

(2½ Hours)

[Total Marks : 75

- N.B. :** (1) All questions are compulsory.
 (2) All questions carry equal marks.
 (3) Figures to the right indicate marks.
 (4) Draw neat labelled diagram wherever necessary.
 (5) Use of log table and non-programmable calculator is allowed.

1. Do as directed : (Any 15)

15

- (1) Name any 2 compounds which are geometrical isomers of each other.
- (2) Draw the cis and trans isomers of 1, 4- dimethyl cyclohexane.
- (3) Draw enantiomers of $\text{Cl}-\text{CH}_2-\text{CH}(\text{CH}_3)-\text{CH}_2-\text{CH}_3$ using perspective formula.
- (4) Is (R)2 - methyl - 1 - butanol levorotatory or dextrorotatory ?
- (5) Give formula for calculation of enantiomeric excess.
- (6) What is the stationary phase in normal phase paper chromatography.
- (7) Draw transmittance versus concentration graph.
- (8) Write any one application of Beer-Lambert's law.
- (9) Fill in the blanks - Distillation is the separation method based on difference in _____ of mixture components.

Define the following :

- (10) Optical activity
- (11) Lattice energy
- (12) Titrant
- (13) Curdy precipitate
- (14) Heterogenous nucleation
- (15) Activity effect
- (16) Partition coefficient

Give one example of the following :

- (17) Redox indicator
- (18) Primary Standard
- (19) Device used for sample application in chromatography
- (20) Visible light source

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2. (a) Discuss the nomenclature of stereoisomers with examples. 8
(b) Differentiate between configuration and conformation using examples. 7

OR

- (c) What is chirality? Explain chiral centres with examples. 8
(d) Differentiate between Newman and Sawhorse projection formula using ethane as an example. 7

3. (a) Explain the characteristics of titrimetric analysis. 8
(b) Give an account of co-precipitation and post-precipitation. 7

OR

- (c) Explain solubility and the factors affecting the same. 8
(d) Explain the role of indicators in acid-base titrations. 7

4. (a) Give an account of applications of paper and thin layer chromatography. 8
(b) Define precipitation and explain its role in the separation of trace elements in a mixture. 7

OR

- (c) Discuss Beer-Lambert's Law and its limitations. 8
(d) Explain solvent extraction and filtration. 7

5. Write a short note on : (Any Three) 15
(1) Stereoisomerism in alkenes
(2) Structural Isomers
(3) Ageing or Digestion of precipitate
(4) Types of paper chromatography
(5) Measurement of extinction
