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KV ACADEMY

THE NO. 1 INSTITUTE

2nd YEAR CHEMISTRY MOST IMPORTANT QUESTION'S GUNSHOT QUESTIONS -2025

8 Marks Questions (LAQ'S TOP 7)

1. A) What are galvanic cells? Explain the working of a galvanic cell with a neat sketch taking Daniel cell as example.
B) State Kohlrausch's law of independent migration of ions. Give its applications.
2. What is "molecularity" of a reaction? How is it different from the order of a reaction? Name one bimolecular and one trimolecular gaseous reaction.
3. Describe the salient features of the collision theory of reaction rates of bimolecular reactions.
4. How is ozone prepared? How does it react with the following?
a. PBS b) KI c) Hg d) Ag
5. How is chlorine prepared in the laboratory? How does it react with following?
a) Iron b) Hot-conc. NaOH c) Acidified FeSO₄ d) Iodine e) H₂S f) Na₂S₂O₃
6. Explain the following reactions:
a. Williamson's ether synthesis b) Kolbe's reaction
c) Aldol condensation d) Decarboxylation
7. Explain the following reactions with equations.
a. Riemeier - Tiemann reaction
b. HVZ reaction. C. Sand Mayer's D. Carbylamine

4 Marks Questions (SAQ'S TOP 15)

1. How are XeF₂, XeF₄, XeF₆ & XeO₄ prepared? Discuss their structures.
2. Explain SN¹ and SN² reactions mechanism.
3. Describe the two main types of semiconductors and contrast their conduction mechanism.
4. A solution of glucose in water is labelled as 10% w/w. What would be the molality of the solution?
5. What is relative lowering of vapour pressure? How is it useful to determine the molar mass of a solute?
6. Calculate the molarity of a solution containing 5g of NaOH in 450 ml solution.
7. State Raoult's law. Calculate the mass of nonvolatile solute (Molar mass 40 gr/mole) which should be dissolved in 114 gr of octane to reduce its vapour pressure to 80% .
8. A solution of CuSO₄ is electrolyzed for 10 minutes with a current of 1.5 amperes. What is the mass of copper deposited at the cathode?
9. what are different types of adsorption? Give any four differences between characteristics of these different types.

10. What is catalysis? How is catalysis classified? Give two examples for each type of catalysis.
11. What are emulsions? How are they classified? Describe the applications of emulsions.
12. Giving examples to differentiate roasting and calcination
13. Explain the purification of sulphide ore by froth floatation method?
14. Explain Werner's theory of coordination compounds with suitable examples.
15. A) Write the IUPAC names of the following co-ordination compounds:
A) $\text{Cu}(\text{NH}_3)_4\text{SO}_4$ **b) $[\text{Ni}(\text{CO})_4]$** **c) $\text{K}_3[\text{Fe}(\text{CN})_6]$** **d) $\text{K}_3[\text{Cr}_2(\text{CO})_4]_3$**
16. Write the names and structure of the monomers used for getting the following polymers.
 i) Polyvinyl chloride ii) Teflon iii) Bakelite iv) Polystyrene v) Nylon 6,6 vi) Buna – S vii) Neoprene
17. Write notes on vitamins. (A, D, E, K)
18. Discuss the effect of temperature on the rate of reaction. Derive necessary equations in this context.
19. State faradays first law? And electrolysis.
20. Define the terms (i) Central metal ion
21. Write about steroid, amino acids and pesticides hormones with example?

2 Marks Questions (VSAQ'S TOP 39)

1. What is Schottky defect. What is Frenkel defect. What are f-centers?
2. State Raoult's law and Henry's Law?
3. What are isotonic solution?
4. Define osmotic pressure.
5. Define molarity. molality.
6. Write the Nernst equation for the EMF of the cell. $\text{Ni}(\text{s}) / \text{Ni}^{2+}(\text{aq}) // \text{Ag}^+(\text{aq})/\text{Ag}$.
7. State Faraday's first law of electrolysis. State Faraday's second law of electrolysis.
8. A) How is Gibbs energy (G) related to the cell emf (E) mathematically?
9. B) What is metallic corrosion? Give one example.
10. Give two examples for zero order, pseudo first order, Gaseous first order reactions? Give one example.
11. A reaction has a half-life of 10 minutes. Calculate the rate constant for the first order reaction.
12. Give the composition of the following alloys.
 i) Brass ii) Bronze iii) German Silver
13. What is a role of cryolite in metallurgy of aluminum.
14. What is blister copper? Why is it so called?
15. What is inert pair effect?
16. A mixture of Ca_3P_2 and CaC_2 is used in making Holme's signal - explain.
17. Ammonia is good complexing agent. explain with an example.
18. What is Tailing of mercury? How is it removed?
19. SO_2 can be used as an anti-chlor. Explain.
20. What happen when Cl_2 reacts with dry slaked lime?
21. How is chlorine manufactured by Deacon's method?
22. In modern diving apparatus, a mixture of He and O_2 is used - why?
23. Write the uses of neon organ?
24. Why Zn^{2+} is diamagnetic where as Mn^{2+} is paramagnetic?

25. What is an ambidentate ligand? Give example.
26. $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ is blue in colour where as anhydrous CuSO_4 is colorless. Why?
27. What is Ziegler-Natta catalyst?
28. What is vulcanization of rubber?
29. A mixture of Ca_3P_2 and CaC_2 is used in making Holme's signal – explain.
30. What is PHBV? How is useful to man?
31. What is PDI (Poly dispersity Index)?
32. What is Zwitter ion? Give an example.
33. What are Enantiomers and racemic mixture?
34. Give the equations for the preparation of phenol from Cumene.
35. Compare the acidic strength of acetic acid, chloroacetic acid, benzoic acid and phenol.
36. What are essential and non essential amino acids?
37. Tollens Reagent?
38. Give example for natural, synthetic, semi synthetic polymers
39. Arrange the following bases in decreasing order of pK_b values. $\text{C}_2\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{NHCH}_3$, $(\text{C}_2\text{H}_5)_2\text{NH}$ and $\text{C}_6\text{H}_5\text{NH}_2$
40. Give structure of A, B and C in the following reaction

