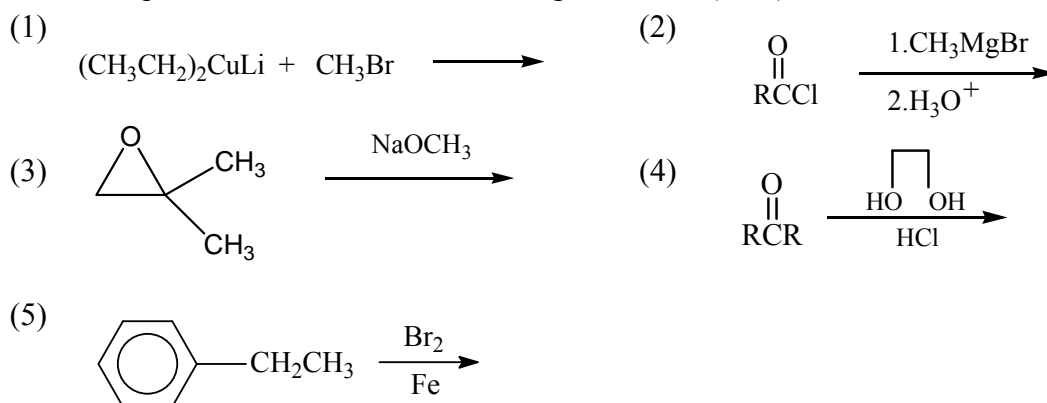


系級	化學系三年級	考試時間	100 分鐘
科目	有機化學	本科總分	100 分

1. Give the structure for each of the following names: (30%)

- (a) cyclohexanone (b) dimethylamine (c) *trans*-2-butene (d) phenol
 (e) pyridine (f) chair form of *cis*-1,2-dimethylcyclohexane (g) (R)-2-pentanol
 (h) acetone (i) diazonium salt (j) acetoacetic acid

2. Give the product for each of the following reactions: (15%)



3. Derive the structure for each of the following compounds based on the spectra given below: (12%)

(1) C_7H_8

$^1\text{H NMR}$

singlet, $\delta 2.1$, 3H

singlet, $\delta 7.17$, 5H

(2) $\text{C}_3\text{H}_5\text{Br}$

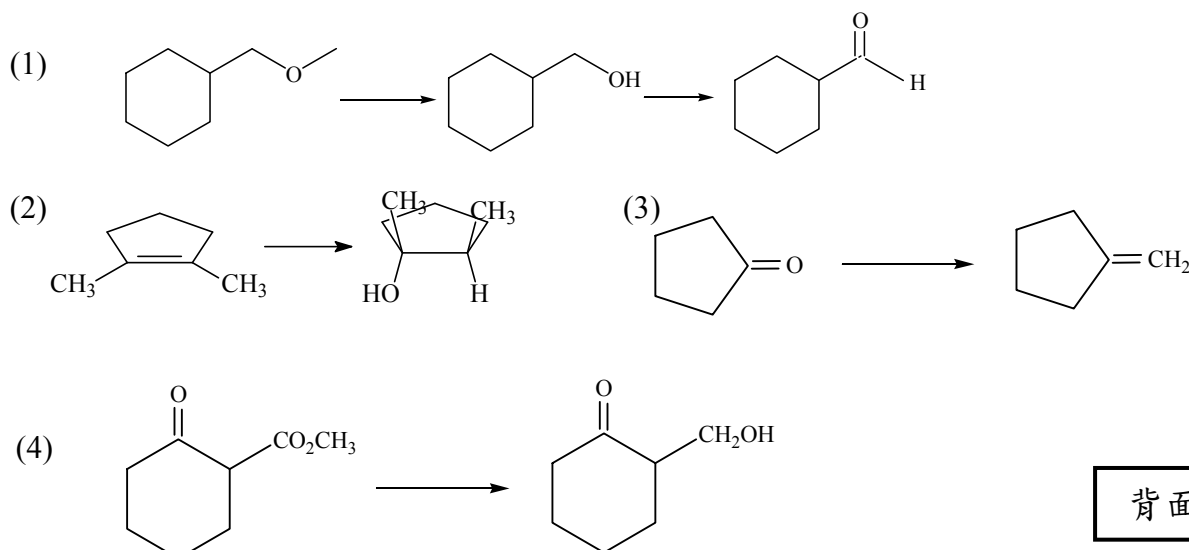
CMR

triplet, $\delta 32.6$

triplet, $\delta 118.8$

doublet, $\delta 134.2$

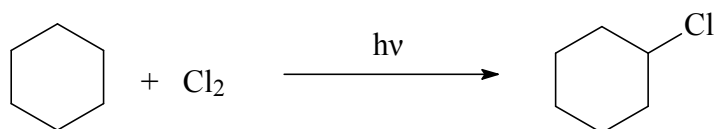
4. Provide the necessary reagents for each of the following conversions: (15%)



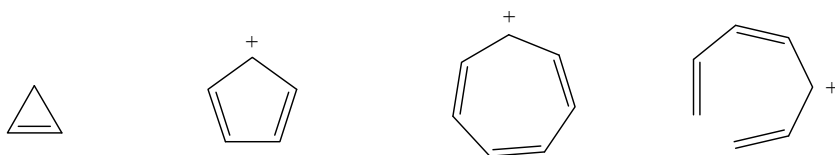
背面尚有試題

系級	化學系三年級	考試時間	100 分鐘
科目	有機化學	本科總分	100 分

5. Write a mechanism for the following reaction: (10%)



6. Classify each of the following compounds as aromatic(A), antiaromatic(Anti) or nonaromatic(N). (12%)



7. Which reaction of the following pairs will take place more rapidly? (6%)

