# Endocrine system physiology assignment

Psychology

REVIEW SHEET EXERCISE 1 Cell Transport Mechanisms and Permeability 1. Match each of the definitions in Column A with the appropriate term in Column B. Column A Column B _E___ term used to describe a solution that has a lower concentration of solutes compared to another solution ___G__ term used to describe a solution that has a higher concentration of solutes compared to another solution ___A__ the movement of molecules from an area of higher concentration to an area of lower concentration as a result of random thermal motion __D___ the movement of molecules across a membrane that requires the expenditure of cellular energy (ATP) __C___ the transport of water across a semipermeable membrane ___F__ term used to describe two solutions that have the same concentration of solutes relative to one another ___B__ the movement of molecules across a selectively permeable membrane with the aid of specialized transport proteins a. diffusion b. facilitated diffusion c. osmosis d. active transport e. hypotonic f. isotonic g. hypertonic 2.

What is the main difference between simple diffusion and facilitated diffusion? FACILITATED IS MOVEMENT WITH THE HELP OF CARRIER PROTEINS 3. What is the main difference between facilitated diffusion and active transport? ACTIVE TRANSPORT USES ATP 4. In the “ Simple Diffusion” experiment, which solute(s) passed through the MWCO 20 membrane? NONE Why? SOLUTES MASSES ARE TO BIG 5. List three examples of passive transport mechanisms. DIFFUSION FILTRATION OSMOSIS 6. Describe the relationship of solute concentration to solvent concentration in osmosis. CONCENTRATION OF SOLUTES IS HIGHER 7. What is the equation for Fick’s First Law of Diffusion? NET FLUX = PA(delta C)

Explain Fick’s First Law of Diffusion. ... 8. In the mock dialysis activity, what was the only solute removed from the beaker representing the patient’s blood? UREA Why is it important that this solute be removed from diabetic patients? TOXIC 9. How can the concentration of water in a solution be decreased? WITH ADDITION OF A SOLUTE 10. Suppose that a membrane separates a solution of higher osmolarity and a solution of lower osmolarity. To prevent osmotic flow of water across the membrane, pressure should be applied to which of the two solutions? THE SOLUTION OF LOWER OSMOLARITY 11. What change in cell volume will occur when a cell is placed in a hypotonic solution?

THE CELL WILL LOSE VOLUME 12. What change in cell volume will occur when a cell is placed in a hypertonic solution? THE CELL WILL INCREASE IN VOLUME 13. By what mechanism does the active transport of sodium lead to osmotic flow of water across a membrane? OSMOSIS, THE CONCENTRATIONS OF NA+ ALTERS THE CONCENTRATION OF WATER 14. If two solutions having different osmolarities are separated by a water-permeable membrane, will there be a change in the volume of the two compartments if the membrane is impermeable to solutes? YES... Will there be a change in the volume of the two compartments if the membrane is permeable to solutes? NO... Explain your answers.