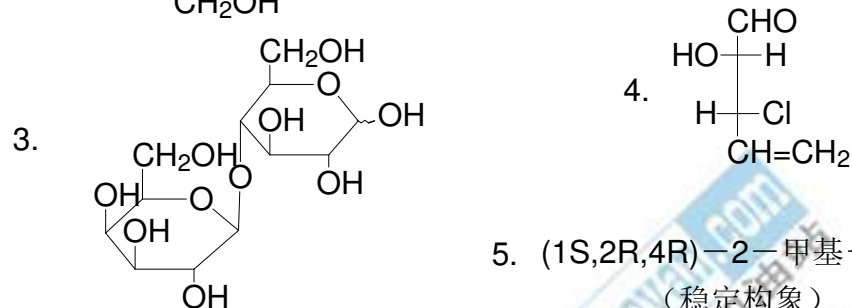
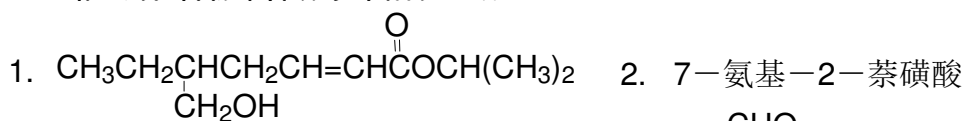
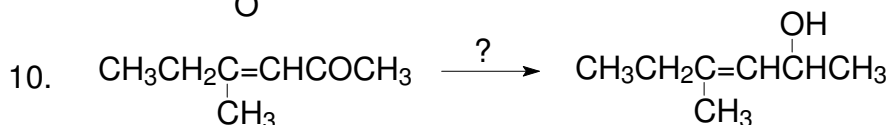
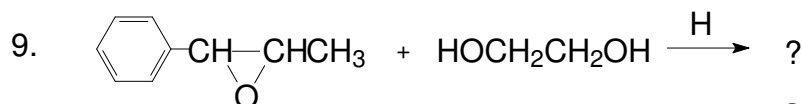
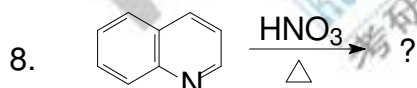
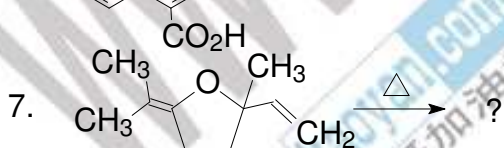
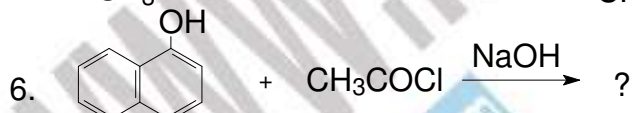
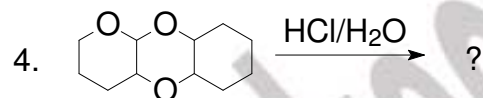
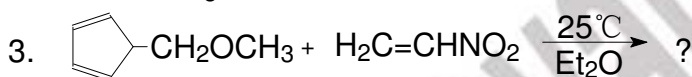
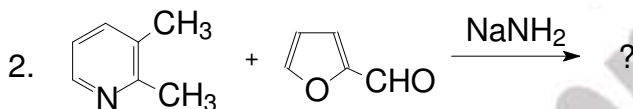
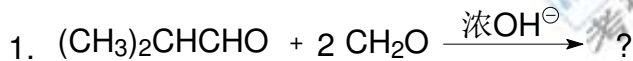
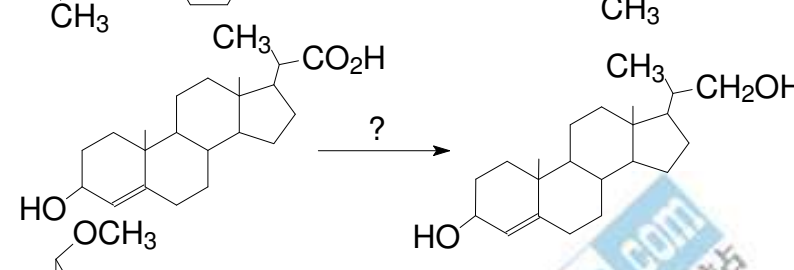
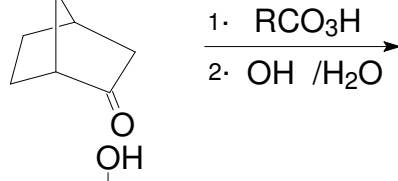
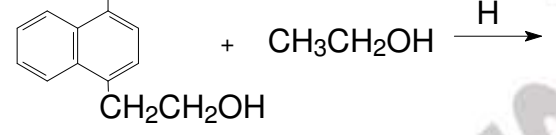
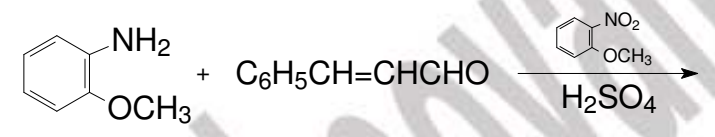
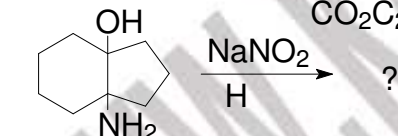
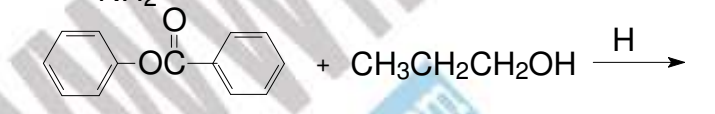
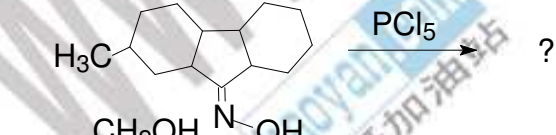
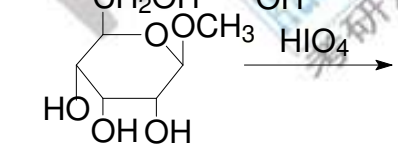
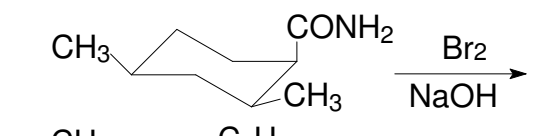


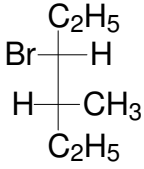
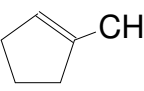
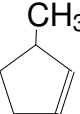
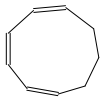
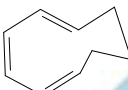
一、给下列化合物命名或写出结构 (6 分)



二、写出下列反应的主要产物或填上适当条件 (30 分)

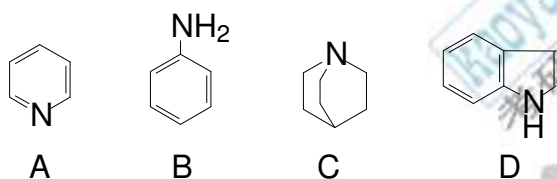


11. $\text{CH}_3(\text{CH}_2)_3\text{CHCHO} + \text{BrCHCO}_2\text{C}_2\text{H}_5 \xrightarrow[2. \text{H}]{1. \text{Zn}} ?$
12. $\text{ClCHCH}_2\text{C}_6\text{H}_4\text{C(=O)CH}_2\text{CH}_3 \xrightarrow{?} \text{ClCHCH}_2\text{C}_6\text{H}_4\text{CH}_2\text{CH}_2\text{CH}_3$
13.  $\xrightarrow{?}$
14.  $\xrightarrow[2. \text{OH}^-/\text{H}_2\text{O}]{1. \text{RCO}_3\text{H}} ?$
15.  $\xrightarrow{\text{H}} ?$
16.  $\xrightarrow[\text{H}_2\text{SO}_4]{\text{C}_6\text{H}_4(\text{NO}_2)\text{OCH}_3} ?$
17. $\text{C}_2\text{H}_5\text{OC(=O)CH}_2\text{CH}_2\text{CH(CO}_2\text{C}_2\text{H}_5)_2 \xrightarrow{\text{NaOC}_2\text{H}_5} ?$
18.  $\xrightarrow[\text{H}]{\text{NaNO}_2} ?$
19.  $\xrightarrow{\text{H}} ?$
20.  $\xrightarrow{\text{PCl}_5} ?$
21.  $\xrightarrow{\text{HIO}_4} ?$
22.  $\xrightarrow[\text{NaOH}]{\text{Br}_2} ?$
23. $\text{CH}_3\text{C}(\text{C}_2\text{H}_5)=\text{C}(\text{C}_2\text{H}_5)\text{H} \xrightarrow{\text{Cl}_2/\text{H}_2\text{O}} ? \text{ (Fischer投影式)}$

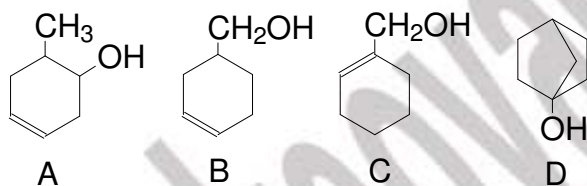
24.  $\xrightarrow[\text{C}_2\text{H}_5\text{OH}]{\text{NaOH}}$? (构型式)
25.  $\xrightarrow[2. \text{H}_2\text{O}_2/\text{OH}^-]{1. \text{B}_2\text{H}_6}$? $\xrightarrow[2. ?]{1. ?}$ 
26.  $\xrightarrow{\Delta}$? $\xrightarrow{?}$ 

三、按要求排顺序 (8 分)

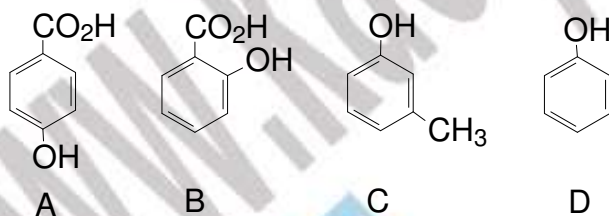
1. 按下列化合物碱性强弱排顺序:



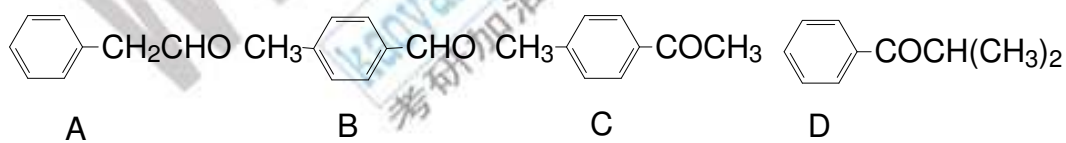
2. 按脱水活性大小将下列化合物排列成序:



3. 按酸性强弱将下列化合物排列成序:

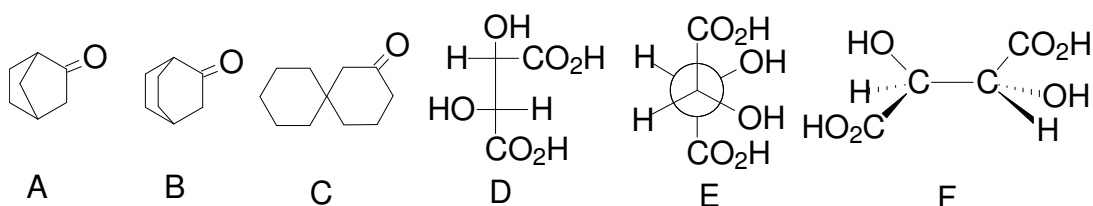


4. 按亲电加成活性大小将下列化合物排列成序:

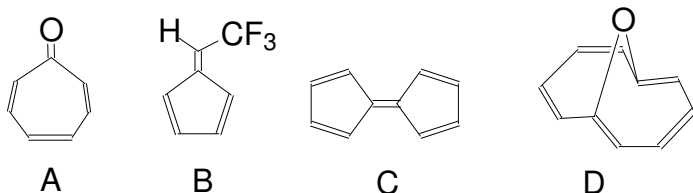


四、选择题: (把答案写在 () 内) (6 分)

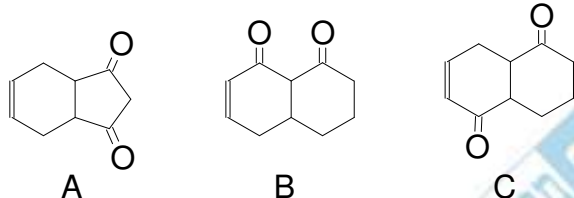
1. 下列化合物有手性的是 () 和 ()



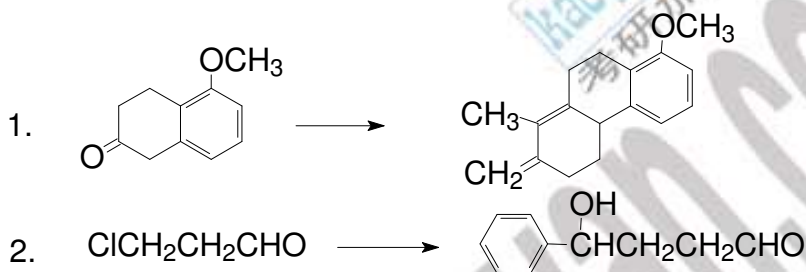
2. 下列化合物有芳香性的是 () 和 ()



3. 下列化合物最容易形成烯醇式的是 (), 最不容易形成的是 ()



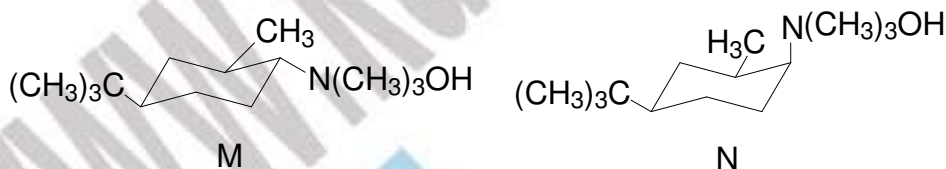
五, 完成下列转化 (除制定原料外, 可应用其他必要试剂) (8 分)



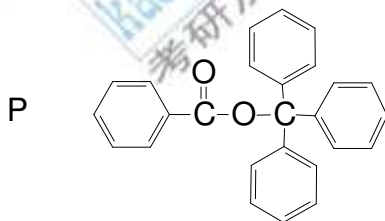
六, 简要回答问题: (8 分)

1. 写出噻吩硝化时, 硝基进攻 α 和 β 位生成的中间体正离子主要共振结构, 并说明进攻哪个位置有利。

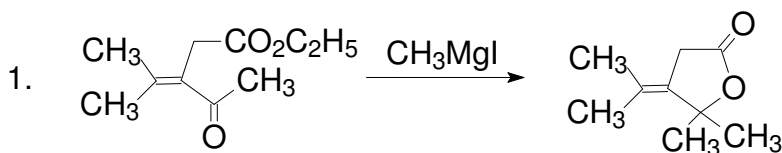
2. 下列两个互为异构体的季铵盐加热得到不同产物, 写出反应产物并说明为什么?

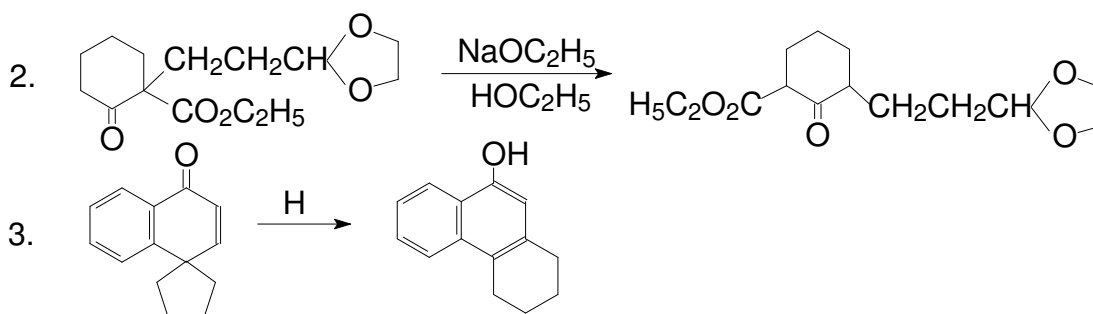


3. 下列化合物 P 与 CH_3MgX 反应, 再酸化得到两种产物。其中之一可与 NaHCO_3 作用放出 CO_2 , 另一种产物是不含氧的, 为一烃类。写出这两种产物和它们生成的过程。

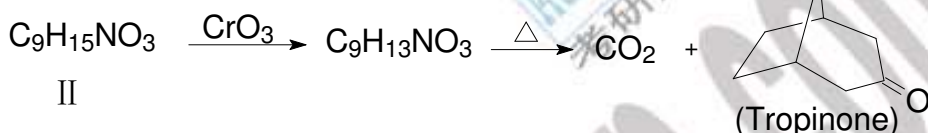
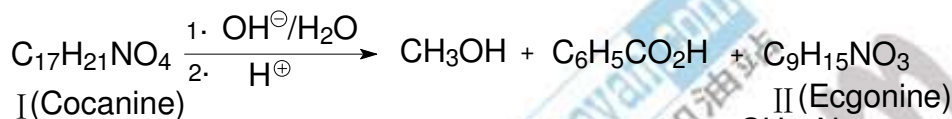


七, 写出下列反应的机理 (10 分)

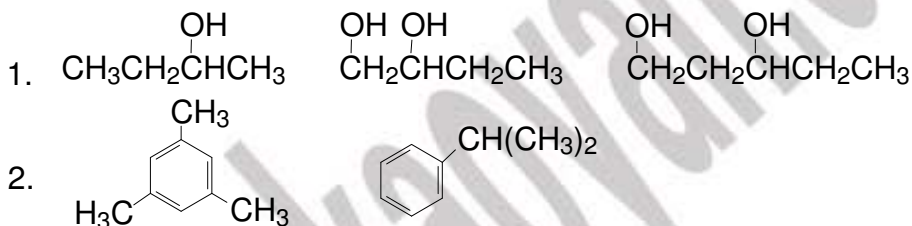




八, 根据下列反应写出化合物 I, II, III 的结构 (4 分)



九, 用简单化学方法或物理方法 (IR, NMR) 分别鉴别下列两组化合物。(4 分)



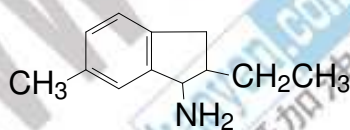
十, 化合物 $C_4H_7ClO_2$, 它的 IR 和 NMR 谱图数据如下: 写出该化合物的结构, 并标明 NMR 各峰归属。(4 分)

IR: $1725cm^{-1}$ (强) $1050-1200cm^{-1}$ (一组中强峰)

NMR: $\delta 1.7ppm(3H, b)$, $\delta 3.8ppm(3H, s)$, $\delta 4.3ppm(1H, q)$

十一, 合成题 (12 分)

1. 由甲苯, 丙二酸二乙酯及其它必要试剂合成:



2. 由苯及其他必要的试剂合成:

