

CLASS XII GUESS PAPER CHEMISTRY

MM : 70

TIME : 3 Hrs

General Instructions:

- (i) All questions are compulsory.
- (ii) Marks for each question are indicated against it.
- (iii) Question numbers **1 to 5** are very short-answer questions and carry **1** mark each.
- (iv) Question numbers **5 to 10** are short-answer questions and carry **2** marks each.
- (v) Question numbers **11 to 22** are also short-answer questions and carry **3** marks each.
- (vi) Question number **23** is value based question and carries **4** marks.
- (vii) Question numbers **24 to 26** are long-answer questions and carry **5** marks each.
- (viii) Use the given log values where required : [$\log 2=0.3010$, $\log 3=0.4771$, $\log 4=0.6021$, $\log 5=0.6990$, $\log 16=1.204$]

1. Write the formula of any two oxo-acids of chlorine.

[1] 2. Which halogen compound reacts faster in S_N2 reaction and Why ? $(CH_3)_3C-Cl$ or CH_3Cl . [1]

3. What is the effect of temperature on Chemisorption ?

[1]

4. Name the non- stoichiometric point defect which imparts yellow colour to NaCl crystals. [1]

5. Write the Hoffmann Bromamide degradation reaction. [1]

6. Define conductivity and Molar conductivity for the solution of an electrolyte. Discuss their variation with concentration. [2]

7. Answer the following : [2]

(i) What will be the effect of temperature on rate constant ?

(ii) Identify the Order of reaction if $k=3 \times 10^{-4} s^{-1}$

8. Give Reasons : [2]

(i) Actinoids exhibit a greater range of oxidation states than the Lanthanoids.

(ii) Mn^{2+} is more stable than Fe^{2+} towards oxidation to +3 state.

9. i) Write the IUPAC name of $[Cr(NH_3)_4Cl_2]Cl$ [2] ii)

Write the formula of the compound Potassium hexacyanoferrate(III) .

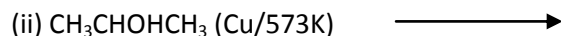
10. Write the chemical equations involved in the following reactions : [2]

(i) Kolbe's reaction

(ii) Williamson Ether synthesis

11. An element crystallises in BCC lattice with edge length of 250 pm and density 8.0 g cm^{-3} . [3]
Calculate the molar mass of the element and also calculate the radius of an atom of this element.
12. (i) Why is adsorption always exothermic? [3]
(ii) Of Chemisorption and Physisorption which has a higher enthalpy of adsorption? Why?
(iii) Define Shape Selective catalysis.
13. Calculate the Cell emf at 298 K in which following reaction takes place : [3]

$$\text{Ni(s)} + 2\text{Ag}^+(0.002 \text{ M}) \longrightarrow 2 \text{Ni}^{2+}(0.160 \text{ M}) + 2 \text{Ag(s)}$$
 [Given $E_{\text{cell}}^0 = 1.05 \text{ V}$]
14. The rate constant for a first order reaction is 60 s^{-1} . How much time will it take to reduce the initial concentration of the reactant to its $1/16^{\text{th}}$ value? [3]
15. Answer the following : (**Any Three**) [3]
(i) What is the role of cryolite in electrometallurgy of aluminium?
(ii) Name the method of refining of Tin.
(iii) State the Principle of Zone refining.
(iv) What is the role of depressant (NaCN) in the Froth floatation process?
16. (i) Write the Hybridisation, Geometry, Magnetism and Spin of $[\text{Ni}(\text{CN})_4]^{2-}$ [2+1]
(At.no. of Ni = 28)
(ii) What type of isomerism is shown by $[\text{Co}(\text{NH}_3)_5\text{ONO}]\text{Cl}_2$?
17. Give reasons : [3]
(i) Transition metals have high melting points.
(ii) Zinc has lowest enthalpy of atomization.
(iii) Sc^{3+} is colourless in aqueous solution whereas Ti^{3+} is coloured.
18. How will you convert the following : [3]
(i) Phenol to Anisole
(ii) Aniline to Benzene
(iii) Toluene to Benzaldehyde
OR
Complete the following reactions:
(i) $\text{C}_6\text{H}_5\text{COCl} + \text{H}_2(\text{Pd}-\text{BaSO}_4) \longrightarrow$
(ii) $\text{HCHO} + \text{CH}_3\text{MgBr} \longrightarrow$
(iii) $\text{C}_6\text{H}_5\text{COOH} + \text{Br}_2/\text{FeBr}_3 \longrightarrow$
19. $\text{C}_6\text{H}_5\text{NH}_2 + (\text{CH}_3\text{CO})_2\text{O}$ (Pyridine) **A** + $\text{Br}_2 \longrightarrow$ **B** \longrightarrow **C** \longrightarrow [3]
Deduce the structures of **A**, **B** and **C**.
20. (i) Write the Coupling reaction with Phenol. [3]



21. Answer the following : **(Any Three)**

[3]

(i) What are essential and non-essential amino acids ? Give example of each.

(ii) Write the name of disease caused by deficiency of Vitamin B1.

(iii) What happens when Glucose gets oxidized with a strong oxidizing agent like Nitric acid ? Write the equation.

(iv) How is native protein different from denatured protein ?

22.a) Differentiate between Addition polymerisation and Condensation polymerisation with an example. [2+1]

b) Write the names and structures of the monomers of Glyptal.

*23. Sneha used analgesics frequently while her brother Anil warned her from doing so. Anil was a cleanliness freak and kept on reminding the maid for using disinfectants for cleaning the floor, he believed in the saying that prevention is better than cure.

(i) What are analgesics ? How are they classified ?

[2]

(ii) Differentiate between Antiseptic and Disinfectant.

[1]

(iii) What values do you observe in Anil's behaviour ?

[1]

24.a) Account for the following :

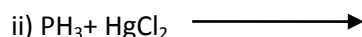
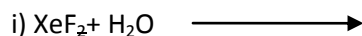
[3+2]

i) NH_3 is a stronger base than PH_3

ii) H_2S is more acidic than H_2O .

iii) White phosphorus is more reactive than red phosphorus.

b) Complete the following equations :



OR

a) Give the balanced chemical equation for the following:

(i) Chlorine gas reacts with excess NH_3 .

(ii) Finely divided Silver metal when heated with PCl_5 .

(iii) Decomposition of Ammonium nitrate. (NH_4NO_3)

b) Draw the structures of the following molecules:

(i) XeF_4

(ii) $\text{H}_2\text{S}_2\text{O}_7$

25. a) Give chemical tests to distinguish between the following:

[2+3]

(i) Acetophenone and Benzophenone.

(ii) Benzoic acid and Phenol

b) How will you convert the following :

i) Methyl magnesium bromide to Ethanoic acid.

ii) Ethylbenzene to Benzoic acid .

iii) Benzaldehyde to Benzyl alcohol.

OR

- a) Illustrate the given name reactions : (i) Aldol
Condensation (ii) Carbylamine reaction
- b) How will you convert the following :
- i) Toluene to Benzaldehyde.
ii) Benzaldehyde to Benzophenone .
iii) Benzoic acid to Benzamide.

- 26.a) State Henry's law. What is the effect of temperature on the solubility of a gas in a liquid ? [2+3]
- b) A solution of glycerol ($C_3H_8O_3$) in water was prepared by dissolving some glycerol in 500 g of water. This solution has a boiling point of $100.42^\circ C$ while pure water boils at $100^\circ C$. What mass of glycerol was dissolved to make the solution? (K_b for water = $0.512 K kg mol^{-1}$)

OR

- a) Define Osmosis and Osmotic pressure.
- b) 15.0 g of an unknown molecular material was dissolved in 450 g of water. The resulting solution was found to freeze at $-0.34^\circ C$. What is the molar mass of this material? (K_f for water = $1.86 K kg mol^{-1}$)
