PART-A

Answer the following question   **[10×1=10]**

1. What happens to vapour pressure of water if a table spoon of sugar is added to it?

2. What is hypertonic solution?

3. How many coulombs of charge required for the oxidation of one mole of water to oxygen?

4. What happens to energy of activation of the reaction when positive catalyst is added?

5. Give an example for protective colloid?

6. Name the reducing agent used in the separation of gold from its complex.

7. Write the general electronic configuration of noble gases.

8. $2RX + 2Na \xrightarrow{dry\,ether} RR + 2NaX$. write the name of the reaction?

9. Complete the following reaction. $C_6H_5CHO + C_6H_5COCH_3 \xrightarrow{OH^-/293k}$

10. Name the vitamin responsible for coagulation of blood.

PART-B

Answer any five of the following question.   **[5×2=10]**

11. Explain the term ferromagnetism. Give an example.

12. What is specific conductivity? Mention its SI unit.

13. What is pseudo first order reaction? Give an example.

14. Give reason transition elements are known to form complex compounds.

15. Name the major product formed when sodium phenate is heated with carbon dioxide at 400K and

    4-7 atmospheric pressure. What is the name of the reaction?

16. Explain aldol condensation by taking acetaldehyde.

17. What are tranquilizers? Give an example.

18. What are antioxidants? Give an example.

PART-C

Answer any five of the following question   **[5×3=15]**

19. How is blister copper extracted from copper matte by Bessemerisation?

20. a)Write flow chart diagram for the manufacture of sulphuric acid by contact process?

    b) Give reason H_2O is liquid and H_2S is gas?   **[2+1]**

21. a)Mention two reason for anomalous behaviour of nitrogen.

    b) What is the basicity of orthophosphoric acid.   **[2+1]**

22. a)Complete the following equation.

b) Arrange the following oxoacids of halogens in the increasing order of acidic strength $HClO_4, HClO_2, HClO_3, HClO$.

c) Write structure of perchloric acid. **[1+1+1]**

23. a)What is lanthanoid contraction?Give its consequences.

b) Ti^{+4} ion is colourless. [2+1]

24. Explain the preparation of potassium permanganate from pyrolusite.

25. a)Draw the facial and meridional isomers for $[Co(NH_3)_3 (NO_2)_3]$.

b) What is a spectrochemical series? **[2+1]**

26. a)Write the IUPAC name for the following cooridation compounds

i) $K_3[Al(C_2O_4)_3]$ ii)$[CoCl_2(en)_2]^+$

b) Mention the difference a double salt and complex compounds**. [2+1]**

PART-D

Answer any three of the following question **(3×5=15)**

27. a)Calculate packing efficieny in BCC unit cell.

b) The density of sodium metal is $7.0g/cm^3$.if the unit cell is cubic with edge length of 289pm. calculate the number of atoms per unit cell. **[3+2]**

28. a)15.0g of unknown substance was dissolved in 450g of water.the resulting solution was found to freeze at -0.34^0C.Calculate the molar mass of the substance.Kf of water=1.86kkg/mol.

b) What are azeotropics?give an example for minimum azeotropic mixture. **[3+2]**

29.a)Find the value of G^0at 25^0C for the following electrochemical cell,$Cu/Cu^{+2}(1M)||Ag^+(1M)/Ag$ [E^0 Cu=+0.34V and E^0 Ag=+0.8V].

b) What are secondary cell ?give an example. **[3+2]**

30. a)Derive an integrated rate equation for the rate constant of first order reaction.

b) Give difference between order and molecularity.

c) What is an activated complex. **[2+2+1]**

31. Give reason:

i) Potash alum is used in the clarification of water.

ii) A solid catalyst is very efficient in the finely divided state.

iii) Lyophillic sols are more stable than Lyophobic sols.

B) Write a note on ultrafiltration. **[3+2]**

Answer any four of the following question **[4×5=20]**

32. a) Name the type of isomerism exhibited by lactic acid. write its isomers.

b)Identify A and B in the following reaction.C_6H_5C $\xrightarrow{NaOH\ 623K,300atm}$ A $\xrightarrow{H_2O,\Delta}$ B l

c) How do polar solvents help in the first step of SN^1 mechanism   **[2+2+1]**

33. a) Give equations for the following conversions.

i) Ethanol to Chloroethane.

ii) Phenol to Anisol.

iii) Propene to Propan-2-ol.

b) How does diethyl ether reacts with

i) Cold conc.HI   ii)Hot conc HI at 373K.   **[3+2]**

34.a) Explain Wolff Kishner reduction reaction with an example.

b) Name the major product and reaction when benzene react with CO and dry HCl in the presence of anhydrous $AlCl_3$.

c) What is formalin.   **[2+2+1]**

35. a) Give the structure of A,B and C in the following

$C_6H_5NO_2$ Fe/HCl A HNO_2 273-278K B C_6H_5OH C

b) Arrange the following amines in the decreasing order of their basic strength
$C_6H_5NH_2,C_2H_5NH_2,(C_2H_5)_2NH$.   **[3+2]**

36. a) Write the Haworth's structure of β-L-fructose.

b) Write the reaction to show the presence of –CHO group and 5 –OH group in glucose.

c) Give an example of essential amino acid.
         [2+2+1]

37.a) i) What is homopolymer? Give an example.

ii) Name the polymer formed by monomer 1,3-butadiene and styrene.

b) What is condensation polymerisation? Give an example of polyamide.   **[2+2+1]**

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