Chapter 38 – Transport in Plants

1. What is the role of each of the following in plant transport?

a. **Transpiration** _____

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b. **Water potential** _____

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c. **Xylem** _____

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d. **Phloem** _____

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2. *Review*: What is **water potential** and what are its 2 components?

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3. *Review*: ψ_w = ☐ + ☐ ψ_w is measured in what unit? _____

4. *Review*: What is **osmosis**? **plasmolysis**? **turgor pressure**?

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5. What role do **aquaporins** play in plant transport?

6. What role do **root hairs** play in plant transport?

7. How do **mycorrhizae** help plants?

8. Define the following methods of water and mineral transport to the vascular tissue of the route.

a. **Apoplastic** _____

b. **Symplastic** _____

c. **Transmembrane** _____

9. What is the role of the **endodermis** in the root?

10. Explain the concept of **root pressure**. What is **guttation**?

11. _____ provides the main force for moving water and minerals from roots to leaves.

12. What role does **cohesion** and **adhesion** play in water transport?

13. What is **cavitation**? What anatomical adaptations do plants have to combat this problem?

14. What does the rate of transpiration depend on?

15. What mechanism causes stomata to open when the guard cells are in "good conditions"?

16. Which plant hormone helps stomata to close in response to drought conditions? _____

17. Which environmental factors affect stomatal opening?

18. *Review*: Describe the advantages of the alternative photosynthetic pathway, **CAM**.

19. Discuss plant adaptations to the following:

a. **Drought** _____

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b. **Flooding** _____

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c. **Changing salinity**_____

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20 Name 3 molecules which can move through phloem:

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21. Describe the **pressure-flow theory** of sugar transport.

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22. Unlike xylem transport, phloem transport is _____ .