

1. **Answer:** A

Explanation: A continuous waxy barrier, the Casparian strip, stops water and solutes from entering the xylem through cell walls and forces them to cross the plasma membrane into an endodermal cell.

2. **Answer:** B

Explanation: Xylem sap flows through very thin tubes within xylem tissue and is pulled by transpiration, the loss of water from leaves by evaporation. Because of the properties of water (cohesion and adhesion, hence the mechanism is also called cohesion-adhesion mechanism of transpiration), no energy is expended by the plant.

3. **Answer:** A

Explanation: Phloem sap moves in various directions with the sieve tubes always carrying sugar from a source to a sink. The sugar source produces the sugar, by photosynthesis or by breaking down starch.

4. **Answer:** C

Explanation: Leaves are the primary sugar source for most mature plants.

5. **Answer:** A

Explanation: Although both movements in the two tissues are based on pressure, the general trend of water flow is from root to shoots whereas sugar transfer can vary depending on where the source or sink of the plant is; which could also vary depending on season in some plants.