SECTION - A

I. **Answer all the following:**   10 × 2 = 20

1. Mention the names of the monomers used for preparing the following polymers.

    (a) Bakelite   (b) Nylon

2. What are Lipids? Give an example.

3. Give the sources of vitamins A and C and diseases caused by their deficiency.

4. What are artificial sweetening agents? Give an example.

5. What are analgesics? Give an example.

6. What is Williamson synthesis?

7. Mention the Reimer – Tiemann reaction with an equation.

8. Calculate EAN of central metal ion in $\left[Co\left(NH_3 \right)_4 Cl_2 \right]^+$ ion.

9. Which oxides of Nitrogen are neutral oxides?

10. Draw the structure of P_4O_{10}

SECTION - B

II. **Answer any six of the following :**   6 × 4 = 24

11. Derive Bragg's equation.

12. State Raoult's law. Calculate the vapour pressure of a solution containing 10 grams of a non volatile solute in 80 gm of ethanol at 298K. Given the molecular weight of the solute as 120 and the vapour pressure of alcohol at 298K is 22.45mm.

13. State Faraday's second law of electrolysis. What is the ratio of weights of Ag and Al deposited at the respective cathodes when the same current is passed for the same period through aqueous $AgNO_3$ and $Al_2\left(SO_4 \right)_3$ solutions?

14. What are the main postulates of the collision theory of reaction rate?

15. What is catalysis? How is catalysis classified? Give an example for each.

16. State Hess law of constant heat summation and give its applications.

17. Explain the extraction of silver from silver glance.

18. Explain the structure of the following complexes using Werner's theory.

    (a) $CoCl_3 \, 6 \, NH_3$ (b) $CoCl_3 \, 5 \, NH_3$

    (c) $CoCl_3 \, 4 \, NH_3$ (d) $CoCl_3 \, 3 \, NH_3$

SECTION - C

III. **Answer any two of the following :**   **2 × 8 = 16**

19. Write the preparation of Nitrobenzene and explain the reduction reactions of Nitrobenzene.

20. a) Explain the preparation of bleaching powder.

    b) How does ozone react with the following?

    (i) Hg   (ii) $CH \equiv CH$ (iii) SO_2 (iv) $KI + H_2O$

21. a) Give the characteristics of chemical equilibrium.

    b) Explain the Bronsted – Lowry acid – base theory with examples.