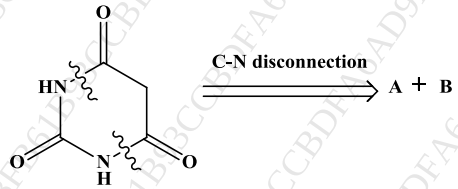
[2 Hours] **[Total Marks: 40]**

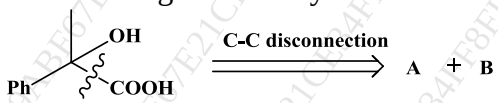
Q. 1 Answer the following in brief. Draw structures wherever required. **10M**

I. Identify A and B in the given heterocyclic retrosynthesis **2M**

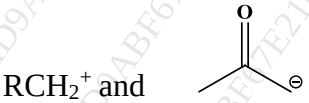


II. Identify the following conversion as Functional Group Interconversion (FGI) or Functional Group Addition (FGA) and give suitable justification **2M**

III. Identify synthon A and B in the given retrosynthesis reaction **2M**



IV. Suggest suitable synthetic equivalents for the following synthons **2M**



V. Define: a. Synthetic equivalent b. Synthon **2M**

Q. 2.

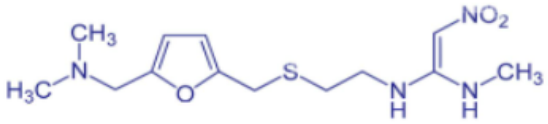
a) Explain the concept of functional group addition and functional group removal involved in synthon approach. **4M**

b) Explain the following terms synthon with example **2M**

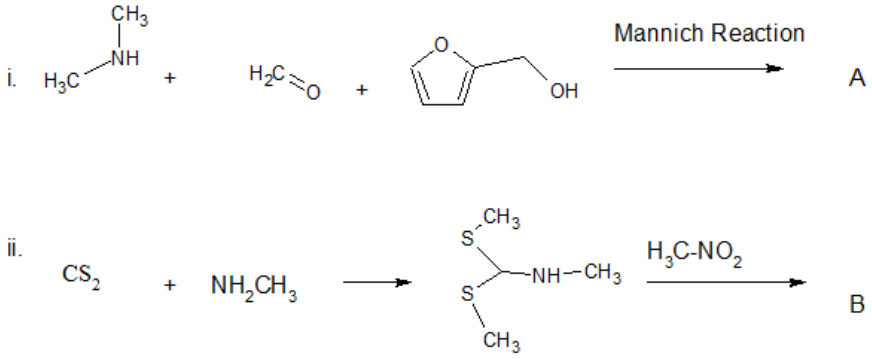
Q.3. Explain the following terms giving relevant examples: **6M**

A. Retrosynthesis
B. functional group inter conversion
C. functional group addition

Q.4. A. Give the Schematicretrosynthesis of Ranitidine. **4M**



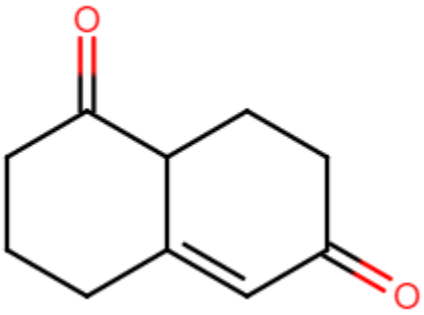
B. State the compound A and B in following reaction. **2M**



Q.5 Answer any one question. **6M**

A. Depict the shortest disconnection strategy for pyridine.

B. Design a synthetic route for following compound starting from cyclohexane-1,3-dione



Q.6.Design the retrosynthetic scheme and write the synthesis for following compound. **6M**