**1. Which of the following are the water-conducting cells of xylem, have thick walls, and are dead at**

**functional maturity?**

A) parenchyma cells

B) collenchyma cells

C) tracheids and vessel elements

D) sclerenchyma cells

E) sieve-tube elements

**4. Which of the following arise from lateral meristem activity?**

A) secondary xylem

B) leaves

C) trichomes

D) tubers

E) all of the above

**7. Which of the following is true in plants?**

A) Mitosis occurs in gametophytes to produce gametes.

B) Meiosis occurs in sporophytes to produce spores.

C) The gametophyte is within the flower in angiosperms.

D) A and B only

E) A, B, and C

**8. What is the role of proton pumps in root hair cells?**

A) establish ATP gradients

B) acquire minerals from the soil

C) pressurize xylem transport

D) eliminate excess electrons

E) A and D only

**13. All of the following cell types are correctly matched with their functions *except***

A) companion cell - formation of secondary xylem and phloem.

B) guard cell - regulation of transpiration.

C) sieve-tube member - translocation.

D) vessel element - water transport.

E) mesophyll - photosynthesis.

**14. What are the *three main elements* on which plant growth and development depend?**

A) nitrogen; carbon; oxygen

B) potassium; carbon; oxygen

C) oxygen; carbon; hydrogen

D) phosphorus; nitrogen; oxygen

E) sulfur; nitrogen; phosphorus

**17. The vascular system of a *three-year-old* eudicot stem consists of**

A) 3 rings of xylem and 3 of phloem.

B) 2 rings of xylem and 2 of phloem.

C) 2 rings of xylem and 1 of phloem.

D) 2 rings of xylem and 3 of phloem.

E) 3 rings of xylem and 1 of phloem.

**26. Which part of a plant absorbs *most* of the water and minerals taken up from the soil?**

A) taproots

B) the thick parts of the roots near the base of the stem

C) root hairs

D) storage roots

E) sections of the root that have secondary xylem

**29. A vessel element would likely lose its protoplast in which section of a root?**

A) zone of cell division

B) zone of elongation

C) zone of maturation

D) root cap

E) apical meristem

**32. What is the driving force for the movement of materials in the phloem of plants?**

A) gravity

B) root pressure

C) a difference in osmotic water potential between the source and the sink

D) transpiration of water through the stomates

E) adhesion of water to phloem sieve tubes

**33. Which of the following root tissues gives rise to lateral roots?**

A) endodermis

B) phloem

C) cortex

D) epidermis

E) pericycle