Kingdom of Saudi Arabia
Ministry of Education
Taibah University
Unified Scientific Track

Studetn Name:
Student ID:
Section No.:

INTRODUCTION TO CHEMISTRY (CHEM 101)

Assessment on Chapter 02 - Topic 04

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1. The modern atomic theory was proposed by ……..

❑ a. Lavoisier ❑ b. Democritus ❑ c. Proust ❑ d. Dalton

2. The fact that all water molecules have a hydrogen : oxygen ratio of 2:1 is a representation to the law of ……..

❑ a. Definite Proportions ❑ b. Multiple Proportions

❑ c. Conservation of Matter ❑ d. Atomic Structure

3. The value of the electron's charge was measured by ……..

❑ a. Dalton ❑ b. Democritus ❑ c. Lavoisier ❑ d. Millikan

4. Thomson's "plum-pudding" model of an atom had which particles together?

❑ a. proton and electron ❑ b. proton and neutron

❑ c. neutron and electron ❑ d. only protons

5. The total mass of an atom comes almost entirely from ……..

❑ a. protons and electrons ❑ b. protons and neutrons

❑ c. neutrons and electrons ❑ d. only protons

6. Which of the following is true about electrons?

❑ a. They have a positive charge ❑ b. They are in the nucleus

❑ c. They have a mass of 1 amu ❑ d. They are outside the nucleus

7. Rutherford's atomic model had protons in the nucleus and electrons on the outside but did not include neutrons in the model.

❑ a. True ❑ b. False

8. The fluorine atom $^{19}_{9}F$ has ……

❑ a. 9 protons and 19 neutrons ❑ b. 9 electrons and 19 neutrons

❑ c. 10 protons and 10 neutrons ❑ d. 9 protons and 10 neutrons

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1. Which of the following is a cation?

❑ a. +1 charge ❑ b. -1 charge ❑ c. 0 charge ❑ d. -2 charge

2. Which of the following is correct for an anion?

❑ a. Fe^{2+} ❑ b. O_2 ❑ c. S^{2-} ❑ d. Al^{3+}

3. Mendeleev arranged elements in the periodic table according to ……

❑ a. number of protons ❑ b. number of electrons ❑ c. mass ❑ d. volume

4. A family of elements is the same as a …….

❑ a. horizontal row ❑ b. group of metals ❑ c. group of nonmetals ❑ d. vertical column

5. Which of these statements describes metals?

❑ a. good conductors and form cations ❑ b. good conductors and form anions

❑ c. poor conductors and form cations ❑ d. poor conductors and form anions

6. Which of these statements describes nonmetals?

❑ a. good conductors and form cations ❑ b. good conductors and form anions

❑ c. poor conductors and form cations ❑ d. poor conductors and form anions

7. The symbol for sodium is …….

❑ a. S ❑ b. So ❑ c. N ❑ d. Na

8. The dark step-like line in the periodic table separates ……

❑ a. "A" from "B" elements ❑ b. metals from nonmetals

❑ c. nonmetals from inert gases ❑ d. I-A from II-A elements

9. The halogens are represented in group …… of the periodic table.

❑ I-A ❑ II-A ❑ VI-A ❑ VII-A

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1. In the electron configuration: $1s^2$, $2s^2$, $2p^6$, $3s^2$, the valence electrons are there in?

❑ a. $1s^2$ ❑ b. $2s^2$ ❑ c. $2p^6$ ❑ d. $3s^2$

2. In an electron configuration, which level and sub level would follow a 3p?

❑ a. *3s* ❑ b. *4s* ❑ c. *3d* ❑ d. *4p*

3. The electrons that are involved in chemical reactions of the atom are the ……..

❑ a. core electrons ❑ b. valence electrons

❑ c. electrons with positive spins ❑ d. electrons that exist as pairs.

4. The electron configuration $1s^2$, $2s^2$, $2p^6$, $3s^2$ is for the element ……

❑ a. magnesium ❑ b. boron ❑ c. sulfur ❑ d. nitrogen

5. Which element has the configuration $1s^2$, $2s^2$, $2p^6$, $3s^1$?

❑ a. sodium ❑ b. magnesium ❑ c. potassium ❑ d. phosphorus

6. As you move from left to right within a period in the periodic table, the number of ……..

❑ a. electrons increases ❑ b. electrons decreases

❑ c. energy levels increases ❑ d. energy levels decreases

7. What does an orbital diagram show that an electron configuration does not show?

❑ a. number of electrons ❑ b. quantum numbers

❑ c. electron spins ❑ d. energy sub levels

8. The element with one more electron than neon is potassium.

❑ True ❑ False

9. Moving from top to bottom within a group or family, the number of energy levels increases.

❑ True ❑ False

10. All of the elements in group II-A have ……. valence electrons.

❑ a. 1 ❑ b. 2 ❑ c. 3 ❑ d. 4

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1. Which of the following elements has the largest atomic radius?

❑ a. Sodium (Na) ❑ b. Aluminum (Al) ❑ c. Phosphorous (P) ❑ d. Sulfur (S)

2. Calcium (Ca) has a larger atomic radius than bromine (Br) because calcium has ……

❑ a. more electrons ❑ b. fewer electrons

❑ c. more energy levels ❑ d. fewer energy levels

3. Fluorine (F) atoms are smaller than iodine (I) atoms because fluorine has ……..

❑ a. fewer energy levels ❑ b. more energy levels

❑ c. more electrons ❑ d. a higher nuclear charge

4. Which of the following elements has the highest ionization energy?

❑ a. Fluorine (F) ❑ b. Chlorine (Cl) ❑ c. Bromine (Br) ❑ d. Iodine (I)

4. Which of the following elements has the lowest ionization energy?

❑ a. Carbon (C) ❑ b. Nitrogen (N) ❑ c. Oxygen (O) ❑ d. Fluorine (F)

6. Which element has the largest atomic radius?

❑ a. Lithium (Li) ❑ b. Sodium (Na) ❑ c. Potassium (K) ❑ d. Rubidium (Rb)

7. Elements with a zero electron affinity are most likely …….

❑ a. alkali metals ❑ b. alkaline earth metals ❑ c. halogens ❑ d. inert gases

8. Which of the following atoms has the greatest metallic character?

❑ a. Na ❑ b. Si ❑ c. Mg ❑ d. Al

9. Group 5A elements usually form …… ions.

❑ a. 3- ❑ b. 3+ ❑ c. 2- ❑ d. 2+

10. As atomic radii increase in a group, electron affinities decrease.

❑ a. True ❑ b. False