

Cell Structure and Function Question Set #2

1. Explain the four points of the particle model of matter.
2. Explain how the process of diffusion, facilitated diffusion, and active transport occur and why each one is important to the cell.
3. What property allows O_2 and CO_2 to cross a lipid bilayer without the help of membrane proteins?
4. Why is a transport protein needed to move many water molecules rapidly across a membrane?
5. Aquaporins exclude passage of hydronium ions (H_3O^+), but some aquaporins allow passage of glycerol, a three-carbon alcohol, as well as H_2O . Since H_3O^+ is closer in size to water than glycerol is, yet cannot pass through, what might be the basis of this selectivity?
6. As a cell grows, its plasma membrane expands. Explain using either endocytosis or exocytosis.
7. Use the terms solute and solvent to describe a hypotonic and hypertonic solution.
8. Using your own words, explain what is meant by the terms "concentration gradient" and "equilibrium".
9. Explain how you would ensure that the celery you bought three days ago will be crisp and fresh for your dinner tonight.
10. Draw (or obtain a diagram from the internet) two diagrams showing the processes of endocytosis and exocytosis.
11. Indicate the similarities and differences between endocytosis and exocytosis.
12. Compare pinocytosis with phagocytosis.
13. Draw and label (or obtain from the internet) a diagram of a liposome.
14. How are liposomes used in the treatment of HIV and cancer patients?
15. Explain the term "reverse osmosis" as compared with "osmosis" (2 marks)