



Q.1. Give short answers of the following:

(5x6=30)

- Describe the mechanism of Aldol Condensation.
- What is Walden inversion?
- Explain three examples of different classes of compounds which do not have chiral carbon but show optical activity.
- Compare the acid and basic strengths of following and give reasons:
  - amides and alkyl amines
  - benzoic acid and cyclohexanoic acid?
- Arrange aniline, *N*-methylaniline and *N,N*-dimethylaniline in increasing order of basicity with justified reasons.

Q.2. Answer the following questions.

- Draw the conformational energy diagram of butane for a complete rotation of 360° about C-C bond. (8)
- Discuss following reactions with their two synthetic applications. (2x5=10)
  - Claisen Schmidt reaction
  - Knoevenagel reaction
- Arrange the following compounds according to the increasing order of basicity. Provide suitable reasoning for your arrangement. (6+6)

