

WEEKLY EXAM 2079/08/07**Subject: Chemistry****GRADE XI (SCIENCE)****F.M.: 40****Time : 1:30 hrs.****SET A****P.M.: 20****Group A (10×1=10)****Tick the best answer**

1. The element least likely to be found in an organic compound is
a. Hydrogen b. carbon c. nitrogen d. oxygen
2. Which one of the following is not typical of a homologous series?
a. Its members have a same general formula
b. They have similar methods of preparation
c. Each successive member differs by '-CH₂- unit'
d. They have similar physical and chemical properties
3. The first organic compound synthesized in the laboratory from its elements
a. Urea b. methane c. ethylene d. acetic acid
4. Which one has the highest electron affinity of the following elements?
a. Fluorine b. Chlorine c. Bromine d. Iodine
5. The number of protons, electrons and neutrons in tritium are
a. 1, 1, 0 b. 1, 1, 1 c. 1, 1, 2 d. 1, 2, 1
6. Which of the following oxides react with HCl and NaOH?
a. CaO b. ZnO c. N₂O₅ d. CO₂
7. If P, V, M, T and R are pressure, volume, molar mass, temperature and ideal gas constant respectively, then for ideal gas, the density is given by
a. RT/PM b. P/RT c. M/V d. PM/RT
8. At what temperature would the volume of a gas at constant pressure be twice its volume at 0° C
a. 100° C b. 273° C c. 546° C d. remains constant
9. When temperature is doubled and pressure is halved, the volume of gas is
a. Constant b. double c. half d. quadruple
10. Which of the following set belongs to same period?
a. Li, Na, K b. Li, Mg, Ca c. Cu, Ni, Zn d. F, Cl, Br

1. Atomic radius of second period element is given below:

| Second period elements | B | Be | O | N | Li | F | C |
|------------------------|----|-----|----|----|-----|----|----|
| Atomic radii (pm) | 88 | 111 | 66 | 74 | 152 | 64 | 77 |

- a. What is atomic radius? [1]
 - b. How does atomic size depend upon nuclear charge and screening effect? [2]
 - c. Oxygen can gain two electrons to form O^{2-} ion. Is the size of O^{2-} ion larger or smaller than its parent atom. Justify your answer. [2]
2. Ozone or trioxxygen, is an inorganic molecule with the chemical formula O_3 . It is a pale blue gas with a distinctively pungent smell.
- a. Write down the resonance structure of ozone molecule. [1]
 - b. What are the adverse effects of ozone layer depletion, explain? [2]
 - c. Classify the following oxides:
 - NO, H_2O_2 , K_2O_2 , BaO
3. A. Define the terms: i. Diffusion of gas ii. Effusion of gas. [1+1]
- B. 16 cc of hydrogen were found to diffuse in 30 seconds. What volume of sulphur dioxide would diffuse at the same time under the same condition of temperature and pressure? [3]
4. State and explain Dalton's law of partial pressure. A gas x is five times as faster as gas y. Find the ratio of their densities.
5. A simple organic compound may be divided into two parts alkyl group and functional group.
- a. Define alkyl group with an example? [1]
 - b. Define functional group. [1]
 - c. Write the functional group of carboxylic acid and amide. [1]
 - d. Write a homologous series containing -CHO as functional group with their IUPAC names. [2]
6. Write the IUPAC name of the following structures: [1+1+1+1+1]
- i. $\begin{array}{c} \text{COOH} \\ | \\ \text{COOH} \end{array}$
 - ii. $\begin{array}{cc} O & O \\ || & || \\ H-C & -C-H \end{array}$
 - iii) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3-\text{CH}-\text{CH}_2-\text{CH}_2-\text{OH}-\text{CH}_3 \\ | \\ \text{CH}_2-\text{CH}_3 \end{array}$
 - iv) $\begin{array}{c} \text{CH}_3 \\ | \\ \text{HC} \equiv \text{C}-\text{CH}_2-\text{C}-\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$
 - v) $\text{CH}_3-\text{CH}(\text{CH}_3)-\text{CH}(\text{CH}_3)_2$