

系所組：化學系應用化學碩士班

日期節次：99 年 3 月 13 日第 1 節 9:00 -10:30

科目：有機化學與分析化學

1. 春天來了,正值陽明山公園花季季節,文大校園鳥語花香,華岡地區,有時候雨水酸鹼值 $\text{PH}=5$,表示雨水含有氫離子濃度是多少($[\text{H}^+]=$)?(5%)
2. 何謂“緩衝溶液(buffer solution)”?當 $0.5\text{M CH}_3\text{COONa}$ 溶液 50ml 加入 0.01M HCl 溶液 10ml 後,此溶液是緩衝溶液嗎? 此溶液 PH 是多少? CH_3COOH 的 $K_a=1.8\times 10^{-5}$ (10%)
3. 說明“比爾定律(Beer's Law)”的內容?應用此定律時的限制?(10%)
4. 分析樣品常用“精確度(precision)”和“準確度(accuracy)”來表示分析結果的可信度(reliability),請隨意列出一組分析結果或資料來說明精確度和準確度的涵義. (10%)
5. 列舉你在實驗室常用的 3 種分析儀器,並說明其原理和功能(用)?(15%)

6. Define the following terms: (21 %) (3 points each)

(a) *Configurational isomers, Conformational isomers, Diastereomers and Enantiomers*

(b) *Aromatic Compounds, Antiaromatic Compounds and Nonaromatic Compounds*

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第 1 頁共 2 頁

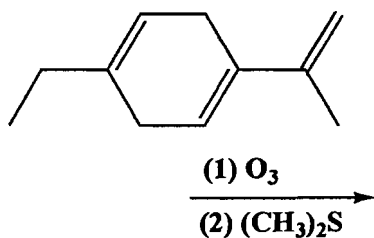
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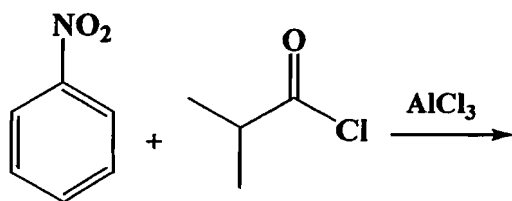
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7. Give the structures of the major organic products of the following reactions : 2 points each

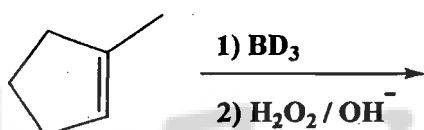
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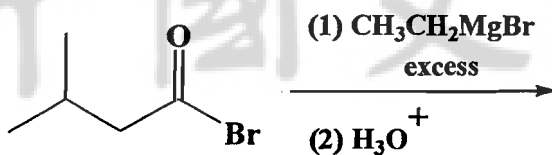
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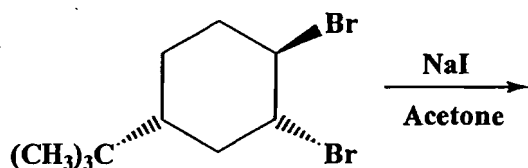
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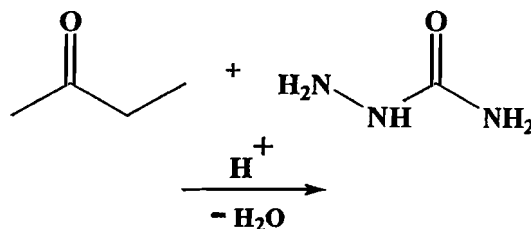
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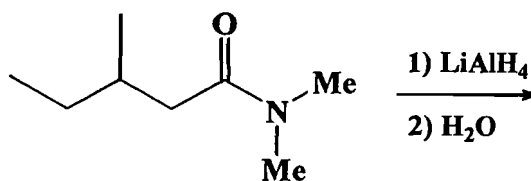
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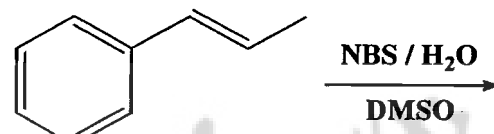
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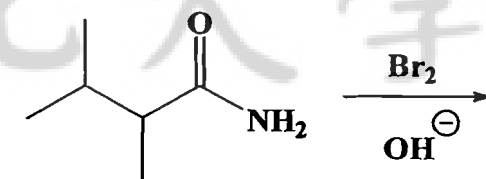
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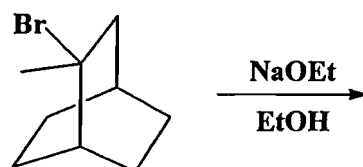
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(8)

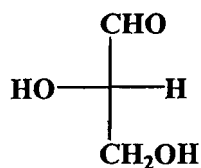


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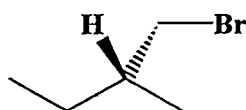


8. Assign and explain either *R* or *S* configuration to the stereogenic centers in these molecules : 3 points each.

(a)



(b)



(c)

