Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Hour:\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_

EOC Review for Unit 2, Biochemistry, Ch.2 and 3 in the book. Approximately Pg. 31-61

*ACT: Identify subatomic particles and how they are arranged in atoms*

* 1. Name the 3 subatomic particles and the charge on each:
  2. What is the central part of the atom called, which particles are in this area?

10-11.What are the orbits surrounding the atom called, which particles are in this area?

12-17. Draw an atom and place the 3 subatomic particles in the correct place.

18-19. If you are given the atomic mass of an element, you are told the amount of which 2 subatomic particles?

20. The elements atomic number is telling you how many you have of which subatomic particle?

21. If you subtract the atomic number from the atomic mass, you can calculate the amount of which subatomic particle?

22. The number of electrons must always be equal to the number of which subatomic particle in stable elements?

23. What is an isotope?

*ACT: Describe the differences between ions and atoms and the importance of ions in biological processes*

24. What is an ion?

25. How is an atom different from an ion?

26-28. What role do ions play in biological processes? (Think about oxidation reduction reactions, sodium potassium pumps and having excess salt (hypertonic) solutions in biological processes.) This is not word for word anywhere in your book. You MUST THINK about this and put together ideas from a few chapters. We’ve talked about ions in a few chapters.

*ACT: Compare the types of bonding between atoms to form molecules*

29. What is a covalent bond?

30. What is an ionic bond?

31-35. Describe a hydrogen bond in as much detail as possible and include the properties water has because of this bond. (pg.40)

36-38. What is adhesion, cohesion and capillarity/capillary action?

*ACT: Explain the difference between organic and inorganic compounds*

39.What element must a compound have to be organic?

40. How many bonds can each carbon form?

41-47. Describe the types of bonds carbon forms. Draw and example of each. (Pg.52)

*ACT: Explain the fundamental principles of the pH scale and the consequences of having the different concentrations of Hydrogen and Hydroxide ions/Hydronium ions.*

An **acid** is a substance that donates hydrogen ions. Because of this, when an acid is dissolved in water, the balance between hydrogen ions and hydroxyl ions is shifted. Now there are more hydrogen ions than hydroxyl ions in the solution. This kind of solution is acidic.

A **base** is a substance that accepts hydrogen ions. When a base is dissolved in water, the balance between hydrogen ions and hydroxyl ions shifts the opposite way. Because the base "soaks up" hydrogen ions, the result is a solution with more hydroxyl ions than hydrogen ions. This kind of solution is alkaline.

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48.Which range of the pH scale is Acidic? \_\_\_\_0-7\_\_\_\_or\_\_\_\_\_\_7-14\_\_\_\_

49.Which range of the pH scale is Basic/alkalinity?\_\_\_\_\_\_0-7\_\_\_\_or\_\_\_\_\_\_7-14\_\_\_\_  

50-51.Acids have a higher concentration of \_\_\_\_\_\_\_\_\_\_\_ ions. Bases have a higher concentration of \_\_\_\_\_\_\_\_\_ ions.

52-56. Label the pH scale above with some common household items:  Orange juice, milk, vinegar, water, soap.

57-58. What is a buffer? Why do we have buffers? (pg.44)

Pg.44 pH concentration- 59.The change of one pH unit reflects a \_\_\_\_\_\_fold change in the acidity of alkalinity.

60.Calculate how much more acidic lemon juice is with a pH of 2, than Urine with a pH of 6 ?

61.Milk has a pH of 6, Bleach has a pH of 13, how much more concentrated is the bleach compared to milk?

*ACT: Describe the general structure and function(s) including common functional groups of monosaccharides, disaccharides, polysaccharides, carbohydrates, fatty acids, glycerol, glycerides, lipids, amino acids, dipeptides, polypeptides, proteins, and nucleic acids.*

Fill in the chart below:62-83

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Organic Molecule** | **Elements** | **Subunit- functional group monomer/polymer** | **Function** | **Example/where it’s found** |
| Carbohydrates |  |  |  |  |
| Lipids |  |  |  |  |
| Protein |  |  |  |  |
| Nucleic Acid |  |  |  |  |

**Draw a picture of each**:84-88

|  |  |  |  |
| --- | --- | --- | --- |
| Carbohydrate | Lipid | Protein | Nucleic Acid |
|  |  |  |  |

*ACT: Describe the function of the enzymes, including how enzyme-substrate specifically works in biochemical reactions* pg.57

89.Enzymes are what type of organic molecule?

90.What is the reactant called that an enzyme binds and reacts with?

91.The enzyme and folds or a specific shape that the reactant/substrate must fit, what is this space called?

92.Why can an enzyme only work on one type of substrate? (example: the enzyme Lactase will only react/bind to lactose and not to any other sugars such as fructose, sucrose or galactose)

93-95.Explain the enzymes function in the reaction include specifically how the enzyme works. Are they used up in the reaction?

Sample Questions:

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