

PART - I

- Milk of Magnesia is used as ____ .
 (a) Tranquilizer (b) Analgesic
 (c) Antacid (d) Anaesthetic
- The addition of a catalyst during a chemical reaction alters, which of the following quantities ?
 (a) Entropy (b) Internal energy
 (c) Activation energy (d) Enthalpy
- The metal extracted by Hall-Heroult process is :
 (a) Cu (b) Al
 (c) Zn (d) Ni
- A magnetic moment of 1.73 BM will be shown by one among the following :
 (a) $[\text{CoCl}_6]^{4-}$ (b) TiCl_4
 (c) $[\text{Cu}(\text{NH}_3)_4]^{2+}$ (d) $[\text{NiCN}_4]^{2-}$
- Which one is correctly matched ?
 (a) Foam - mist
 (b) Emulsion - smoke
 (c) Sol - whipped cream
 (d) Gel - butter
- Which one of the following will cause common-ion-effect when added to the following dissociation equilibrium reaction ?

$$\text{CH}_3\text{COOH}_{(\text{aq})} \rightleftharpoons \text{CH}_3\text{COO}^{-}_{(\text{aq})} + \text{H}^{+}_{(\text{aq})}$$
 (a) CH_3COCl (b) AgCl
 (c) CH_3Cl (d) HCl
- Carbon atoms in Fullerene with formula C_{60} have ____ hybridisation.
 (a) sp^2 (b) sp^3
 (c) sp^3d (d) sp
- The most common oxidation state of Actinoids is :
 (a) +4 (b) +2
 (c) +6 (d) +3
- Assertion:** Hex-4-enitrile on reaction with Di-isobutyl aluminium hydride followed by Hydrolysis gives Hex-4-enal.
Reason : Di-isobutyl aluminium hydride is a selective reducing agent.
 (a) Assertion is true but Reason is false.
 (b) Both Assertion and Reason are true, but reason is not the correct explanation of assertion.
 (c) Both Assertion and Reason are false.
 (d) Both Assertion and Reason are true and reason is the correct explanation of assertion.
- Which of the following is used as the source of gamma rays ?
 (a) Xe (b) Ar
 (c) Rn (d) Kr
- The emf of Standard Hydrogen Electrode (SHE) is ____ .
 (a) -1.0 (b) 0
 (c) 1.1 (d) +1.0
- The crystal with metal excess defect is :
 (a) NaCl (b) AgBr
 (c) AgCl (d) FeO
- Which of the following base is not present in DNA ?
 (a) Uracil (b) Adenine
 (c) Cytosine (d) Guanine

14. Which of the following compound is used as an anti-freeze in automobile radiator?

- (a) Methanol (b) Ethane-1, 2-diol
(c) Ethanol (d) Glycerol

15. The product formed by the reaction of an Aromatic aldehyde with primary amines is :

- (a) Schiff's base
(b) Carboxylic acid
(c) Ketone
(d) Aromatic acid

PART – II

16. Which type of ores can be concentrated by froth floatation method ? Give two examples for such ores.

17. Write the uses of Silicones.

18. Define the term central atom in co-ordination compounds.

19. Calculate the number of atoms in an FCC unit cell.

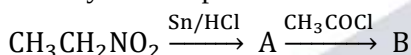
20. What is conjugate Acid-Base pairs ?

21. What are catalytic poisons ?

22. How will you convert acetone into propane?

23. What are Hormones? Give example.

24. Identify the compounds A and B in the following sequence of reactions.



PART - III

25. Write a note on Fischer tropisch synthesis.

26. Write any three differences between Lanthanoids and Actinoids.

27. For the complex, $[\text{Pt}(\text{NO}_2)(\text{H}_2\text{O})(\text{NH}_3)_2]\text{Br}$ identify the following.

- (a) Central metal atom/ion
(b) Co-ordination number
(c) Oxidation number of central metal ion

28. Write a note on Helmholtz electrical double layer.

29. State Faraday's Laws of Electrolysis.

30. Give the structure of a Zwitter ion.

31. How will you convert Ethylacetate into Ethylaceto acetate ?

32. What are food preservatives? Give two examples.

33. Show that in case of first order reaction the time required for the completion of 99% is twice the time required for the completion of 90% of the reaction.

PART – IV

34. (a) Explain zone refining process with an example.

OR

(b) (i) Find the oxidation state of Halogen in the following compounds.

- (1) OF_2
(2) I_2O_4

(ii) Complete the following reactions.

- (1) $\text{P}_4 + \text{NaOH} + \text{H}_2\text{O} \rightarrow$
(2) $\text{XeF}_6 + \text{H}_2\text{O} \rightarrow$
(3) $\text{Cu} + \text{conc. H}_2\text{SO}_4 \rightarrow$

35. (a) (i) Describe the structure of Diborane.

(ii) Write ethylborate test.

OR

(b) Describe the nature of bonding in metallic carbonyls.

36. (a) Explain Schottky and Frenkel defects.

OR

(b) (i) Give two examples for zero order reaction.

(ii) How colloids are used in tanning of leather and in Rubber industry ?

37. (a) Derive an expression for Ostwald's Dilution Law.

OR

(b) (i) Why aniline does not undergo Friedel Craft's reaction?

(ii) How nylon-2-nylon-6 is prepared ?

38. (a) (i) How Malachitegreen is prepared from Benzaldchydre?

(ii) Write short note on Thorpe nitrile Condensation reaction.

OR

(b) Compound (A) of molecular formula C_6H_6O gives purple colouration with neutral $FeCl_3$. Compound (A) reacts with ammonia to give Compound (B) and it also reacts with Zn dust to give Compound (C). Identify the Compounds A, B and C and write down the equations.

