) Xanthophyll
- C) Chlorophyll a**
- D) Anthocyanin

4. Which group of plants is characterized by having 'naked seeds' that are not enclosed within an ovary or fruit?

- A) Angiosperms
- B) Bryophytes
- C) Gymnosperms**
- D) Pteridophytes

5. What is the scientific term for the growth movement of a plant in response to a directional stimulus, such as light?

- A) Tropism**
- B) Nastic movement
- C) Circadian rhythm
- D) Transpiration

6. Which plant hormone is responsible for the induction of fruit ripening and the abscission of leaves?

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

7. What is the main carbohydrate stored in the plastids of most green plants?

- A) Glucose
- B) Fructose
- C) Cellulose
- D) Starch**

8. Which phase of the plant life cycle is characterized by the production of gametes through mitosis?

- A) Sporophyte
- B) Gametophyte**
- C) Zygote
- D) Embryo

9. What is the primary purpose of the waxy layer known as the cuticle on the leaves of land plants?

- A) To facilitate pollination
- B) To reduce water loss**
- C) To store nitrogen
- D) To anchor the plant

10. Which part of the flower develops into the seed after fertilization occurs?

- A) Ovary
- B) Stigma
- C) Ovule**
- D) Anther

11. What is the term for the symbiotic association between a fungus and the roots of a vascular plant?

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

12. Which type of plant cell provides primary support to young, growing plant parts because it can elongate?

- A) Sclerenchyma
- B) Collenchyma**
- C) Parenchyma
- D) Tracheid

13. What is the process by which plants lose water vapor through their stomata?

- A) Respiration
- B) Translocation
- C) Transpiration**
- D) Guttation

14. Which structure in the plant root allows for the selective uptake of minerals through the Casparian strip?

- A) Root cap
- B) Endodermis**
- C) Epidermis
- D) Root hair

15. In which plant structure does meiosis occur to produce spores?

- A) Sporangium**
- B) Pistil
- C) Stamen
- D) Petal

16. What type of vascular plant reproduces via spores and lacks seeds and flowers?

- A) Conifer
- B) Fern**
- C) Rose
- D) Grass

17. Which element is considered a primary macronutrient essential for the synthesis of chlorophyll in plants?

- A) Iron
- B) Magnesium**
- C) Calcium
- D) Zinc

18. What is the primary substance that makes up the cell walls of plants?

- A) Chitin
- B) Peptidoglycan
- C) Cellulose**
- D) Glycogen