Answer the Following Questions

Question No. 1:
Show how can you elucidate the structure of ethyl acetoacetate.

Question No. 2:
What is the main products formed from the reaction of E.A.A. with:
1- 1,2-Dibromoethane. 2- Acetyl chloride. 3- Urea.

Question No. 3:
A) Write the steps of the preparation of following compounds:
1- Phenol. 2- Benzaldehyde. 3- Methyl orange.
4- Salicylic acid. 5- Cumen from benzene.

B) Outline each of the following R, S structure.
   i) CHFClBr     ii) 2- Butanol     iii) Ph-CH-COOH

NH₂

Question No. 4:
A) Which of the following are aromatic compounds:
1- Cyclopentadiene. 2- Naphthalene. 3- Tropylium cation.
4- Cyclopentadiene anion. 5- Cycloheptatriene.

B) Write short note on the following:
1- Aromaticity of benzene. 2- Sand Mayer reaction.
3- Oxidation of p-xylene and o-xylene. 4- preparation of aspirin.
5- Indicators.

Best wishes