

## Chemistry of Life Study Questions

**Dr. J. Lim**

1. Matter, the stuff of the universe, exists in three states. Name them.
2. List the four most common elements found in living things. \_\_\_\_\_  
\_\_\_\_\_
3. Which element is present in the most abundance in humans? \_\_\_\_\_
4. The smallest part of an element is a(n) \_\_\_\_\_.
5. The atomic symbol for sodium is \_\_\_\_\_.
6. HCl consists of how many atoms? \_\_\_\_ Name them. \_\_\_\_\_
7. State three characteristics of organic compounds. \_\_\_\_\_
8. State two examples of types of inorganic compounds. \_\_\_\_\_
9. A base is a substance that can accept/release hydrogen ions.
10. In an acidic solution, the concentration of hydroxyl ions is greater/less than the concentration of hydrogen ions.
11. The pH scale ranges from \_\_\_\_ to \_\_\_\_.
12. In a solution with a pH of 7, the concentration of hydrogen ions is \_\_\_\_\_ to the concentration of hydroxyl ions.
13. Human blood has a pH of 7.4 and can be classified as a weak \_\_\_\_\_.
14. A disaccharide contains \_\_\_\_ sugars. Name two disaccharides.  
\_\_\_\_\_
15. Glycogen is an example of which type of carbohydrate? \_\_\_\_\_
16. Americans tend to have an over abundance of energy stored in their bodies in the form of this type of lipid. \_\_\_\_\_
17. Phospholipids are shaped like clothespins and possess hydrophobic \_\_\_\_\_.
18. The function of a protein is determined by the sequence of its \_\_\_\_\_.
19. Both the terms “lock and key” and “matchmaker” have been used to describe the action of \_\_\_\_\_.
20. All enzymes are this class of organic compound. \_\_\_\_\_
21. Which kind of nucleic acid contains the 5-carbon sugar ribose and can become a “copy of the plans” for a specific proteins? \_\_\_\_\_
22. This kind of nucleic acid forms the “original plans” for specific proteins and is double-stranded in structure. \_\_\_\_\_
23. This modified nucleotide provides the “fuel” to run the metabolic machinery of all body cells. \_\_\_\_\_

**Chemistry of Life Study Questions KEY**  
**Dr. J. Lim**

1. Matter, the stuff of the universe, exists in three states. Name them.  
**solid, liquid, gas**
2. List the four most common elements found in living things.  
**carbon, hydrogen, oxygen and nitrogen**
3. Which element is present in the most abundance in humans? **oxygen**
4. The smallest part of an element is a(n) **atom**.
5. The atomic symbol for sodium is **Na**.
6. HCl consists of how many atoms? **two** Name them. **hydrogen and chlorine**
7. State three characteristics of organic compounds.  
**contain carbon, larger, more complex**
8. State two examples of types of inorganic compounds.  
**acids, bases, water, salts**
9. A base is a substance that can **accept** hydrogen ions.
10. In an acidic solution, the concentration of hydroxyl ions is **less than** the concentration of hydrogen ions.
11. The pH scale ranges from **0** to **14**.
12. In a solution with a pH of 7, the concentration of hydrogen ions is **equal** to the concentration of hydroxyl ions.
13. Human blood has a pH of 7.4 and can be classified as a weak **base**.
14. A disaccharide contains **two** sugars. Name two disaccharides.  
**sucrose, maltose and lactose**
15. Glycogen is an example of which type of carbohydrate? **polysaccharide**
16. Americans tend to have an over abundance of energy stored in their bodies in the form of this type of lipid. **Neutral fats/ triglycerides**
17. Phospholipids are shaped like clothespins and possess hydrophobic **tails**.
18. The function of a protein is determined by the sequence of its **amino acids**.
19. Both the terms “lock and key” and “matchmaker” have been used to describe the action of **enzymes**.
20. All enzymes are this class of organic compound. **protein**
21. Which kind of nucleic acid contains the 5-carbon sugar ribose and can become a “copy of the plans” for proteins? **ribonucleic acid (RNA)**
22. This kind of nucleic acid forms the “original plans” for specific proteins and is a double-stranded in structure. **Deoxyribonucleic acid (DNA)**
23. This modified nucleotide provides the “fuel” to run the metabolic machinery of all body cells. **adenosine triphosphate (ATP)**