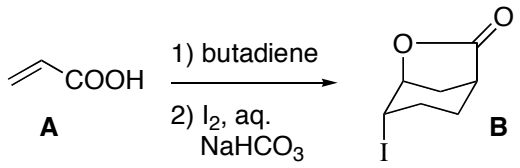
CHEM 330

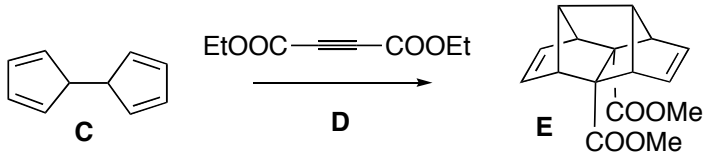
Problem set 6

1. Account for the following observations by drawing accurate reaction mechanisms:

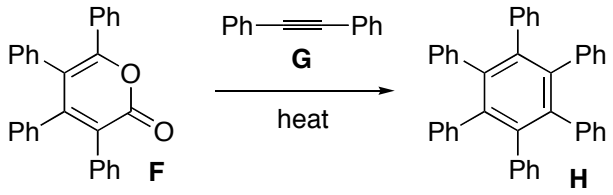
a. Reaction of acrylic acid, **A**, with 1,3-butadiene, followed by treatment with I_2 and aqueous $NaHCO_3$ results in formation of **B**:



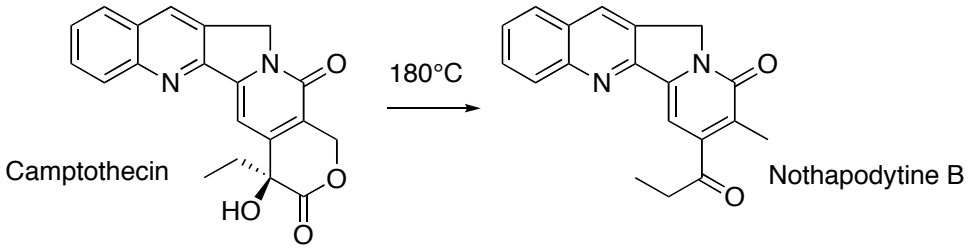
b. Compound **E** emerges (together with other products) upon reaction of an equimolar amount of **C** and **D**:



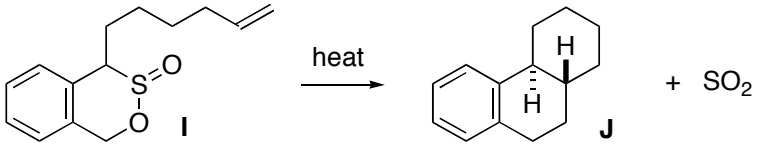
c. Heating of a mixture of **F** and diphenylacetylene ("tolan"), **G**, yields hexaphenylbenzene, **H**:



d. The antitumor agent, camptothecin, is rapidly converted to the antiviral agent, nothapodytine B, at 180°C:

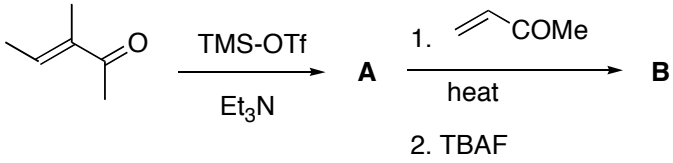


e. Heating of compound **I** results in formation of **J** and SO_2:

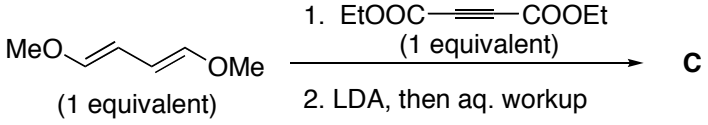


2. Predict the structure of major products **A** – **O** arising from the following reaction sequences:

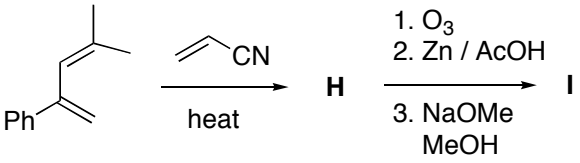
a.



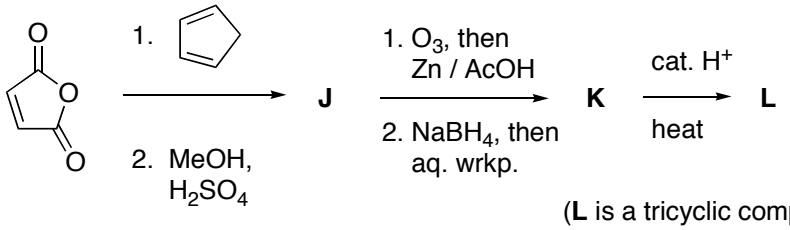
b.



c.



d.



(**L** is a tricyclic compound)

e.