Chapters 31 & 32, Study Outline

31.5 – Tissue Systems That Make up the Plant Body

* What is the function of Xylem and Phloem Tissue?
* What is the function of vascular tissue in the plant?
* Stomata have a very specific function, what is it?
* How do guard cells affect stomata?

32.1 – How Plants Acquire Nutrients

* What molecules vital to photosynthesis are exchanged in the roots of a plant?
* What molecules vital to photosynthesis are exchanged in the leaves of a plant?
* Do plants need to uptake oxygen in order to carry out Cellular Respiration?

32.2 – Control of Solute Uptake in root cells

* What is the functions of the hairy filaments of a plant’s roots.
* What are the two possible routes that aqueous solutes can take to reach the xylem and what are the fundamental differences for the solutes that take each route?
* The plasmodesmata provides a shortcut for solutes, how does the shortcut work and what is the ultimate destination of the solutes?
* What is the function of the endodermis?
* How does the Casparian strip affect what solutes can enter the xylem?

32.3 – Transpiration

* What mechanisms provide plants with the ability to transport water from their roots to stems and branches? (be sure to use the terms transpiration, cohesion, adhesion, diffusion and xylem in your response)

32.4 – Guard Cell mechanisms

* What roles do active transport and osmosis play in allowing the guard cells to open and close?
* What trade off do plants have to account for regarding the size of the stomata opening?
* Do plants usually have their stomata open or closed at night? Explain why.

32.5 – Phloem transports sugar

* What is the function of Phloem?
* What is the main solute usually found within phloem?
* During the growing season what part of a plant would you expect to be a sugar source and what part is usually a sugar sink?
* In the plant **Pressure Flow Mechanism** Does the sugar from the plant sugar source flow passively or actively to the phloem?
* Does the **Pressure Flow Mechanism** cause water from to flow passively or actively from the Xylem to the phloem?

32.13 – Bacterial and Plant relationships

* In what way to Nitrogen fixing bacteria, Ammonifying Bacteria, and Nitrifying Bacteria provide a benefit to plants?

32.14 – Mutualisms between plants

* In what way does the mutualistic association of mycorrhiza benefit the organisms involved?
* How would planting peas and beans in a nutrient deficient vegetable garden help the garden thrive?