

FIRST REVISION EXAMINATION - 2024

Std : XI

Time : 3.00 Hours

CHEMISTRY

Reg.

No.

Marks : 70

PART - A

15 X 1 = 15

I) Answer all the questions.

1. If the weight of metal oxide is 'x' g containing 'y' g of oxygen, the equivalent weight of metal will be

- a) $E = \frac{8x}{y}$ b) $E = \frac{8(x-y)}{y}$ c) $E = \frac{8(y-x)}{y}$ d) $E = \frac{y}{8}$

2. Which one of the following is the least electronegative element?

- a) Bromine b) Chlorine c) Iodine d) Hydrogen

3. For p - electron, the Orbital angular momentum is

- a) $\sqrt{3} \frac{h}{2\pi}$ b) $\frac{h}{\sqrt{2}\pi}$ c) $\frac{\sqrt{3}}{2} \frac{h}{\pi}$ d) $\sqrt{6} \frac{h}{2\pi}$

4. Which of the following is called as synthetic gas

- a) $H_2O(g)$ b) $CO+H_2O$ c) $CO+H_2$ d) $CO+N_2$

5. Among the following alkaline earth metal halides, One which is covalent and soluble in organic solvent is

- a) $BeCl_2$ b) $CaCl_2$ c) $SrCl_2$ d) $MgCl_2$

6. The Value of the gas constant 'R' is

- a) $0.0821 \text{ dm}^3 \text{ atm.mol}^{-1} \text{ K}^{-1}$ b) $8.314 \text{ JK}^{-1} \text{ mol}^{-1}$ c) $8.314 \text{ Pa m}^3 \text{ K}^{-1} \text{ mol}^{-1}$ d) All of these

7. The intensive property among the quantities below is

- a) mass b) Volume c) enthalpy d) mass / Volume

8. The ratio of K_P/K_C for the reaction $CO(g)+1/2 O_2(g) \rightleftharpoons CO_2(g)$ is .

- a) $\frac{R}{T}$ b) RT c) $(RT)^{\frac{1}{2}}$ d) $(RT)^{-\frac{1}{2}}$

9. Which of the following aqueous solutions has the highest boiling point?

- a) 0.1 M KNO_3 b) 0.1 M Na_3PO_4 c) 0.1 M $BaCl_2$ d) 0.1 M K_2SO_4

10. The ratio of number sigma (σ) and pi (π) bond in 2-butyne is

- a) 8/3 b) 5/3 c) 8/2 d) 9/2

11. Carius method is used for the estimation of

- a) Chlorine b) sulphur c) phosphorus d) All of these

12. Which of the following carbocation will be most stable

- a) Ph_3C^{\oplus} b) $CH_3-C^+H_2-$ c) $(CH_3)_3C^+H-$ d) $CH_2=CH-C^+H_2$

13. Which of the following compounds will not undergo Friedel - crafts reactions easily?

- a) Nitro benzene b) Toluene c) Cumene d) Xylene

14. $CCl_4 + H_2O_{(g)} \xrightarrow{\Delta} X + 2HCl$, what is 'x'?

- a) Freon 12 b) Chloropicrin c) Phosgene d) chloroform

15. Assertion (A) : Oxygen plays a key role in the troposphere.

Reason (R) : Troposphere is not responsible for all biological activities

- a) Both (A) and (R) are correct and (R) is the correct explanation of (A)
 b) Both (A) and (R) are not correct and (R) is not the correct explanation of (A)
 c) Both (A) and (R) are not correct d) A is correct but (R) is not correct

PART - B





II) Answer any six questions. Q.No24 is Compulsory

6 X 2 = 12

16. What is limiting reagent?

17. How would you explain the fact that the second Ionisation potential is always higher than first Ionisation potential.

18. Beryllium halides are Covalent whereas magnesium halides are ionic why?

19. Write any two differences between an ideal & non ideal solution
 20. What is lattice energy?
 21. Write any two characteristics of Organic compounds.
 22. Classify the following compound as an aromatic and non-aromatic compounds.
- a)  b)  c)  d) 
23. What are particulate pollutants? Explain any two
 24. Calculate the percentage efficiency of an engine operating between 127°C and 47°C with out frictional losses.

PART - C

III) Write any Six questions. Q.No. 33 is Compulsory

6X3=18

25. Among d^4, d^5 Configuration Which is more stable electronic configuration on the basic of exchange energy? Why?
 26. Give the uses of heavy water.
 27. State Dalton's law of partial pressure
 28. Define law of Mass action.
 29. Write the hybridisation present in the following molecules. i) BF_3 ii) PCl_5 iii) IF_7 iv) H_2O v) SF_6 vi) $BeCl_2$
 30. Give the equation of Darzen's Process.
 31. Explain electromeric effect.
 32. Ionisation potential of Nitrogen is greater than that of Oxygen. Explain.
 33. The depression in freezing point is 0.24k obtained by dissolving 1g of Nacl in 200 g Water. Calculate Van't - Hoff factor. The molar depression constant of water is 1.86 k.kg mol⁻¹

PART - D

IV) Answer All the questions.

5X5 = 25

34. a) i) What you understand by the term oxidation number. 2
 ii) Calculate the number of radial and angular nodes for 4p, 5d, and 4f orbitals.
 (OR)
 b) i) Define Modern Periodic law. 3
 ii) Explain the exchange reductions of deuterium. 2
35. a) i) Write the chemical equations for the reactions involved in solvay process of preparation of sodium carbonate. 3
 ii) Define Hess's law of constant heat summation. 2
 (OR)
 b) Derive the values of critical constants in terms of Van der waals constants? 5
36. a) Derive the general expression for the equilibrium constant K_p and K_c for the reaction
 $3H_{2(g)} + N_{2(g)} \rightleftharpoons 2NH_{3(g)}$ 5
 (OR)
 b) i) What is relative lowering of Vapour pressure? 3
 ii) Write any three important principles of VSEPR Theory. 2
37. a) Describe the classification of Organic compounds based on their structure. 5
 (OR)
 b) i) Classify the following group as +I and -I group. 3
 a) NO_2 b) CH_3O c) CN d) $(CH_3)_3C$ -
 ii) What are the various methods you suggest to protect our environment from pollution? 3
38. a) i) Find the oxidation number of the underlined elements in the following compounds 3
 i) $H_2\underline{O}_2$ ii) $\underline{O}F_2$ iii) $H_2\underline{O}$
 ii) How would you prepare Toluene from benzene? 2
 (Or)
 b) Compare SN^1 and SN^2 reaction mechanisms. 5