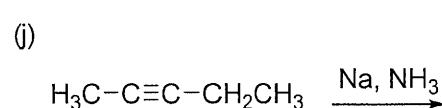
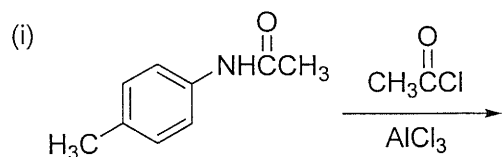
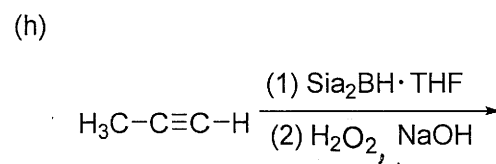
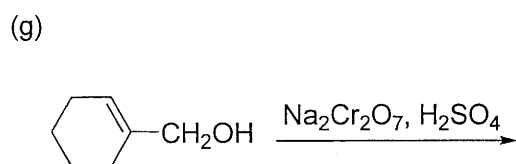
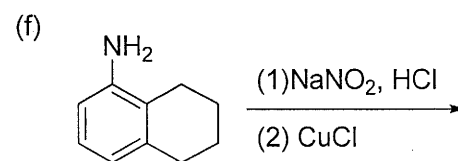
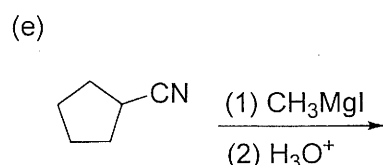
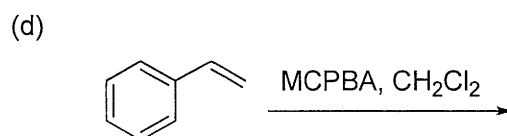
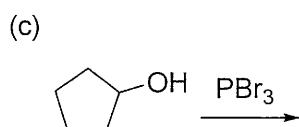
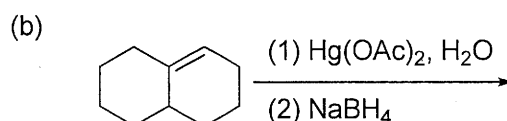
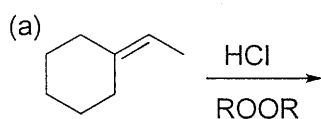


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- Define each term, and give an example: (20pt)
 - diastereomers
 - meso compound
 - epimer
 - pro-R
 - formal charge
 - Markovnikov's rule
 - S_N1
 - E2
 - keto-enol tautomerism
 - Hofmann elimination product
- Please explain *endo* rule for the Diels-Alder reaction. (10pt)
- Predict the products of the following reactions. (20 pt)



※ 注意：1. 考生須在「彌封答案卷」上作答。

2. 本試題紙空白部分可當稿紙使用。

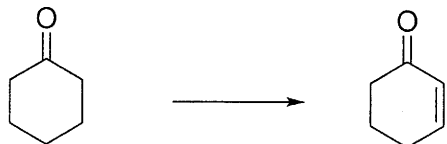
3. 考生於作答時可否使用計算機、法典、字典或其他資料或工具，以簡章之規定為準。

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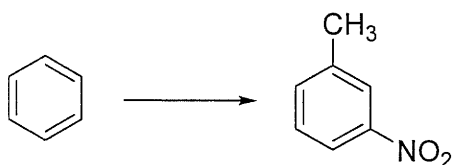
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4. Show how you would accomplish the following syntheses. (20 pt)

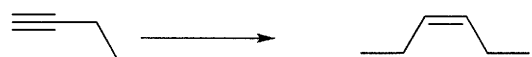
(a)



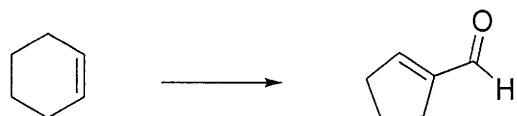
(b)



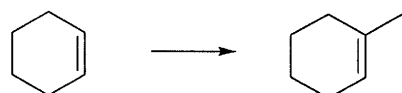
(c)



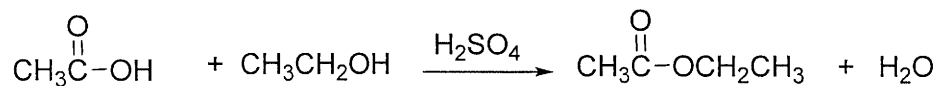
(d)



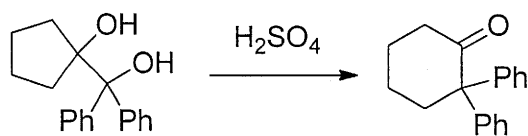
(e)



5. Propose a mechanism for the following reaction. (10 pt)



6. Propose a mechanism for the following reaction. (10 pt)



※ 注意：1. 考生須在「彌封答案卷」上作答。

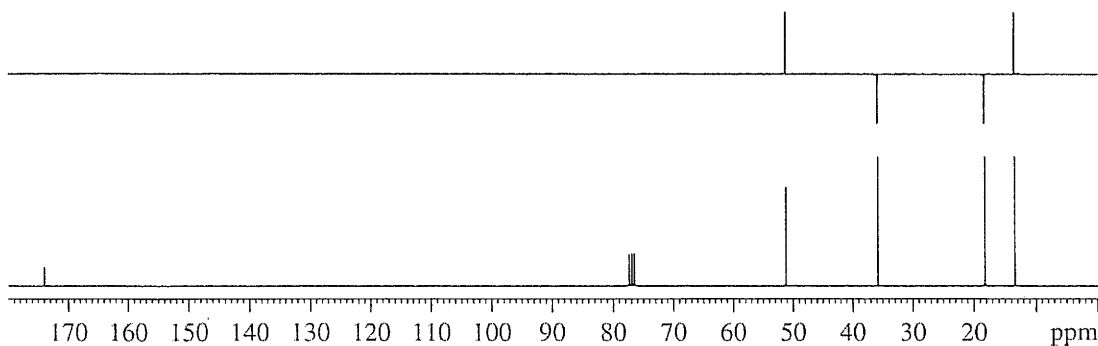
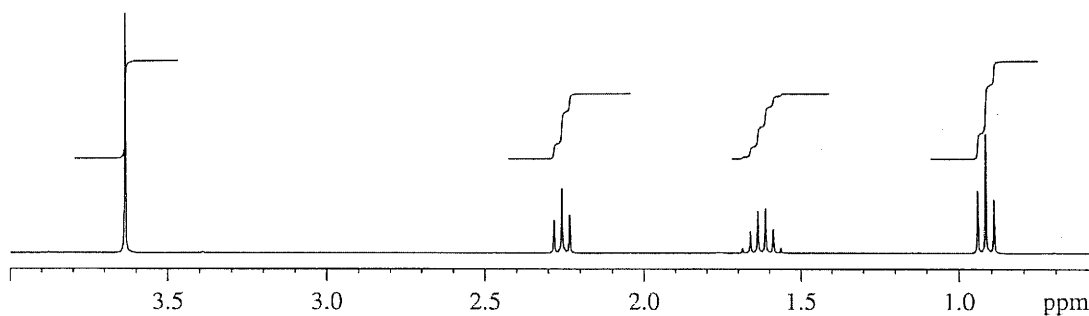
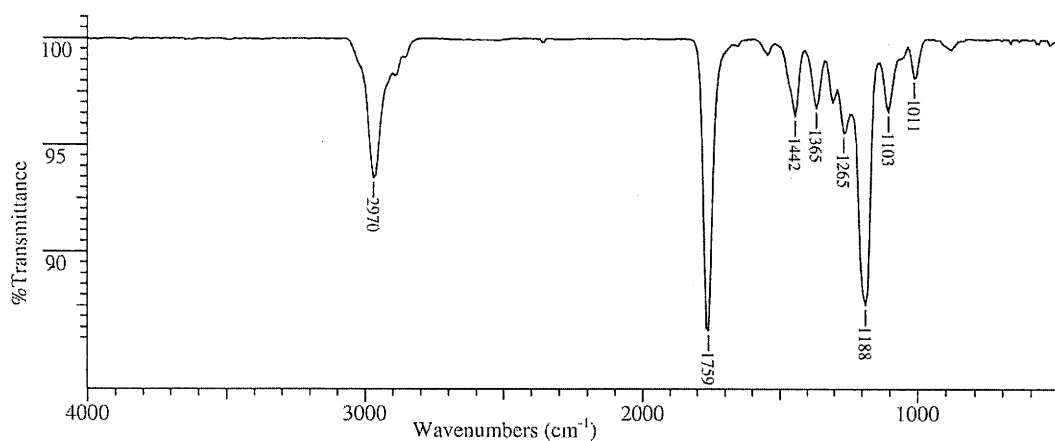
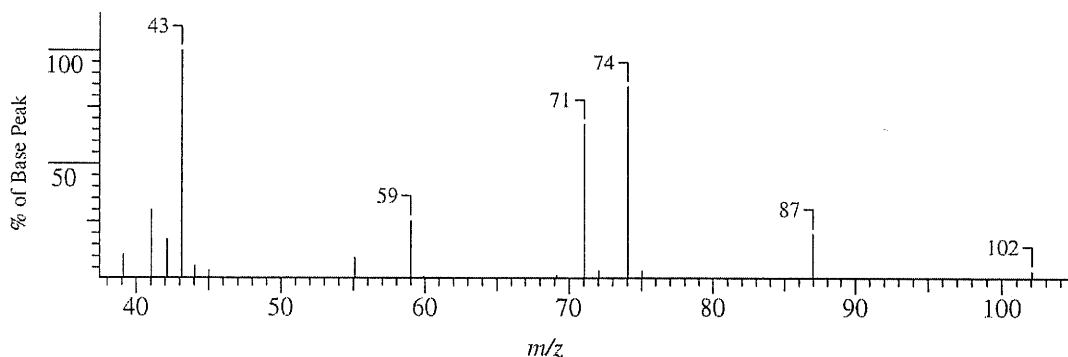
2. 本試題紙空白部分可當稿紙使用。

3. 考生於作答時可否使用計算機、法典、字典或其他資料或工具，以簡章之規定為準。

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7. Determine the structure for the mass IR, ^1H NMR, and ^{13}C NMR and explain your answer. (10pt)



※ 注意：1. 考生須在「彌封答案卷」上作答。

2. 本試題紙空白部分可當稿紙使用。

3. 考生於作答時可否使用計算機、法典、字典或其他資料或工具，以簡章之規定為準。