

Transport: Plants

- 1) Describe the structure of xylem? (4)
- 2) Explain how the vascular bundle is arranged in roots and stems and draw a labelled sketch for each? (4)
- 3) What are the 3 different pathways by which water can travel? (3)
- 4) Which is the fastest and most common pathway for water transport? (1)
- 5) What is the significance of the Casparian strip and what is it made of? (3)
- 6) Describe how water is transported in plants? (6) [Hint: transpiration pull, cohesion-tension, adhesion, root pressure, capillarity, osmosis]
- 7) What are the functions of xylem? (3)
- 8) What is the endodermis? (1)
- 9) What factors affect the rate of transpiration and why? (4)
- 10) How can the rate of transpiration be measured? Draw a suitable diagram to help explain your answer? (4)
- 11) What are hydrophytes, mesophytes and xerophytes? (6)
- 12) Using marram grass and/or the cactus as an example, explain how xerophytes are adapted? (6)
- 13) What is translocation? (3)
- 14) Using a labelled drawing, explain the structure and adaptations of the phloem? (6)
- 15) Describe the mechanism by which translocation happens? Use a diagram to help support your answer. (6)
- 16) What are; (4)
 - a. Sieve plates
 - b. Plasmodesmata
 - c. Companion cells

d. Sieve tubes

- 17) What are the main organic solutes transported in the phloem? (2)
- 18) What evidence is there that translocation of organic solutes takes place in the phloem? (4)
- 19) What evidence is there that translocation is an active process? (3)
- 20) How do the presence of protein filaments passing through the sieve pores help explain the bi-directional movements along the sieve tube? (2)
- 21) What evidence is there that the transport of organic solutes in plants cannot be by diffusion alone? (2)
- 22) What evidence is there for and against the mass flow hypothesis? (4)
- 23) What happens to the pores in the sieve plates when the phloem is damaged? Why is this significant? (2)

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