Plant Science

Choose one answer per question. Circle A, B, C, or D.

1. Fine root hairs make contact with soil. How do they help a plant take in water and dissolved minerals?
   A. They increase the root’s surface area.
   B. They move flowers above the soil.
   C. They carry pollen to the roots.
   D. They store most of the plant’s seeds.

2. Which part of a typical flowering plant holds leaves above the ground and connects them to the roots?
   A. Seed coat
   B. Petal
   C. Stem
   D. Root cap

3. Which structure on a twig contains a young shoot or flower that can open later?
   A. Root hair
   B. Bud
   C. Petiole
   D. Fruit wall

4. What are the usually leaflike structures that surround and protect many unopened flower buds?
   A. Ovules
   B. Anthers
   C. Stigmas
   D. Sepals

5. Which structure protects the growing tip of a root as it moves through soil?
   A. Petiole
   B. Root cap
   C. Stigma
   D. Seed leaf

6. Plant A has one thick main root with smaller branching roots. Plant B has many similarly sized roots spreading from its base. Which is the taproot system?

A. Plant A
B. Plant B
C. Both plants
D. Neither plant

7. A bee carries pollen from one flower to the receptive surface of a second flower of the same species. What is this transfer called?

A. Seed dispersal
B. Germination
C. Transpiration
D. Pollination

8. After fertilization in a typical flowering plant, which structure usually develops to form the fruit surrounding the seeds?

A. Petal
B. Anther
C. Ovary
D. Stigma

9. A strawberry plant sends a horizontal stem along the ground, and a plantlet forms where it touches soil. What kind of stem is the runner?

A. Stolon
B. Taproot
C. Petiole
D. Anther

10. Clusters on the underside of a fertile fern frond contain structures that release what?

A. Seeds
B. Pollen grains
C. Fruits
D. Spores

11. Two seedlings have light available only from the right. Their shoots gradually bend toward that light. Which response is shown?

A. Positive gravitropism
B. Negative phototropism
C. Positive phototropism
D. Seed dormancy

12. A young plant is turned on its side in darkness. Its new roots curve downward. Which response is most directly demonstrated?

A. Negative gravitropism
B. Positive gravitropism
C. Positive phototropism
D. A response to touch alone

13. In a classroom seed trial, 18 of 24 seeds sprout in tray A and 15 of 20 sprout in tray B. How do the sprouting percentages compare?

A. Tray A is 90 percent and tray B is 75 percent.
B. Tray A is 80 percent and tray B is 75 percent.
C. Tray A is 75 percent and tray B is 60 percent.
D. Both are 75 percent.

14. A student takes two stem cuttings. One includes a node with a visible bud. The other comes entirely from the space between nodes. Which feature gives the first cutting a ready site for shoot growth?

A. An existing axillary bud at the node
B. A mature fruit inside the stem
C. A root cap at the cut surface
D. An anther buried in the stem

15. In a temperate tree that normally produces one growth ring per year, what does an unusually narrow ring show directly?

A. The species of every plant that grew nearby
B. Exactly how much rain fell in that year
C. Less radial wood growth in that year
D. The tree’s exact height in that year