

國立中山大學 107 學年度碩士暨碩士專班招生考試試題

科目名稱：有機化學【材光系碩士班甲組】

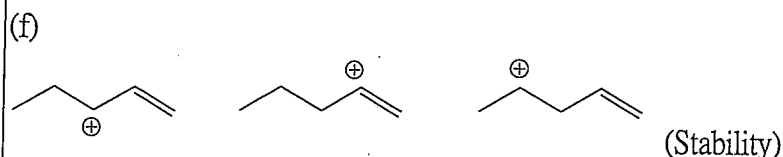
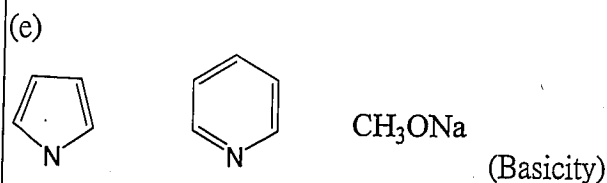
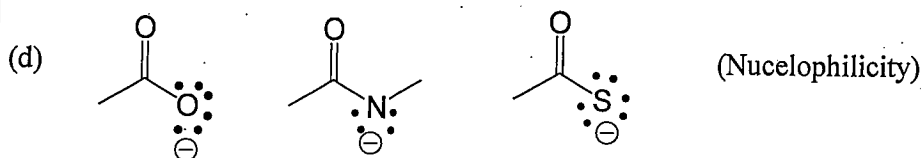
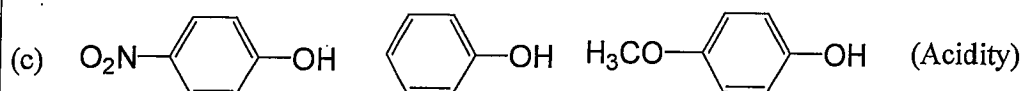
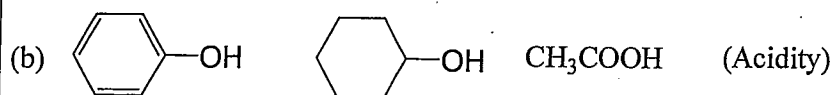
題號：439002

※本科目依簡章規定「不可以」使用計算機(問答申論題)

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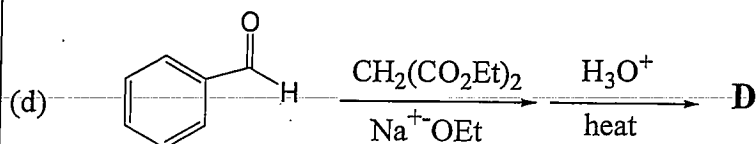
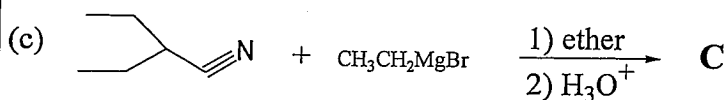
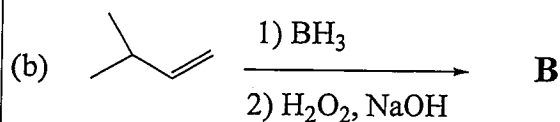
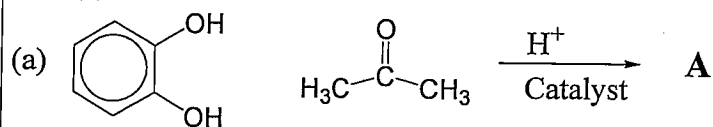
(1) (Total: 30%, each 5%) Arrange the compounds in each set in order of the referred properties (from the least to the most or using “>” to indicate the order).

(a) CF_3COOH , CCl_3COOH , CH_3COOH (Acidity)



(2) (Total: 20%, each 5%) Give the chemical structures of products A, B, C and D in the following reactions

(a) ~ (d)



背面有題

試題隨卷繳回

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(3) (Total: 20%, each: 5%) Propose structures for compounds that fit the following ^1H NMR data:

(a) $\text{C}_4\text{H}_6\text{Cl}_2$

2.18 δ (3H, singlet)

4.16 δ (2H, doublet, $J = 7$ Hz)

5.7 δ (1H, singlet, $J = 7$ Hz)

(b) $\text{C}_{10}\text{H}_{14}$

1.30 δ (9H, singlet)

7.30 δ (5H, singlet)

(c) $\text{C}_{10}\text{H}_{14}$

1.20 δ (6H, triplet)

2.70 δ (4H, quartet)

7.18 δ (4H, broad singlet)

(d) $\text{C}_5\text{H}_{10}\text{O}$

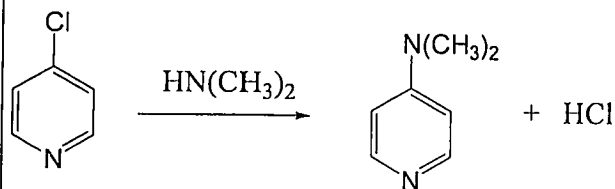
0.95 δ (6H, doublet, $J = 7$ Hz)

2.10 δ (3H, singlet)

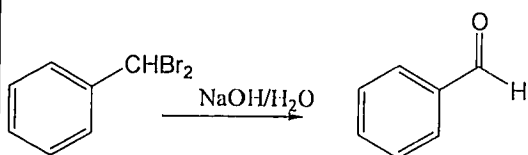
2.43 δ (1H, multiplet)

(4) (Total: 30%, each 5%) Give the mechanistic steps involved in the following reactions (a) ~ (f):

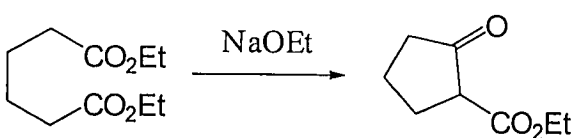
(a)



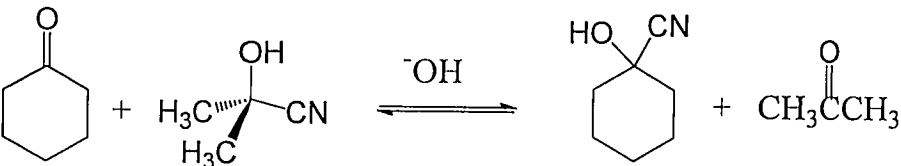
(b)



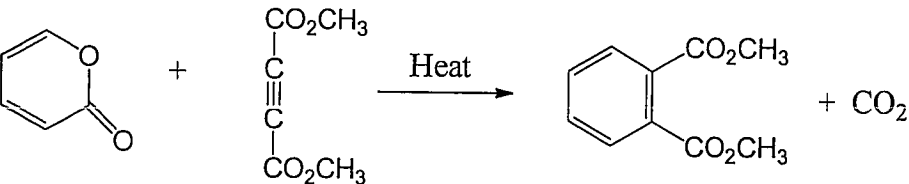
(c)



(d)



(e)



(f)

