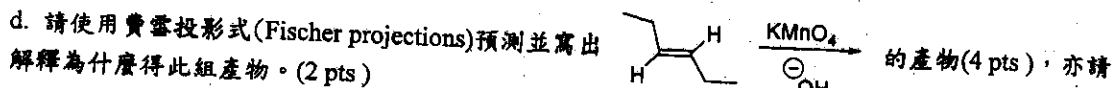
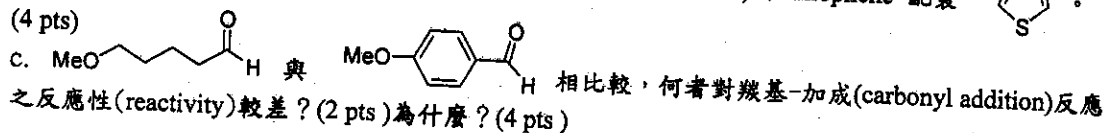
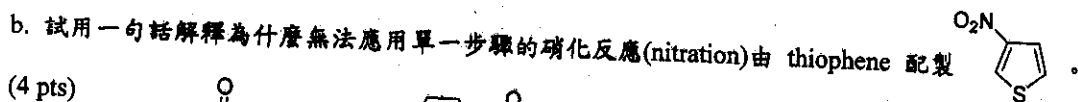
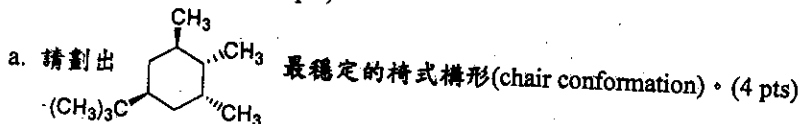


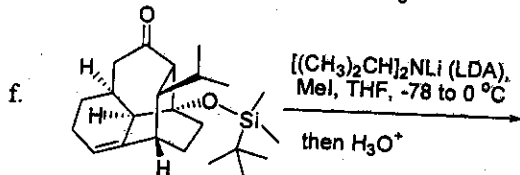
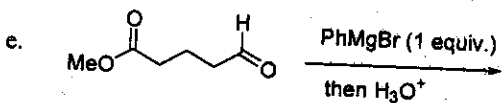
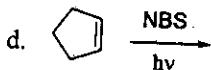
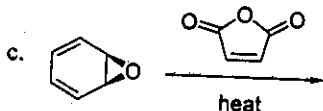
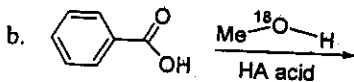
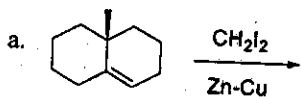
科目：有機化學(2002)

校系所組：中央大學化學學系 交通大學應用化學系 清華大學化學系

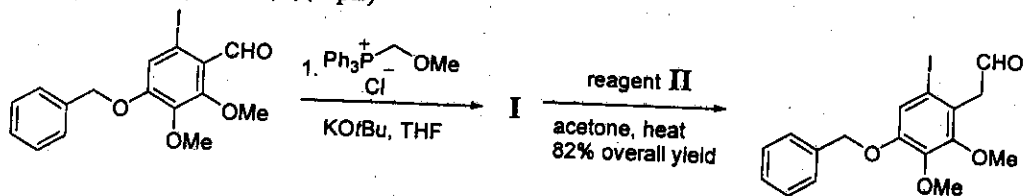
1. 思考問答題：(total 20 pts)



2. 合成填充題(total 24 pts)：請寫出以下反應的主產物。(4 pts each)



3. 反應機構題(total 16 pts)：請寫出以下反應的主產物I (4 pts)和試劑II (reagent II, 4 pts)並提出此兩步驟之反應機構(4 pts each, 共8 pts)。



第一頁，共二頁，請至第二頁作答

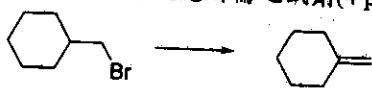
注：背面有試題

科目：有機化學(2002)

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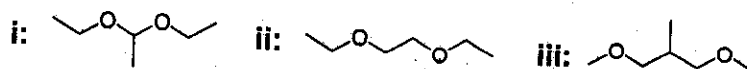
4. 有機光譜題(total 20 pts) :

a. 請寫出以下反應所需之試劑(4 pts)並解釋如何利用¹H NMR光譜得知反應如預期進行(4 pts)。



b. 試依以下碳譜資料(CMR-DEPT spectrum, attached protons in parentheses)選出相對應化合物之結構(4 pts) :

δ 15.5 (3), δ 20.1 (3), δ 60.7 (2), δ 99.6 (1)



c. 請由以下光譜資料導出化合物之結構(4 pts)並說明理由(4 pts):

NMR: δ 1.28 (3H, t, $J = 7$ Hz); δ 3.91 (2H, q, $J = 7$ Hz); δ 5.0 (1H, d, $J = 4$ Hz); δ 6.49 (1H, d, $J = 4$ Hz)

IR: 3100, 1644 (strong), 1104, 1166, 694 cm^{-1} (strong); no IR absorptions in the range 700-1100 or above 3100 cm^{-1}

Mass spectrum: $m/z = 152, 150$ (almost equal intensity; double molecular ion)

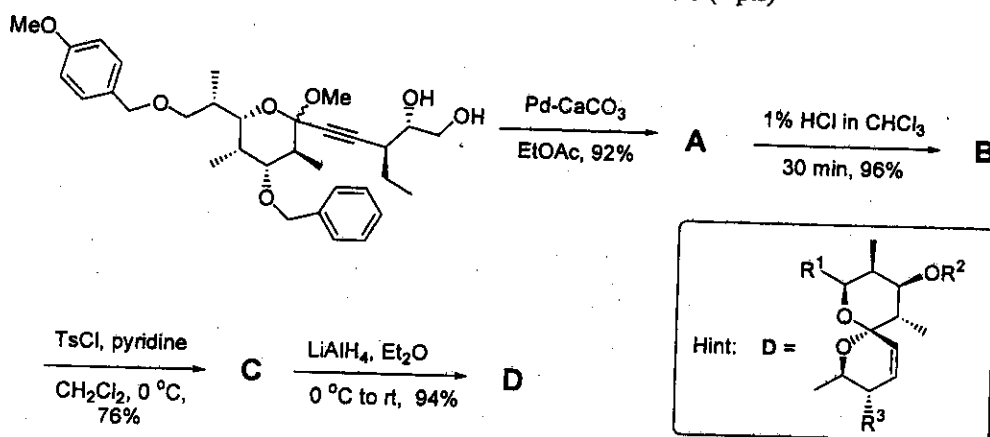
(原子量: H = 1, C = 12, N = 14, O = 16, Cl = 35.5, Br = 80, I = 127, Na = 23, K = 39, Ca = 40)

5. 大二程度之文獻應用題(total 20 pts) : 研究總是缺少不了閱讀文獻的。

a. 試寫出化合物A, B和C之結構。(4 pts each, 共12 pts)

b. 請提出由A合成B此步驟之反應機構。(4 pts)

c. 請問在由A合成B此步驟, 為何形成六環產物而非八環產物?(4 pts)



Org. Lett., 2010, 12, 348.

第二頁, 共二頁, 本科考題結束!

祝金榜題名