CLASS XI Marks :25

Time : 1 Hour

General Instructions:

- All questions are compulsory.
- Mark for each question is indicated against it.

1. State Gay Lussac's law of gaseous volumes. 1

2. Name the nature of electromagnetic radiation that explains the following types of experimental phenomenon shown by it: 1
   a. Interference.
   b. Photoelectric emission.

3. Explain law of definite proportion with suitable example. 2

4. Distinguish between empirical formula and molecular formula. 2

5. Calculate the mass of 2
   a. One molecule of C_6H_6 b. 33.6 L of CO_2
   (RAM of O = 16u, C= 12 u , H=1 u)

6. a. Distinguish between quantum and photon. 2
   b. Define
      i. Wave number ii. Velocity

7. a. Calculate the mole fraction of ethanol in 0.5 m aqueous solution of ethanol. 3
   b. 4 L of water is added to 2L of 6 molar HCl solution.What is the molarity of resulting solution?

8. 4.8g of O_2 was used to burn 0.15moles of Fe to Fe_2O_3. 3
   a. Which is the limiting reagent?
   b. What mass of $Fe_2O_3$was formed?
   c. Calculate the mass of excess reagent left? (RAM of Fe= 56u)

9. a. Define Photoelectric effect. 3
   b. Electrons are emitted with zero velocity from a metal surface when it is exposed to radiation of wavelength 6800A^o.Calculate the threshold frequency and work function of the metal.

10. An organic compound containing carbon, hydrogen and oxygen gave the following composition C: 40.68%, H: 5.08%.The vapour density of the compound is 59. Calculate its molecular formula. (Given: RAM of C = 12, H = 1 & O = 16) 3

11. a. Define workfunction. 3
    b. A photon of wavelength $4 \times 1\ 0^{-7}$ m strikes on metal surface, Calculate the energy of the photon in eV.
    (h = 6.63×10^{-34}Js,1 eV= 1.6020×10^{-19}J).

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