

# FIRST REVISION EXAMINATION - 2025

Std : XI

## CHEMISTRY

Reg. No. 

Time : 3.00 Hours

Marks : 70

### I) Choose the correct answer.

15x1=15

1. The equivalent mass of  $\text{KMnO}_4$  in alkaline medium is  $\text{MnO}_4^- + 2\text{H}_2\text{O} + 3\text{e}^- \longrightarrow \text{MnO}_2 + 4\text{OH}^-$ 
  - a) 31.6
  - b) 52.7
  - c) 79
  - d) None of these
2. Electron density in the YZ plane of  $3d_{xy}$  orbital is \_\_\_\_\_
  - a) Zero
  - b) 0.50
  - c) 0.75
  - d) 0.90
3. The element with zero electronegativity \_\_\_\_\_
  - a) Cl
  - b) O
  - c) Ne
  - d) B
4. The hybridisation of oxygen atom in  $\text{H}_2\text{O}$  and  $\text{H}_2\text{O}_2$  are respectively \_\_\_\_\_
  - a)  $sp$  and  $sp^3$
  - b)  $sp$  and  $sp$
  - c)  $sp$  and  $sp^2$
  - d)  $sp^3$  and  $sp^3$
5. Among the following the least thermally stable is \_\_\_\_\_
  - a)  $\text{K}_2\text{CO}_3$
  - b)  $\text{Na}_2\text{CO}_3$
  - c)  $\text{BaCO}_3$
  - d)  $\text{Li}_2\text{CO}_3$
6. In a closed room of  $1000 \text{ m}^3$  a perfume bottle is opened up. The room develops a smell. This is due to which property of gases \_\_\_\_\_
  - a) Viscosity
  - b) Density
  - c) Diffusion.
  - d) None
7. The temperature of the system, decrease in an \_\_\_\_\_
  - a) Isothermal expansion
  - b) Isothermal compression
  - c) Adiabatic expansion
  - d) Adiabatic compression
8. Which of the following equations having positive  $\Delta G$  value.
  - a)  $\text{PCl}_5(\text{g}) \rightleftharpoons \text{PCl}_3(\text{g}) + \text{Cl}_2$
  - b)  $\text{H}_2(\text{g}) + \text{I}_2(\text{g}) \rightleftharpoons 2\text{HI}(\text{g})$
  - c)  $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$
  - d)  $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{SO}_3(\text{g})$
9. 0.5 mole of ethanol is mixed with 1.5 moles of water. What is the mole fraction of water
  - a) 0.25
  - b) 0.35
  - c) 0.55
  - d) 0.75
10. Non-Zero dipole moment is shown by \_\_\_\_\_
  - a)  $\text{CO}_2$
  - b) p-dichloro benzene
  - c)  $\text{H}_2\text{O}$
  - d)  $\text{CCl}_4$
11. Lassaigne's test for the detection of Nitrogen fails in \_\_\_\_\_
  - a)  $\text{H}_2\text{N} - \text{CO} - \text{NH} \cdot \text{NH}_2 \cdot \text{HCl}$
  - b)  $\text{NH}_2 - \text{NH}_2 \cdot \text{HCl}$
  - c)  $\text{C}_6\text{H}_5 - \text{NH} - \text{NH}_2 \cdot \text{HCl}$
  - d)  $\text{C}_6\text{H}_5\text{CONH}_2$
12. Which of the following species does not exert a resonance effect?
  - a)  $\text{C}_6\text{H}_5\text{OH}$
  - b)  $\text{C}_6\text{H}_5\text{Cl}$
  - c)  $\text{C}_6\text{H}_5\text{NH}_2$
  - d)  $\text{C}_6\text{H}_5\text{N}^+\text{H}_3$
13. The desulphonation of benzene sulphonic acid is takes place
  - a) Acidic medium
  - b) Basic medium
  - c) Aqueous medium
  - d) None of these
14. Ethylidene chloride on treatment with aq KOH gives
  - a) Acetaldehyde
  - b) Ethylene glycol
  - c) Formaldehyde
  - d) Glyoxal
15. Haemoglobin of the blood forms carboxy haemoglobin with
  - a) Carbon dioxide
  - b) Carbon tetra chloride
  - c) Carbon monoxide
  - d) Carbonic acid

### II Answer any 6 questions (Q.No:24 is compulsory).

6x2=12

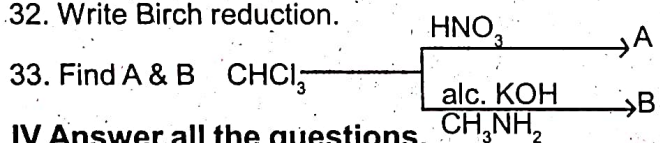
16. What is meant by limiting reagents?
17. Define Orbital.
18. What is Syngas? How it is prepared?

19. Give the mathematical expression that relates gas volume and moles.
20. Define Lattice energy.
21. State Henry's law.
22. What is Hybridisation?
23. Complete the reaction  $\text{CaC}_2 + \text{H}_2\text{O} \longrightarrow ?$
24. Among the following compounds, o-dichloro benzene and p-dichloro benzene, which has higher melting point? Explain the reason.

**III Answer any 6 questions (Q.No:33 is compulsory)**

**6x3=18**

25. State and explain Dobereiner's 'Triad' law.
26. How is bleaching powder prepared?
27. Explain Intensive properties with two examples.
28. Why Chemical equilibrium is in a state of dynamic equilibrium?
29. Write Salient features of Valence bond theory.
30. What is functional Isomerism? Give example.
31. Explain Inductive effect with suitable example.
32. Write Birch reduction.



**IV Answer all the questions.**

**5x5=25**

34. a) (i) Calculate the molar mass of the following compounds. (2)
- (1) Acetone  $[\text{CH}_3\text{COCH}_3]$  (2)  $\text{H}_3\text{BO}_3$  Boric acid
- (ii) Derive de - Broglie equation (or) (3)
- b) Explain the Pauling method for the determination of ionic radius. (5)
35. a) i) Explain the exchange reactions of deuterium. (3)
- ii) Mention the uses of Plaster of Paris. (or) (2)
- b) i) Explain the correction of Pressure in Vander wall's equation. (3)
- ii) State first law of thermodynamics. (2)
36. a) Derive  $K_p$  and  $K_c$  for dissociation of  $\text{PCl}_5$ . (or) (5)
- b) What is Osmotic pressure. How will you determine molar mass from osmotic pressure. (5)
37. a) Draw MO Diagram of CO and calculate its bond order. (or)
- b) i) Write the condition for optical Isomerism. (2)
- ii) Write short notes on Resonance. (3)
38. a) i) How does Huckel rule help to decide the aromatic character of a Compound. (3)
- ii) 2 - butyne  $\xrightarrow{\text{Lindlar catalyst}} ?$  (or) (2)
- b) i) Explain  $\text{S}_{\text{N}}1$  mechanism. (3)
- ii) Define Smog. (2)