

**Guess Paper – 2014
Class – XII
Subject – Chemistry**

M.M.-70

General Instructions : Same as in Board Exams

- 1. What is co-ordination number?**
- 2. Define Henry's law.**
- 3. Give one use of SF₆.**
- 4. What is physical adsorption?**
- 5. What does a steep increase in the slope of a line on Ellingham diagram indicate?**
- 6. What is inert pair effect?**
- 7. Write the IUPAC name of C₆H₆Cl₂.**
- 8. What is diazotisation?**
- 9. What is osmotic pressure? How is it dependent on the number of moles of a solute?**
- 10. Assuming complete dissociation, calculate the expected freezing point of a solution prepared by dissolving 6.00 g of Glauber's salt, Na₂SO₄·10H₂O in 0.100 kg of H₂O.
(Given for water, K_f=1.86 K kg mol⁻¹, Atomic masses : Na=23, S=32, O=16, H=1 amu)**
- 11. Define the following : i) Temperature coefficient ii) Activation energy.**
- 12. How does NaCN act as a depressant in preventing ZnS from forming the froth?**
- 13. Distinguish b/w : i) 1^o, 2^o, 3^o alcohols by Lucas Reagent ii) 1^o, 2^o, 3^o amines by Hinsberg Reagent**
- 14. Give a chemical test to distinguish between :
i) Ethanol and phenol ii) Chlorobenzene and benzyl chloride.**
- 15. a) Why aniline does not undergo Friedel Crafts alkylation and acylation?
b) Why diazonium salts of aromatic amines are more stable than those of aliphatic amines?**

16. Arrange the following with explanation:

a) $C_6H_5NH_2$, $C_6H_5N(CH_3)_2$, $(C_2H_5)_2NH$ and CH_3NH_2 in increasing order of basic strength.

b) C_2H_5OH , $(CH_3)_2NH$, $C_2H_5NH_2$ increasing order of boiling point.

17. Describe two important functions of nucleic acids.

18. Write the one preparation and two chemical properties of glucose.

19.a) What are crystalline and amorphous solid?

b) The unit cell of an element of atomic mass 96 and density 10.3 g cm^{-3} is a cube with edge length of 314 pm. Find the structure of crystal lattice. (Simple cub, FCC or BCC.) (Avogadro's constant $N_A = 6.023 \times 10^{23} \text{ mol}^{-1}$).

20. For a reaction, the energy of activation is zero. What is the value of rate constant at 300 K, if $k = 1.36 \times 10^6 \text{ s}^{-1}$ at 280K? ($R = 8.31 \text{ JK}^{-1} \text{ mol}^{-1}$)

21. Describe briefly the following : i) Hardy-Schulze rule ii) Dialysis
iii) Electrophoresis

22.a) Write the balanced chemical equation for the following :

i) Laboratory preparation of chlorine. ii) Laboratory preparation of NH_3 iii) Laboratory preparation of O_3

23. Give reasons : i) Amongst all halogen acid, HF is the weaker acid.

ii) Nitrogen does not form pentahalides. iii) Oxygen has less tendency to catenate than sulphur.

24.a) Write the IUPAC name of $[Co(NH_3)_5Br]SO_4$

b) Illustrate the isomerisms : i) Ionisation isomerism ii) Co-ordination isomerism.

25. Explain why : i) The dipole moment of chlorobenzene is lower than cyclohexyl chloride.

ii) Alky halides are immiscible with water. iii) The boiling point of chloropropane higher than chloroethane.

26. Write the preparation of : i) Nylon-6 ii) Dacron iii) Bakelite

27. Write the one example of each :

a) Antacids, b) Antihistamine, c) Tranquilizers, d) Analgesics, e) Antibiotics, f) Antifertility drugs

- 28.a) Define molar conductivity of solution. What is the effect of increase of concentration on the molar conductivity of a solution?**
- b) Three electrolytic cells A,B,C containing solution of $ZnSO_4$, $AgNO_3$ and $CuSO_4$, respectively are connected in series. A steady current of 1.5 ampere was passed through them unit 1.45g of silver deposited at the cathode of cell B. i) How long did the current flow? b) What mass of copper and of zinc were deposited on the cathodes of cell A and C respectively? [Atomic mass of $Cu=63.5$, $Zn=65.4$, $Ag=108$]**
- 29. Answer the following :**
- a) Why Zn^{2+} salts are white while Cu^{2+} salts are blue?**
- b) Why does V_2O_5 act as catalyst?**
- c) Why transition metals form a large number of interstitial compounds?**
- d) Give the name of two types of alloys formed by transition elements.**
- 30.a) Name the reactions: i) Aldol condensation ii) Cannizzaro reaction, iii) Stephen reduction.**
- b) Conversion of the following :**
- i) Benzene to m-nitroacetophenone,**
- ii) Toluene to benzaldehyde.**
- iii) Benzene to benzoic acid.**

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