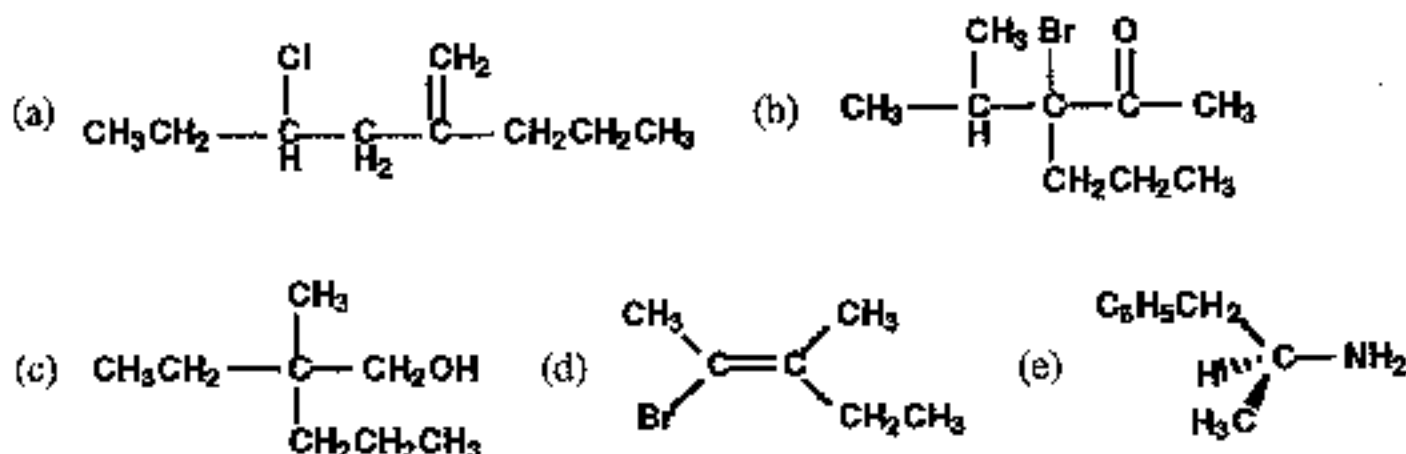
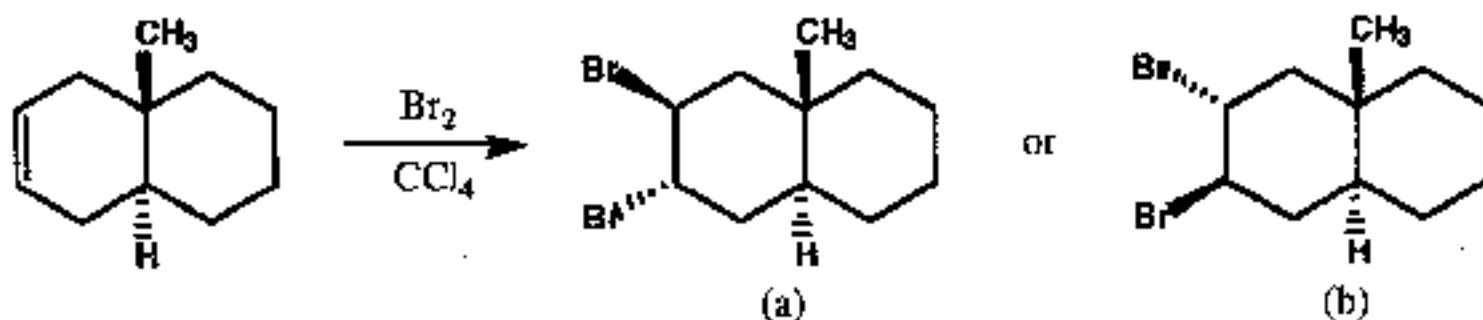


八十五學年度 生命科學 系(所) 生醫組乙 組碩士班研究生入學考試  
 科目 有機化學 科號 1002 1302 共 5 頁第 1 頁 \*請在試卷【答案卷】內作答

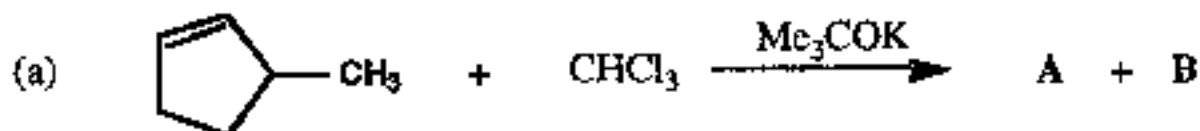
1. Please give IUPAC name (including stereochemistry, if any) for each of the following compounds. (5%)



2. The specific rotation of sucrose in water at 25 °C in a tube of 10 cm is +66.4°. What is the concentration of a sucrose solution in g/100 mL if it gives an observed optical rotation of +2.00° at this temperature and the same wavelength of light? (3%)
3. An unknown carbohydrate can be reduced by a series of steps to butane. It gives a positive Benedict's test, and its molecules has just one stereocenter. What is a structure consistent with these facts? (3%)
4. Reaction of the following bicycloalkene gives a *trans*-dibromide. Both (a) and (b) have the bromine atoms *trans* to each other. However, only one of these products is formed. How do you account for the fact? (5%)

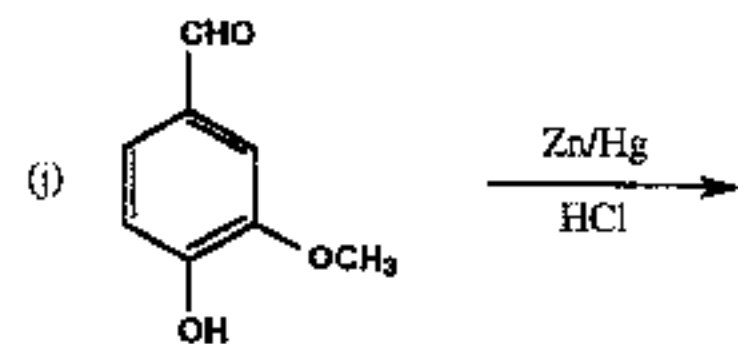
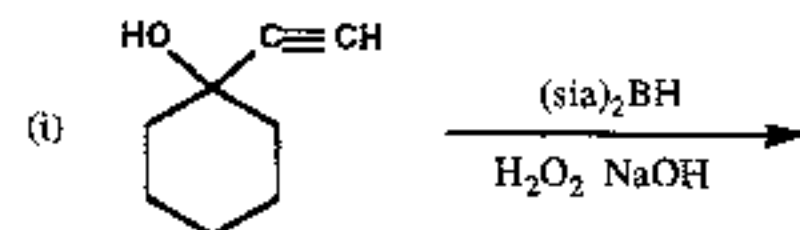
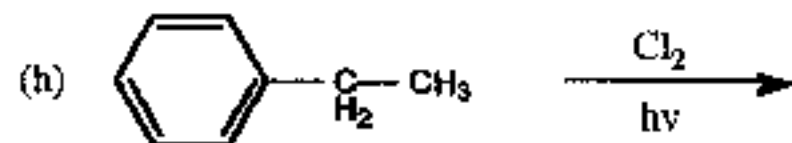
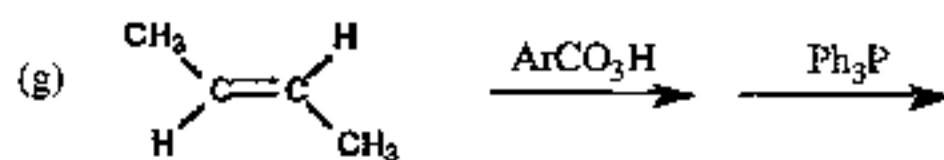
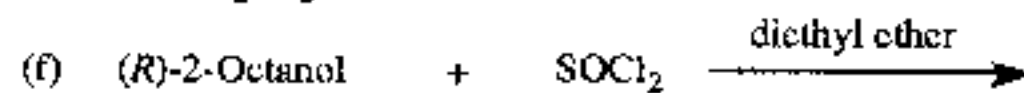
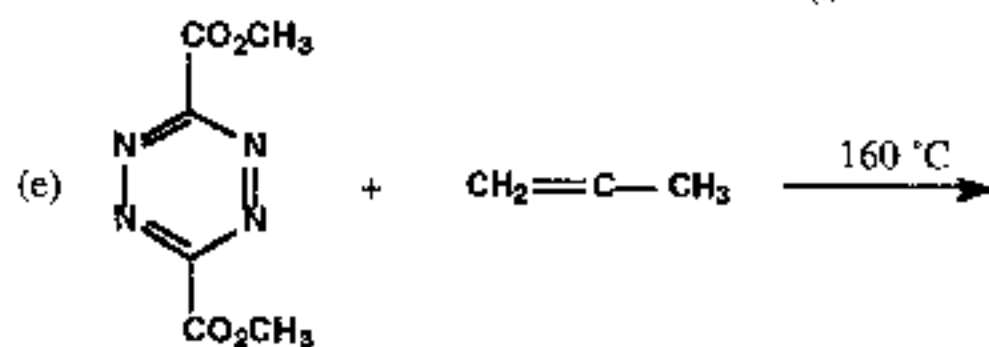
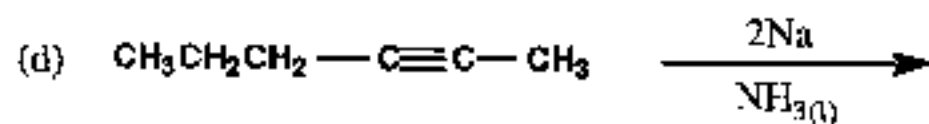
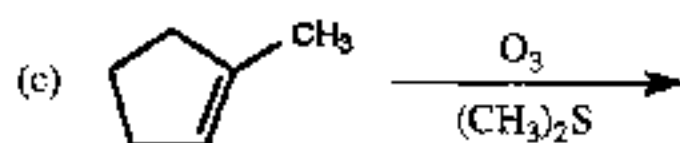
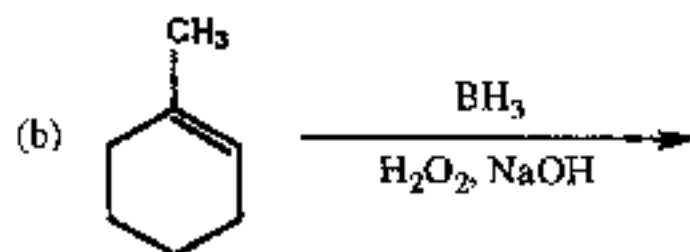
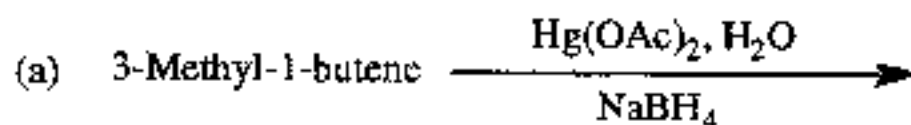


5. Please give structures of A to D in the following reactions. (4%)



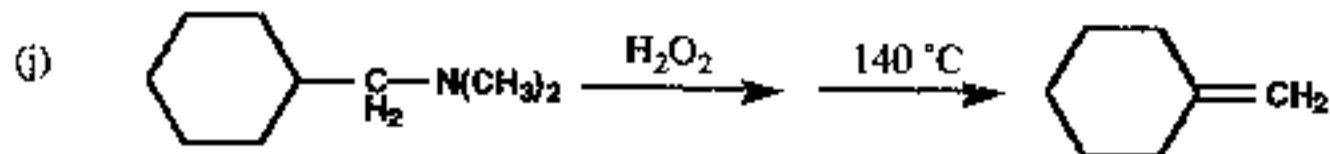
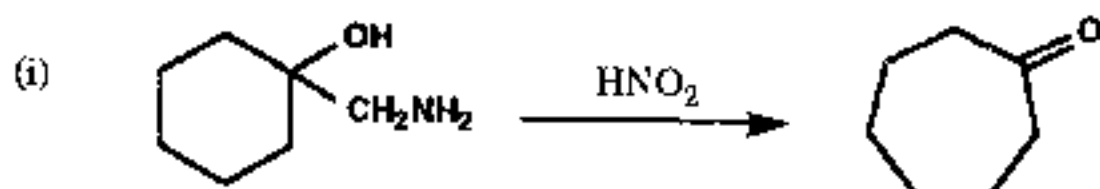
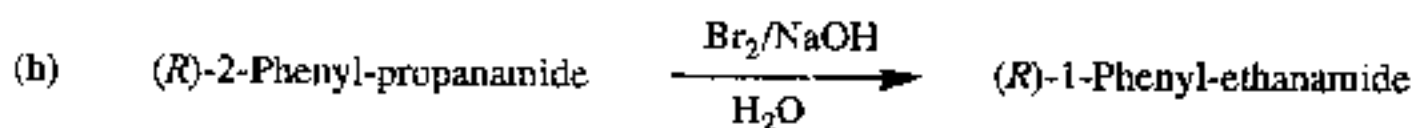
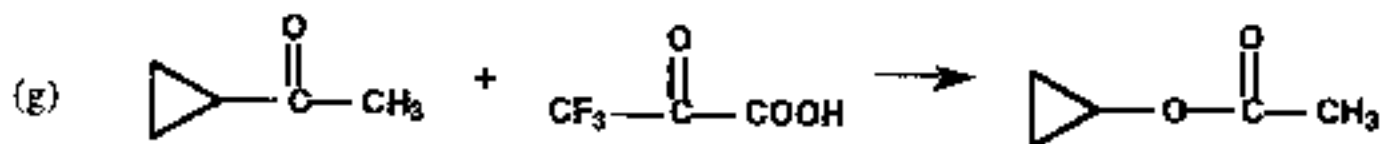
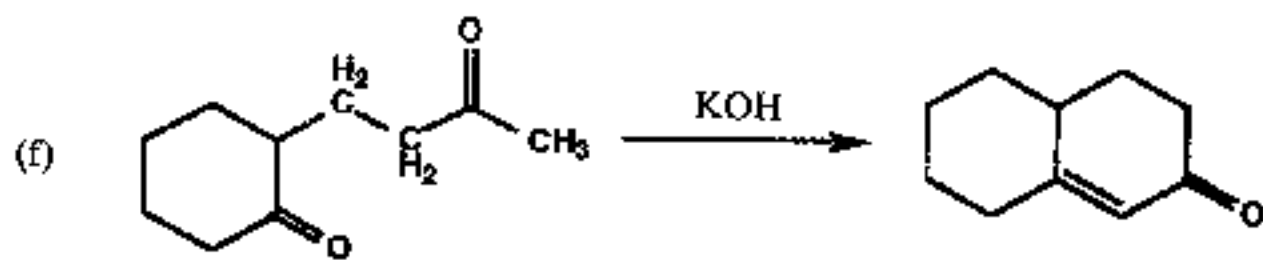
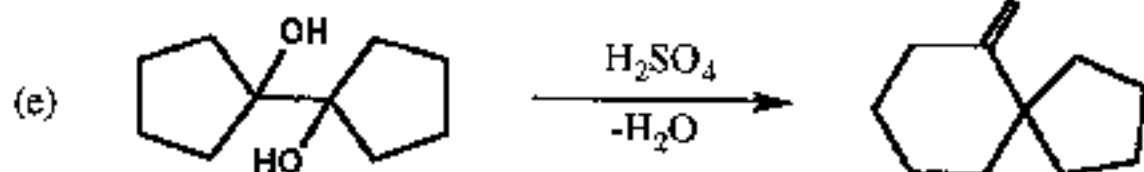
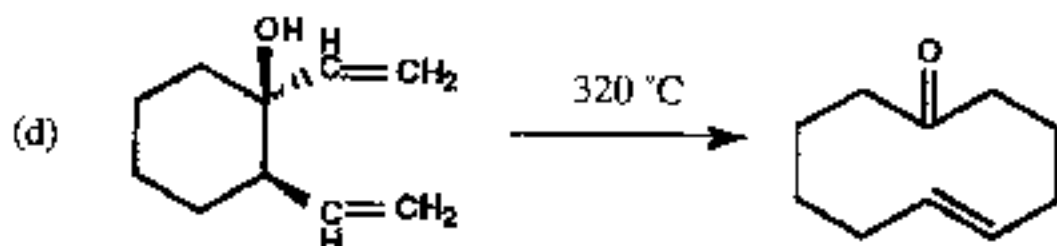
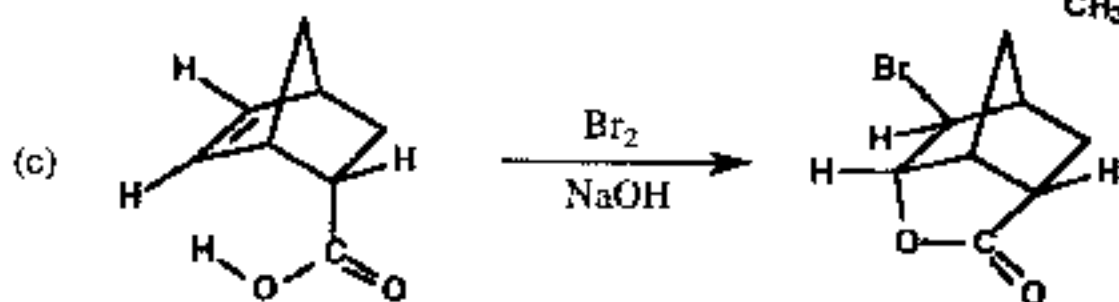
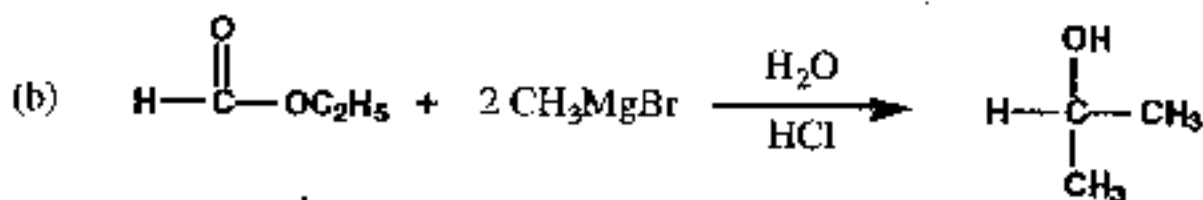
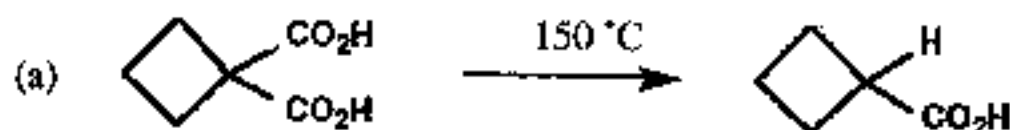
八十五學年度 生命科學 系(所) 分生組乙 生醫組乙 組碩士班研究生入學考試  
 科目 有機化學 科號 1002 1302 共 5 頁第 2 頁 \*請在試卷【答案卷】內作答

6. Predict the major product for each of the following reactions. (20%)



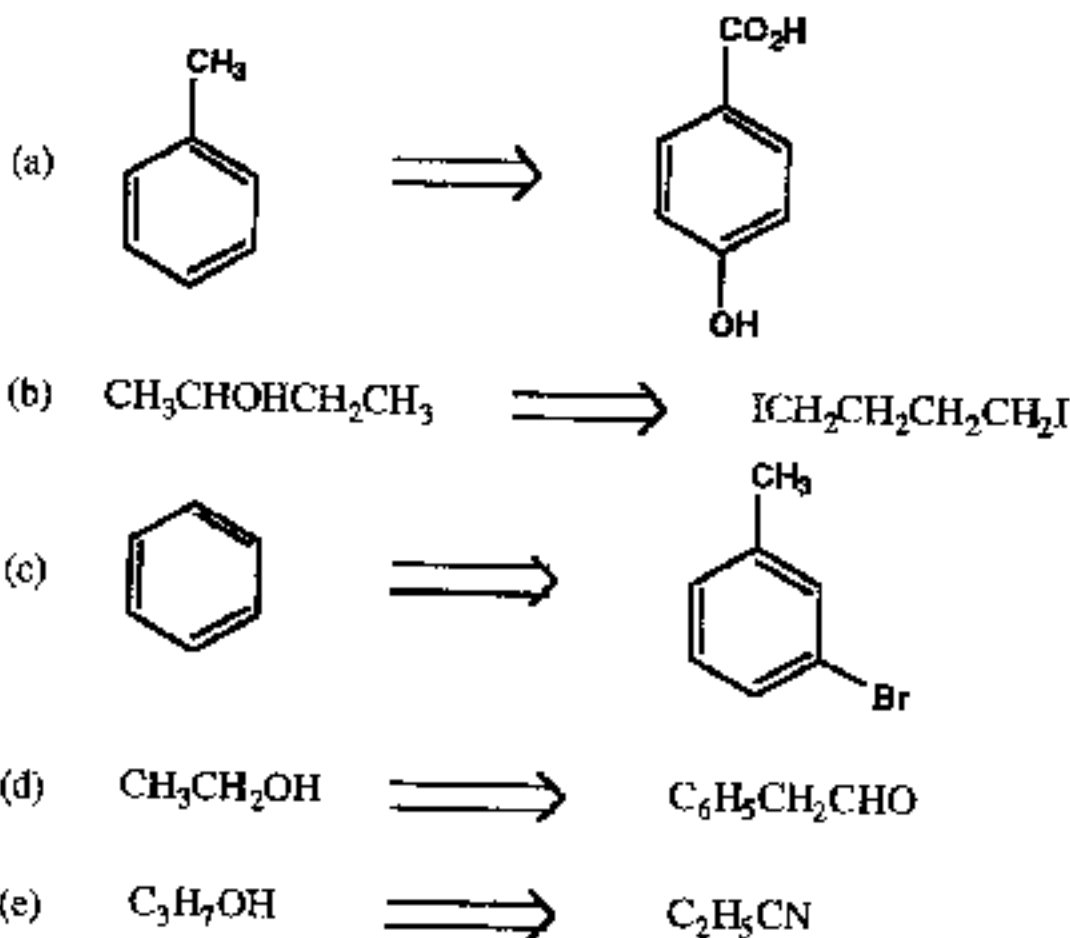
八十五學年度 生命科學 系(所) 分生組乙 組碩士班研究生入學者試  
 科目 有機化學 科號 1002 1302 共 5 頁第 3 頁 \*請在試卷【答案卷】內作答

7. Please propose a mechanism for each of the following chemical reactions. (30%)

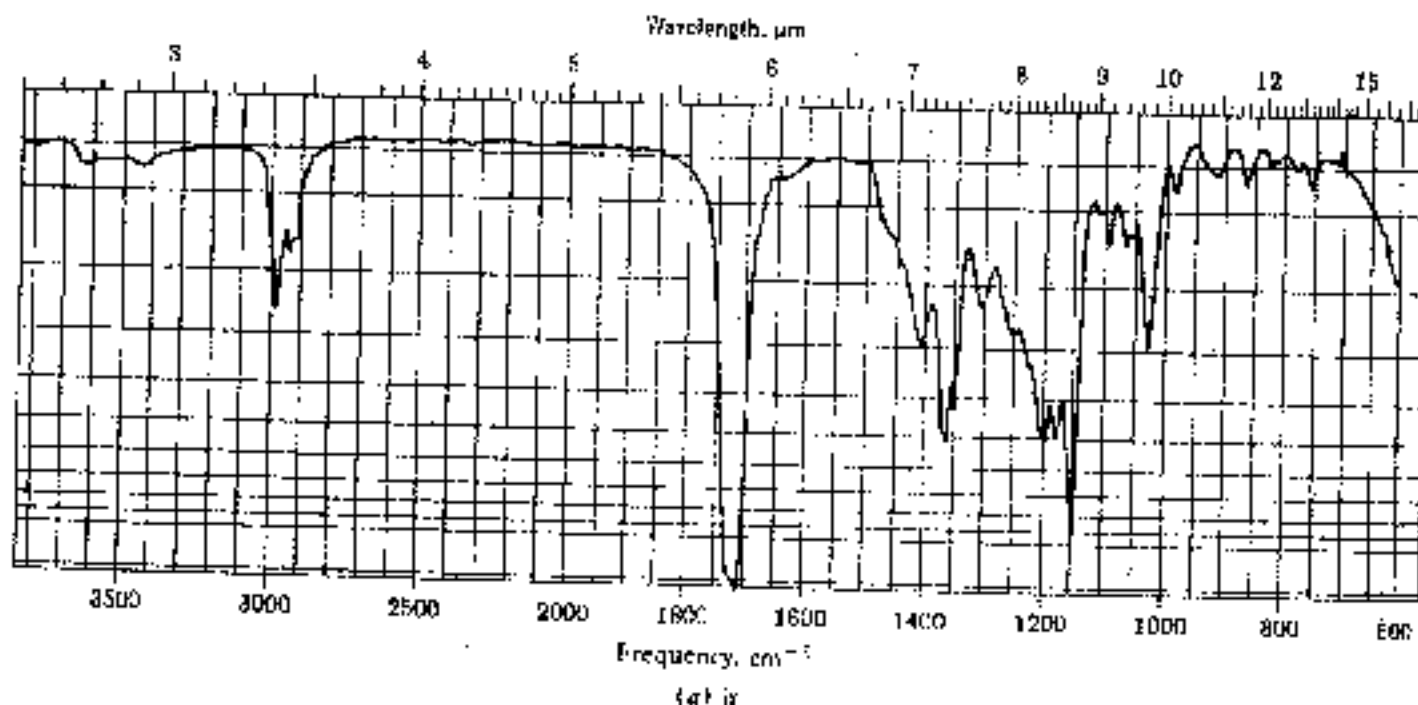


八十五學年度 生命科學 系(所) 分生組乙 生醫組乙 組碩士班研究生入學考試  
 科目 有機化學 科號 1002 1302 共 5 頁第 4 頁 \*請在試卷【答案卷】內作答

8. Please write the reagents and conditions used to complete the following conversions in  $\leq 4$  steps. (20%)



9. Based on the following IR and  $^1\text{H}$ NMR spectra, please determine the structure of a compound  $\text{C}_7\text{H}_{12}\text{O}_3$  whose uv spectrum shows absorption at  $\lambda_{\text{max}} = 275 \text{ nm}$  ( $\epsilon = 25$ , ethanol). (10%)



八十五學年度 生命科學 系(所) 分生組乙 生醫組乙 組碩士班研究生入學考試

科目 有機化學 科號 1002 1302 共 5 頁第 5 頁 \*請在試卷【答案卷】內作答

