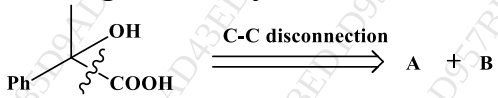
Time: [2 Hours] **[Total Marks: 40]**

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

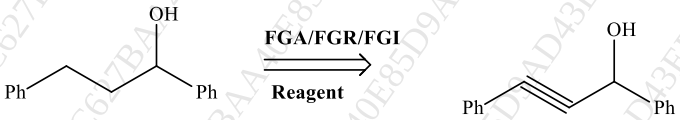
i. Define: a. Synthetic equivalent b. Synthon **2M**

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

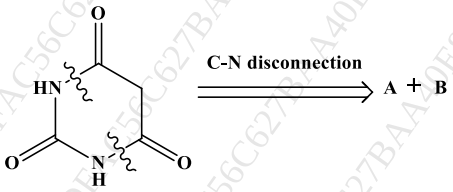
iii. Identify synthon A and B in the given retrosynthesis reaction **2M**



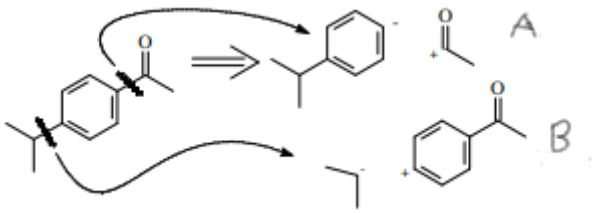
iv. Identify the following conversion as Functional Group Interconversion (FGI) or Functional Group Addition (FGA) and give suitable justification **2M**



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



Q.2.Predict which path is correct. Justify your answer (6M)

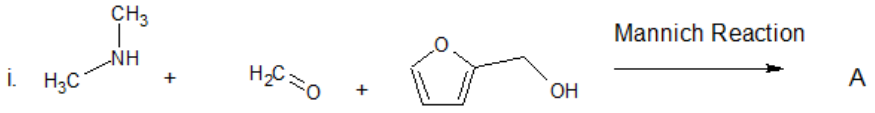


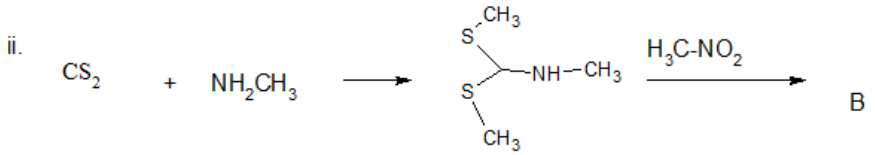
Q.3. Explain the following terms giving relevant examples: **6M**

A. Retrosynthesis
B. Disconnection
C. Synthetic Equavalent

Q.4. A. Give the Schematic retrosynthesis of sulfadiazine. **4M**

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

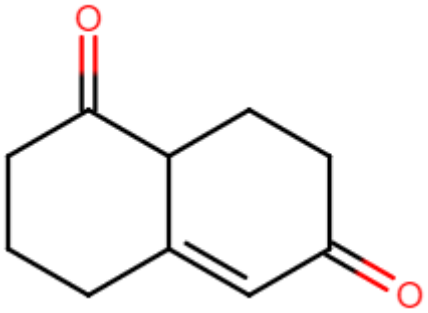
i. 

ii. 

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**