

- 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.

I. Do as directed: (any 15)

15

Fill in the blanks:-

- (1) 1-Butene and 2-Butene are \_\_\_\_\_ isomers of each other.
- (2) Cuvette in colorimeter is made up of \_\_\_\_\_ material.
- (3) Which of the following compounds shows optical isomerism.  
(a)  $\text{CH}_3\text{-CHBr-CH}_3$  (b)  $\text{CH}_3\text{-CH(CH}_2\text{)-CH}_2\text{-CH}_3$   
(c)  $\text{CH}_3\text{-CHOH-COOH}$
- (4) Draw the cis and trans isomers of 3,4-dimethyl-3-heptene.
- (5) Draw enantiomers for  $\text{CH}_2\text{-CHBr-CH}_2\text{OH}$  using perspective formula.
- (6) Is (R) - Lactic acid levorotatory or dextrorotatory?
- (7) What is a stereocenter?
- (8) In normal phase chromatography, mobile phase is more polar than the stationary phase- True/False

Define the following:-

- (9) Enantiomers
- (10) Common ion effect
- (11) Diverse ion effect
- (12) Precipitation
- (13) Nucleation
- (14) End point of titration
- (15) Mobile Phase
- (16) Distillation
- (17) Absorption spectrum

Give one example of the following

- (18) Indicator used for complexometric titration
- (19) Primary standard acid
- (20) Give the formula for calculating Rf value.

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2. (a) Explain stereoisomerism with examples. 8  
(b) Elaborate on meso compounds with examples. 7
- OR
- (c) Enlist different types of isomerism giving one example each. 8  
(d) Explain the types of projection formulae and their interconversion. 7
3. (a) Discuss the different types of titrations with examples. 8  
(b) Explain the role of indicators in acid base titrations 7
- OR
- (c) Discuss ageing and digestion of the precipitate with respect to gravimetric analysis. 8  
(d) Explain primary and secondary standards in titrimetric analysis. 7
4. (a) State Beer-Lambert's law and enlist its limitations 8  
(b) Explain the principle and applications of paper chromatography. 7
- OR
- (c) Discuss any two methods of separation. 8  
(d) Explain the principle of column chromatography. 7
5. Write a short note on:-(any **three**) 15
- (1) Diastereomerism.
  - (2) Conformations of ethane in Newman and Sawhorse projection.
  - (3) Co-precipitation and Post-Precipitation.
  - (4) Applications of Thin Layer Chromatography.
  - (5) Extinction coefficient.
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