MONTHLY TEST- JULY - 2024

11 -Std CHEMISTRY

Time : 1.30 hrs Max.Marks : 50

10x1=10

I. Choose the best answer:

I. Answer all the questions

1. The equivalent mass of a trivalent metal element is 9 g eq-1 the molar mass of its anhydrous oxide is
   a) 102 g b) 27 g c) 270 g d) 78 g
2. Which of the following compound(s) has /have percentage of carbon same as that in ethylene (C_2H_4)
   a) Propene b) Ethyne c) Benzene d) Ethane
3. The empirical formula of Glucose is
   a) CH_2O b) CHO c) CH_2O_2 d) CH_3O_2
4. Splitting of spectral lines in an electric field is called
   a) Zeeman Effect b) Shielding Effect
   c) Compton Effect d) Stark Effect
5. Electron density in the yz plane of $3d_{xy}$ orbital is
   a) Zero b) 0.50 c) 0.75 d) 0.90
6. The value of the gas constant R is
   a) 0.082 dm^3atm b) 0.987 cal mol^{-1} K^{-1}
   c) 8.3 J $mol^{-1}K^{-1}$ d) 8 erg $mol^{-1}K^{-1}$
7. Maximum deviation from ideal gas is expected from
   a) $CH_4(g)$ b) $NH_3(g)$ c) $H_2(g)$ d) $N_2(g)$
8. 25g of each of the following gases are taken at 27°C and 600 mm Hg pressure. Which of these will have the least volume?
   a) HBr b) HCl c) HF d) HI
9. The general formula for alkadiene is
   a) C_nH_{2n} b) C_nH_{2n-1} c) C_nH_{2n-2} d) C_nH_{n-2}
10. Which one of the following shows functional isomerism?
    a) Ethylene b) Propane c) Ethanol d) CH_2Cl_2

PART - B

II. Answer any five questions. Q.No 18 is compulsory

11. What do you understand by the term of mole? **5x2=10**
12. State and explain Pauli Exclusion Principle.
13. Describe Aufbau Principle.

14. State Charles law.
15. What is Joule Thomson effect?
16. What is sublimation?
17. Define Chromatography.
18. Find the oxidation number of the following compounds
    i) $\underline{C}O_2$ ii) $H_2\underline{S}O_4$

PART - C

III. Answer any five questions. Q.No 26 is compulsory

19. Distinguish between oxidation and reduction. **5x3=15**
20. What is limiting reagent?
21. How many radial nodes for 2s, 4p and 5d orbitals exhibit? How many angular nodes?
22. State Heisenberg's Uncertainty Principle.
23. Distinguish between Diffusion and Effusion.
24. How do you detect the presence of nitrogen and sulphur together in organic compounds?
25. What is chiral carbon?
26. Give the IUPAC name of the following compounds
    i) $CH_3 - O - CH_3$ ii) $CH_3 - CH_2 - CH(OH) - CHO$
    iii) $CH_2 = CH - CH = CH_2$

PART - D

IV. Answer all the questions. **3x5=15**

27. a) An organic compound present in vinegar has 40% of carbon, 6.6% hydrogen and 53.4% oxygen. Find the empirical formula of the compound.

(OR)

b) Balancing the following equation by ion electron method
$KMnO_4 + SnCl_2 + HCl \rightarrow MnCl_2 + SnCl_4 + H_2O + KCl$

28. a) Derive de - Broglie equation. (5)

(OR)

b) Explain four Quantum Numbers in detail (5)

29. a) i) Derive the values of critical constants in terms of Vander Waals constants (5)

(OR)

b) Write a note on homologous series (5)