

GUESS PAPER - 1

JR. CHEMISTRY

SECTION - A

I. Answer ALL questions :
[10 x 2 = 20]

1. What is Chemical Oxygen Demand (COD)?
2. What are effects of acid rain?
3. State Graham's law of diffusion.
4. Calculate the oxidation number of Mn in KMnO_4 , MnO_4^{2-} .
5. What is conjugate acid - base pair? Give example.
6. Describe the important uses of sodium carbonate.
7. What is Plaster of Paris? Mention its uses.
8. How does Graphite function as a lubricant?
9. What is Synthesis gas?
10. Write the structural formulae of the following compounds
 - a) Trichloroethanoic acid
 - b) Neo-Pentane

SECTION - B

II. Answer any SIX of the following Questions :
[6 x 4 = 24]

11. Give the important postulates of kinetic molecular theory of gases.
12. Balance the following redox reaction by ion-electron method in acid medium

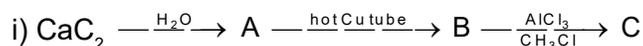
$$\text{MnO}_4^{-(\text{aq})} + \text{SO}_2(\text{g}) \rightarrow \text{Mn}^{2+(\text{aq})} + \text{HSO}_4^{-(\text{aq})}$$
13. State and explain "Hess law of constant heat summation" with example.
14. Derive the relation between K_p & K_c for the equilibrium reaction.

$$\text{N}_{2(\text{g})} + 3\text{H}_{2(\text{g})} \rightleftharpoons 2\text{NH}_{3(\text{g})}$$
15. What is the cause for permanent hardness of water?
Explain the removal of hardness of water by Calgon method.
16. How is diborane (B_2H_6) prepared? Explain its structure.
17. Explain the structure of PCl_5 molecule with hybridisation.
18. Explain (a) Position isomerism (b) Functional group isomerism with one example for each

SECTION - C

III. Answer any Two of the following Questions :
[2 x 8 = 16]

19. What are the postulates of Bohr's model of hydrogen atom? Discuss the importance of this model to explain various series of line spectra in hydrogen atom?
20. What is periodic property? How the following properties vary in a group and a period? Explain (a) Ionisation potential (IE) (b) Electronegativity (c) Electron gain enthalpy
21. a) Write the preparation of ethane using the following method
 - i) Wurtz reaction
 - ii) Kolbe's electrolytic method
- b) Complete the following reactions and name the products A,B,C,D



* * * * *