SRI BHAGAWAN MAHAVEER JAIN COLLEGE

Vishweshwarapuram, Bangalore 560004

Mock Examination Question Paper-2 (January 2019)

Course:	II PUC	**Subject:**	Chemistry
Max. Marks:	70	**Duration:**	3:15 hrs.

Instruction: DO NOT write or mark anything on the question paper.

A. The Question paper has Five Parts, A, B, C, D4 & D_5.

B. Write balanced chemical equation and draw neat labeled diagram where ever necessary.

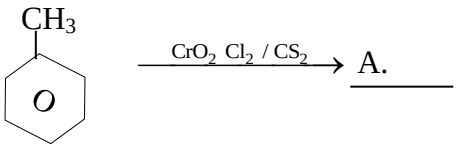
C. R=8.314 $JK^{-1}mol^{-1}$, At. Number: Ni-28, Co-27, Mn-25

PART-A

I. Answer all of the following. **1 x 10 =10**

1. State Henry's law.
2. How does molarity varies with temperature.
3. What does the ratio of equivalent mass to Faraday's constent indicates?
4. Define Energy of activation.
5. Give the composition of copper matte.
6. Which nobel gas is most abundant in atmospheric dry air?
7. Give an example for hexadentate ligand.
8. Complete the following reaction

   $CH_3 - Cl + AgF \rightarrow$ _____ + _____.
9. Identify A in the following



10. Deficiency of which vitamin causes the disease Rickets.

PART-B

II. Answer any five of the following. Each question carries two marks. **5 x 2 = 10**

11. Calcualte the number of particles (atoms) per unit cell in FCC crystal lattice.
12. λ_m° for NaCl, HCl and CH_3COONa are 126.4, 425.9 and 91.0 Scm^2mol^{-1} respectively. Calculate λ_m°. for CH_3COOH.
13. Write Arrhenius equation and explain the terms involved.
14. Elements of lanthanoids are separated by special methods like chromategraphy why? Name the phenomenon responsible for that.
15. How does anisole react with bromine in ethanoic acid? Write the chemical equation for the reaction.
16. Among methanoic acid and ethanoic acid, which is more acidic & why?
17. What are anionic detergents? Give an example.
18. Metal hydroxides are better antacids over sodium bicarbonate. Give reasons.

PART-C

III. Answer any five of the following. Each question carries three marks. 5 x 3 = 15

19. Describe the three steps involved in the bleaching of Bauxite to get pure alumina. **(3)**

20. a) White phosphorus is heated with excess of dry chlorine to get X. X on hydrolysies finally forms an oxoacid of phosphorous Y. What is X and Y?
    b) Write the equation for the preparation of phosphine by laboratory method. **(2+1)**

21. Explain the manufacture of sulphuric acid by contact process with equations. **(3)**

22. (a) Arrange the following oxoacids of halogens in increasing order of acidic strength $HClO_4$, $HClO_2$, $HClO_3$, HClO.
    (b) Write the structure for chloric acid ($HClO_3$).
    (c) Write the composition of bleaching powder. **(1+1+1)**

23. (a) Second Ionisation Enthalphy of copper is very high. Give reason.
    (b) Calculate the magnetic moment for Fe in $[Fe(H_2O)_6]SO_4$. **(1+2)**

24. (a) Explain the laboratory method of preparation of $KMnO_4$. Give the chemical equations involved.
    (b) Write the interconversion of Manganate to permanganate ion. **(2+1)**

25. Using VBT account for the geometry and magnetic property of complex. ion $[NiCl_4]^{2-}$ (Given Atomic number of Nickel = 28] **(3)**

26. Explain crystal field splitting for tetrahedral complex, with a neat labelled diagram. **(3)**

PART-D_4

IV. Answer any three of the following. 3 x 5 = 15

27.(a) Give any two differences between Schottky defect and Frenkel defect.
(b) Metallic iron crystallizes in a particular type of cubic unit cell. The unit cell edge length is 287pm. The density of iron is 7.87gcm^{-3}. How many iron atoms are there within one unit cell and name the type of crystal lattice. (At Mass of Fe = 55.845 g mol^{-1}, N_A = 6.023 x 10^{23}).
(c) What are F-centres? **(2+2+1)**

28. (a) 1.71 g of sucrose is dissolved in 500 cm^3 of a solution at 300K. What will be its osmotic pressure [Molecular mass of $C_{12}H_{22}O_{11}$=392] .
    (b) NaCl dissolves in water but not is benzene. Give reason.
    (c) Solution of $CHCl_3$ and acetone shows negative deviation. Why? **(3+1+1)**

29. (a) The conductivity of 0.001028 mol L^{-1} acetic acid is 4.95 x 10^{-5} Scm^{-1}. Calculate its dissociation, constant if λ_m° of CH_3COOH = 390.5 Scm^{2}mol^{-1}.
    (b) What happens to the specific conductivity when a solution of an electrolyte is diluted?
    (c) During electrolysis of aqueous $CuSO_4$, mention what is liberated at anode and cathode. **(3+1+1)**

30. (a) Give an example for the following:-
    (i) Pseudo first order reaction (ii) Zero order reaction.
    (b) A certain first order reaction half completed in 40 minutes. Calculate the rate constant of a reaction.
    (c) Define collision frequency. **(2+2+1)**

31. (a) Write any two differences between physorption and chemisorption.
    (b) Name the phenomenon effect for the following:
    (i) Colloidal particles are in zig-zag motions
    (ii) When an electrical potenital is applied across two platinum electrodes dipping in a colloidal solutions, particles move towards one or other another electrodes.
    (iii) Scattering of light by colliodal sol. **(2+1+1+1)**

PART-D_5

V. Answer any four of the following. **4 x 5 = 20**

32. (a) Explain S_N^2 mechanism with an example.
(b) How do you prepare haloarenes from benezene diazonium halide along with equation. **(3+2)**

33.(a) How do you distinguish between primary secondary and tertiary alcohols using Lucas reagent?
(b) Explain Williamson's ether synthesis with an example. **(3+2)**

34.(a) Explain Rosenmund's reduction with equations.
(b) What happens when aldehydes are warmed with Tollen's reagent? Give equation.
(c) Complete the equation:

$$R - Mg - X + C(=O) \xrightarrow{H_3O^+} \_\_\_\_\_ + \_\_\_\_\_$$

(2+2+1)

35.(a) Describe the preparation of methyl amine by Gabriel phthalimide synthesis.
(b) What is Mendius reduction reaction?
(c) Tertiary amines cannot be acylated why? **(3+1+1)**

36. (a) What are non reducing sugars? Give an example.
(b) What are Zwitter ions? Write the Zwitter ionic structure of glycine.
(c) Give an example for the soluble vitamins. **(2+2+1)**

37.(a) Write the partial structure of Novolac.
(b) Name the monomeric unit present in the polymer Dacron.
(c) Write one example for elastomers and fibres. **(2+1+2)**

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