

PART - I

I. Choose the most appropriate answer from the given four alternatives and write the option code and the corresponding answer: 15x1=15

1. Which of the metal is extracted by Hall - Heroult process?
 a. Al b. Ni c. Cu d. Zn
2. Which of the following is not Sp² hybridised?
 a. Graphite b. Graphene c. Fullerene d. dry ice
3. XeF₆ on complete hydrolysis produces
 a. XeOF₄ b. XeO₂F₂ c. XeO₃ d. XeO₂
4. The transition element which has only +3 oxidation state is
 a. Ni b. Mu c. Cr d. Sc
5. Fac - Mer isomerism is shown by
 a. [Co(en)₃]³⁺ b. [Co(NH₃)(Cl)₂]⁺ c. [Co(NH₃)₂(Cl)₃] d. [Co(NH₃)₅Cl]SO₄
6. The defect arising due to an ion occupying interstitial position is called.
 a. Schottky defect b. Metal excess defect c. Frenkel defect d. Metal deficiency defect
7. If 75% of a first order reaction was completed in 60 minutes, 50% of the same reaction under the same condition would be completed in
 a. 20 minutes b. 30 minutes c. 35 minutes d. 75 minutes
8. Assertion : Ostwald's dilution law is $K_a = \frac{\alpha^2 c}{1 - \alpha}$
 Reason : Ostwald's dilution law is applicable only to strong electrolyte.
 a. (A) and (R) are true and (R) is the correct explanation of (A)
 b. (A) and (R) are true but (R) does not explain (A)
 c. (A) is true but (R) is false d. Both (A) and (R) are false
9. The number of electrons that have a total charge of 9650 coulombs is
 a. 6.22x10²³ b. 6.022x10²⁴ c. 6.022x10²² d. 6.022x10³⁴
10. Which one of the following characteristics are associated with adsorption?
 a. ΔG and ΔH are negative but ΔS is positive
 b. ΔG and ΔS are negative but ΔH is positive
 c. ΔG is negative but ΔH and ΔS are positive
 d. ΔG, ΔH and ΔS all are negative
11. Williamson synthesis of preparing dimethyl ether is a / an
 a. SN¹ reactions b. SN² reaction c. electrophilic addition d. electrophilic substitution
12. In which of the following reactions new carbon- carbon bond is not formed?
 a. Aldol condensation b. Friedel craft reaction
 c. Kolbe's reaction d. Wolf Kishner reduction
13. $C_6H_5NO_2 \xrightarrow{Fe/AlCl} \xrightarrow{273K} B \xrightarrow{H_2O} C \xrightarrow{283K}$ 'C' is
 a. C₆H₅ - OH b. C₆H₅-CH₂OH c. C₆H₅ - CHO d. C₆H₅ NH₂
14. The amino acid without chiral carbon is
 a. Glycine b. Alanine c. Proline d. Tyrosine
15. A mixture of chloroxylenol and terpinacol acts as
 a. antiseptic b. antipyretic c. antibiotic d. analgesic

PART - II

II. Answer any six questions. Question No. 24 is compulsory: 6x2=12

16. What is Cementation?
17. What are interhalogen compounds. Give example.
18. Write any two medicinal uses of co-ordination compounds.
19. Write Arrhenius equation and explains the terms involved.
20. What happens when 1-Phenyl ethanol is treated with acidified KMnO₄?
21. Write short notes on carbylamine reaction.
22. What are antibiotics?
23. Write a short note on Holmes signal.
24. Calculate the molar conductance of 0.01M aqueous KCl solution at 25°C the specific conductance of KCl at 25°C is 14.114x10⁻²Sm⁻¹

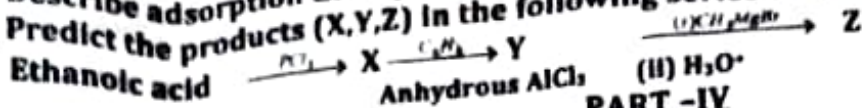
PART - III

III. Answer any six questions. Question No.33 is compulsory 6x3=1

25. What are amphiboles? Give example.
26. Which is more stable? Fe²⁺ (or) F³⁺ explain.
27. Differentiate crystalline solids and amorphous solids.

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28. Derive the relationship between P^H and POH .
 29. Write a note on electrophoresis?
 30. What is Malachite green dye? Explain its preparation?
 31. Write a short note on peptide bond.
 32. Describe adsorption theory of catalysis.
 33. Predict the products (X,Y,Z) in the following series of reactin.



PART-IV

5x5=25

Answer all the questions

34. (i) Describe a method for refining nickel (3m)
 (ii) Write a note on Fischer tropesch synthesis (2m)
 (OR)

Describe the preparation of potassium dichromate.

35. (i) Give the oxidation state of halogen in the following. (2m)
 a. OF_2 b. O_2F_2 c. Cl_2O_3 d. I_2O_4
 (ii) What is linkage isomerism? Explain with an example. (3)
 (OR)

Calculate the percentage efficiency of packing in case of simple cubic crystal.

36. Describe the Graphical representation of first order reaction.
 (OR)
 (i) What are Butter solutions? Give an example for basic butter solution.
 (ii) Calculate the P^H of 0.04M HNO_3 solution (2m)
 37. (i) Give three important characteristics of physisorption. (3m)
 (ii) Give four uses of diethyl ether. (2m)
 (OR)

Derive an expression for Nernst equation.

38. (i) How is propanoic acid is prepared starting from. (2m)
 (i) an alcohol b. an alkylhalide
 (ii) Write the uses of nitro alkanes(3m)
 (OR)

- (i) Why carbohydrates are generally optically active? (2m)
 (ii) Write the preparation of Teflon and Give its use. (3m)

*****SETTER: JB*****