

These questions may come from the book OR lecture notes.

Chp. 2 Study Guide
Anatomy/Physiology

Name _____
Hr _____ Date _____

- 1a) Define chemistry. b) How many elements are found in the human body?
c) List the 5 most abundant elements in the human body, from highest % to lowest.
2. Review the structure of an atom on pgs 31 & 32, Know how to find **atomic mass** and **atomic number** and how to find protons, electrons & neutrons from them.
3. How many electrons are found in the first 3 energy levels? Explain what makes an atom electrically stable (hint: *the octet rule*).
4. Describe how atoms bond, what causes them to be attracted to other atoms and so on.
5. What is the difference between an **ionic** and **covalent** bond? b) what is an **ion**?
6. From the Topic of Interest on pg 34, explain what an isotope is & how they can be used in medicine.
7. What does it mean when a molecule is **polar**? b) What is a hydrogen bond & how strong is it?
8. How is a **molecule** related to a **compound**?
9. Atoms form bonds with other elements by _____, _____ or _____ their electrons .
10. Write the chemical formula for water. Next to it draw the structural formula (see Fig. 2.8 on page 37 for help). How are they alike, how are they different? Explain what the formula $C_6H_{12}O_6$ means in terms of elements and numbers of atoms.
11. Write the generic formula for a **synthesis reaction**. Know its definition.
Where in the body would you be likely to run into a chemical reaction like this?
12. Write the generic formula for a **decomposition reaction**. Define what it means.
Where in the body would you be likely to run into a chemical reaction like this?
13. What is an **exchange reaction**? b) Write the generic formula for one (use A, B, C, D)
14. What role do **catalysts** play in chemical reactions?
15. Explain the difference (chemically) between an **acid** and a **base**.
16. What range of values on the pH scale would indicate an acid? base? neutral?

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17. Distinguish between an **inorganic** substance & an **organic** one?
18. Explain the importance of water and oxygen for humans.
19. What other inorganic substances mentioned in lecture are important to the body?
20. How are electrolytes (like those in Gatorade) important to the body?
21. Explain what carbohydrates do (in general) and what makes up this group (common name). How much energy (in calories/g.) do carbs provide?
22. There are 3 categories of carbs. Name these three, explain the differences between them and give an example of each. Which is considered a carb's building blocks? What polysaccharide do humans synthesize?
23. Describe the general characteristics of lipids. Name the 3 groups (common name) of lipids. How much energy (in calories/g.) do carbs provide?
24. Name the 2 major types of fats and why they are so named. What is considered the building block of lipids?
25. Lipoproteins are a class of lipids that includes high density forms (HDLs) and low density forms (LDLs). Explain the differences between these two.
26. What are steroids? Which type of steroid can lead to arteriosclerosis and arteriosclerosis?
27. What role do proteins serve in the human body? In terms of energy storage, what makes them different from the lipids & carbs?
28. What are the two types of nucleic acids? What function do they serve?
29. Explain the difference between essential and non essential proteins.
30. If you are a vegetarian, what do you have to make sure you do (in regards to your protein intake) to get all the protein your body needs?
31. Explain how the calories provided by carbohydrates, proteins & lipids affect our possible weight & overall health.