

## Review questions for Chemistry lecture

### Multiple choice review questions:

- 1) The smallest particles of ordinary matter are called...
  - A) Ions
  - B) Atoms
  - C) Molecules
  - D) Reactions
  
- 2) The atomic symbol for an atom always contains...
  - A) 1 letter
  - B) 2 letters
  - C) 3 letters
  - D) 1 - 2 letters
  - E) 1 - 3 letters
  
- 3) The atomic symbol for sodium is...
  - A) Na
  - B) Cl
  - C) S
  - D) So
  
- 4) A molecule is best described as...
  - A) The smallest particle of ordinary matter
  - B) Several atoms joined together
  - C) One atom
  - D) A chemical reaction
  
- 5) How many hydrogen atoms does the molecule  $C_6H_{12}O_6$  contain?
  - A) 6
  - B) 12
  - C) 18
  - D) 24
  
- 6) The term \_\_\_\_\_ means an atom or molecule that is electrically charged.
  - A) Atomic symbol
  - B) Voltron
  - C) Ampere
  - D) Ion
  
- 7) The term \_\_\_\_\_ means when molecules become changed.
  - A) Physiology
  - B) Enzyme
  - C) Chemical reaction

- D) Dissolve
- E) Covalent

**Answers to multiple-choice questions:**

- 1 = B
- 2 = D
- 3 = A
- 4 = B
- 5 = B
- 6 = D
- 7 = C

**Fill-in-the-blank review questions: When a question below mentions a specific atom or molecule, be able to answer the question for any atom or molecule. In other words, different example atoms and molecules may be used on exams.**

1) Write the correct atomic symbol for the following atoms

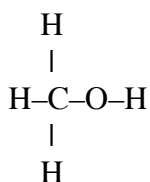
Nitrogen = \_\_\_\_\_  
Chlorine = \_\_\_\_\_

3) The four most abundant elements in the human body are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

4) When two or more atoms are held together by bonds, the resulting particle is called a \_\_\_\_\_.

5) \_\_\_\_\_ bonds are shown as a line connecting atoms.

6) Inspect the molecule below then answer the questions about it.



- a) The lines that join the atoms in the molecule are called \_\_\_\_\_.
- b) Write the molecular formula for the molecule: \_\_\_\_\_.
- c) Write the molecular formula that represents five of these molecules: \_\_\_\_\_.

9) Ions are also called \_\_\_\_\_ (hint: the answer begins with the letter E).

10) Negatively charged ions are called \_\_\_\_\_, whereas positively charged ions are called: \_\_\_\_\_.

11) Name any two common ions in the human body. Your list must include the correct atomic symbol or molecular formula for each ion, including its correct ionic charge.

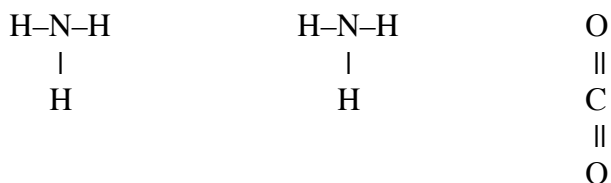
- 12) Write the correct atomic symbol (including its correct ionic charge) for a sodium ion: \_\_\_\_\_
- 13) What is the name of the ion  $\text{PO}_4^{3-}$ ? \_\_\_\_\_
- 15) \_\_\_\_\_ refers to the total of all the chemical reactions which occur within the body.
- 16) True or false: The number of molecules does not change in a chemical reaction.
- 17) True or false: The number of atoms does not change in a chemical reaction.
- 18) The molecules that enter a chemical reaction are called the \_\_\_\_\_, while the molecules that are formed in the chemical reaction are called the \_\_\_\_\_.

**Answers to fill-in-the-blank review questions:**

- |                   |                                     |
|-------------------|-------------------------------------|
| 1) N              | 11) Any two answers from this list: |
| Cl                | $\text{Na}^+$                       |
| 3) C (Carbon)     | $\text{K}^+$                        |
| H (Hydrogen)      | $\text{H}^+$                        |
| O (Oxygen)        | $\text{Cl}^-$                       |
| N (Nitrogen)      | $\text{Ca}^{2+}$                    |
| 4) Molecule       | $\text{Fe}^{2+}$                    |
| 5) Covalent bonds | $\text{OH}^-$                       |
| 6) Covalent bonds | $\text{HCO}_3^-$                    |
| $\text{COH}_4$    | $\text{PO}_4^{3-}$                  |
| $5\text{COH}_4$   | 12) $\text{Na}^+$                   |
| 9) Electrolytes   | 13) Phosphate ion                   |
| 10) Anions        | 15) Metabolism                      |
| Cations           | 16) False                           |
|                   | 17) True                            |
|                   | 18) Reactants                       |
|                   | Products                            |

**Short answer review questions:**

- 2) What is the definition of an ion?
- 3) What is the definition of a chemical reaction?
- 4) In the liver, the following three molecules react with each other:



...to form the following two molecules:



Write the chemical reaction in the space below. Your answer must have all the proper molecular formulas and be in the proper format for a chemical reaction.

**Answers to short answer review questions:**

- 2) An ion is an electrically charged atom or molecule.
- 3) A chemical reaction is when molecules are changed (their atoms become rearranged into new molecules).
- 4)  $2\text{NH}_3 + \text{CO}_2 \rightarrow \text{CON}_2\text{H}_4 + \text{H}_2\text{O}$