

## ***Unit 1 Review***

### ***Biochemistry***

#### **CHAPTER 1:**

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##### **Section 1.1:**

- Identify and describe the different types of intermolecular forces that can be found between molecules. How do these forces differ in terms of their strength and interactions?
- What are the four main properties of water and how are these properties related to hydrogen bonds?
- Define hydrophilic and hydrophobic interactions? Give some examples of instances when these forces are found.
- Name and identify the different types of functional groups.

##### **Section 1.2:**

- Compare and contrast condensation and hydrolysis reactions. Which of these two reactions causes an anabolic reaction to occur? Which causes a catabolic reaction to occur?
- Condensation reactions can lead to the formation of macromolecules. Identify which type of bonds are formed between the monomers of a protein, lipid, carbohydrate and nucleic acid.
- Identify the **monomers** and **polymers** for each of the macromolecules mentioned above.
- List and describe the four levels of organization in a protein
- Review how to draw a condensation and hydrolysis reaction for all 4 types of macromolecules.
- Describe the structure of an amino acid (amino group, carboxyl group and the R chain) and how each structure can influence its interaction with one another.

##### **Section 1.3:**

- Describe the molecular structure of an enzyme and its role within a reaction.
- Explain how an enzyme is able to lower the activation energy.
- Name and describe four main factors that can affect the activity of an enzyme.
- Compare and contrast competitive vs. non-competitive inhibition
- Describe the process of feedback inhibition and provide some examples of biochemical pathways you've learned that use this mechanism.

#### **CHAPTER 2 : TRANSPORT**

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##### **Section 2.1:**

###### **Passive Transport**

- Explain the Fluid Mosaic model of the plasma membrane.
- Explain how the properties of the plasma membrane can influence the diffusion of certain ions or molecules.

- What is meant by the term concentration gradient and how can it influence the direction in which molecules move across the membrane.
- What is meant by the term dynamic equilibrium?
- Identify which type of ions are able to cross the plasma membrane through simple diffusion.
- Transmembrane proteins are required for facilitated diffusion and active transport. Describe the structure of the protein and how its structure enables it to remain embedded within the plasma membrane and provides specificity for certain ions.
- Explain the difference between simple and facilitated diffusion?
- Explain the process of osmosis and how it relates to the following terms: hypertonic, hypotonic and isotonic.
- Compare and contrast osmosis in plants and animal cells.

#### Active Transport

- Explain how active transport differs from facilitated diffusion? Provide an example of an active transport system that you learned in this course.
- Why is ATP required for active transportation?
- Identify and describe the three main types of endocytosis.
- Explain the process of exocytosis.

***\*\*For further practice answering Thinking/Inquiry and Application questions, consult the questions at the end of each chapter in the textbook.***