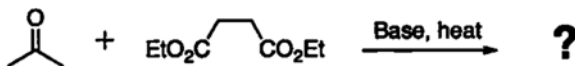




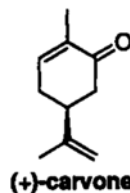
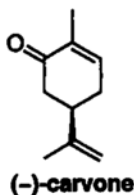
## THE ANSWERS MUST BE ATTEMPTED ON THE ANSWER SHEET PROVIDED

Q.1. Answer the following short questions: (15x2=30)

- Why the overall ring strain is minimum in cyclohexane, although the angle strain is minimum in cyclopentane.
- Sketch hybrid orbital diagram of  $H_2C = C = CH_2$ .
- Identify the named reaction and give its mechanism.



- How intra-molecular hydrogen bonding differ from inter-molecular hydrogen bonding.
- The  $(CH_3)_3C^+$  is more stable than  $(CH_3)_2CH^+$  which in turn is more stable than  $CH_3CH_2^+$ . Justify.
- Compare acidic strength of Trichloroethanoic acid with Ethanoic acid.
- What do you mean by Meso form and Asymmetric carbon atom?
- Why  $CF_3COOH$  is stronger acid than  $CH_3COOH$ ?
- Throw light on the values of dipole moment of cis, trans isomers of Butenedioic acid.
- Differentiate between configurational and conformational change.
- Give structures of Conformations of cis, trans isomers of 1,2 – Diethylcyclohexane.
- What is Steric hindrance?
- Why amides are less basic than alkyl amines and benzoic acid is a stronger acid than cyclohexanoic acid.
- Draw R and S isomers of  $CH_3CHClCOOH$ .
- Designate the following structure as R or S.



Q.2. Answer the following questions.

- Discuss the following in detail: (5+5)  
(i) Stereoisomerism in biphenyls and allenes (ii) Mannich Reaction
- Draw the conformational energy diagram of *n*-butane and *n*-propane for a complete rotation of  $360^\circ$  about C-C bond. (10)
- Explain Stobbe's Condensation with conditions, mechanism and synthetic applications. (10)