

Equilibrium Study Guide

Concepts & GPS:

- Macromolecules (*SB1c; Sec. 3-3*)
- Cell Structure & Function (*SB1a; Ch. 7*)
 - Cellular Transport (*SB1d; Ch. 8*)
 - Nutrient Cycling (*SB4b; Sec. 4-3*)

Vocabulary: VOCABULARY WAS COMPLETED AT THE BEGINNING OF THE UNIT

<u>Biochemistry</u>	<u>Cells</u>	<u>Cell Transport</u>	<u>Nutrient Cycle</u>
Atom	Organelle	Phospholipid	Transpiration
Element	Cell	Receptor proteins	Evaporation
Ion	<i>Cytoplasm</i>	Transport proteins	Precipitation
Covalent bond	<i>Ribosome</i>	Equilibrium	
Ionic bond	<i>Nucleus</i>	Concentration	
Hydrogen bond	<i>Nucleolus</i>	gradient	
Polarity	<i>Centriole</i>	Passive transport	
Cohesion	<i>Cell membrane</i>	Active transport	
Adhesion	<i>Endoplasmic</i>	Diffusion	
Monomer	<i>reticulum</i>	Facilitated diffusion	
Polymer	<i>Vesicle</i>	Osmosis	
Carbohydrate	<i>Golgi apparatus</i>	Hypertonic	
Lipid	<i>Vacuole</i>	Hypotonic	
Protein	<i>Chloroplast</i>	Isotonic	
Nucleic acid	<i>Mitochondria</i>	Endocytosis	
	<i>Cytoskeleton</i>	Exocytosis	
	<i>Lysosome</i>		
	<i>Cell wall</i>		

Questions: Answer the questions on a separate sheet of paper and must be hand written

Chemistry

1. Which part of an element is involved in chemical reactions: protons, neutrons, or electrons? (1pt)
2. Define the 3 types of bonds that can form between elements. (1pt)
3. What are the 5 main elements that make up living things? (1pt)
4. **Describe** the 4 properties of water. (4pts)

Macromolecules

5. What are the functions of the 4 macromolecules? (4pts)
6. What are the monomers and polymers of the 4 macromolecules? (4pts)
7. What elements make up each of the 4 macromolecules? (4pts)
8. Explain the two types of reactions. (2pts)
9. What is the use of cellulose/chitin versus starch/glycogen? (1pt)
10. What is the structural difference between cellulose/chitin versus starch/glycogen? (1pt)
11. What is the difference between the structure of saturated fats and unsaturated fats? (1pt)
12. What are the 4 levels of protein structure?
13. What are the 3 parts of a nucleotide? What are the 2 types of nitrogen bases and which bases go with each type?

Cell Structure

14. Explain the 3 parts of the cell theory and the scientists involved. (3pts)
15. What is the difference between prokaryotic and eukaryotic cells: nucleus, organelles, cell number (2pts)
16. What are the functions of ALL the organelles? (7pts)
17. List the structure of the organelles? (This will be the back page of the matching sheet on organelles)
18. What organelles do plant and animal cells have that are different? (3pts)
19. What are the parts of the endomembrane system? (2pts)

Cell Transport

20. Define of each of the following parts: transport (integral) proteins, peripheral (receptor) proteins, phospholipids, hydrophobic, hydrophilic, cholesterol, carbohydrate (7pts)
21. Draw and label a picture of the membrane (2pts)
22. Explain the difference between the following: (5pts)
 - a. passive and active transport
 - b. osmosis and diffusion
 - c. diffusion and facilitated diffusion
 - d. endocytosis and exocytosis
 - e. facilitated diffusion and Na/K pump
23. Define each of the 3 environments that cause the movement of water: hypotonic, hypertonic, and isotonic. List the solute concentration differences, water high and low amounts, where the water will move and how the cell will be affected. (6pts)
24. Where do the ions move in the sodium/potassium pump? What type of transport is the sodium/potassium pump? (2pts)

Water Cycle

25. How is water recycled in an ecosystem (steps of water cycle)? (1pt)

Review Questions (you will get a few questions that cover content from previous units)

26. What are the main characteristics of the 6 kingdoms: cell type, cell number, nutrition, and cell wall? (6pts)
27. What are the 7 characteristics of life? (2pts)