

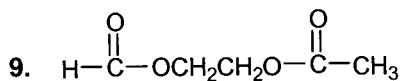
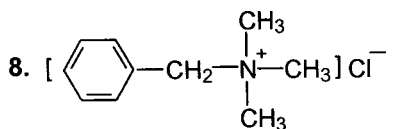
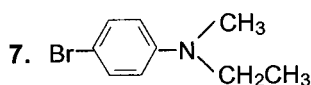
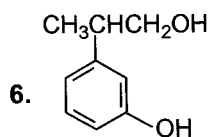
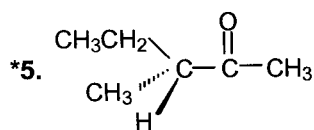
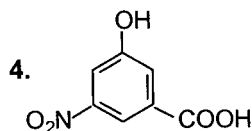
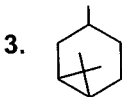
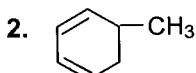
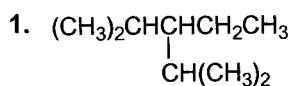
江苏大学 2007 年硕士研究生入学考试试题

科目代码: 461

科目名称: 有机化学

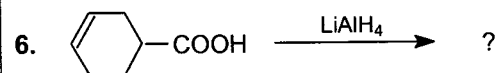
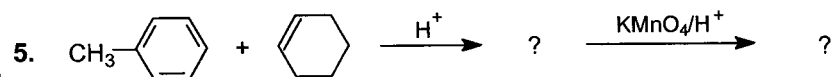
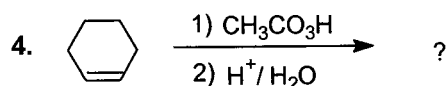
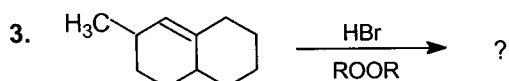
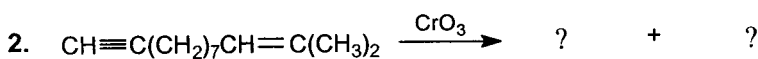
考生注意: 答案必须写在答题纸上, 写在试卷、草稿纸上无效!

一、命名下列化合物, 有*号者需指明其构型 (10×2分)



10. 1-氯-4-甲基环己烷最稳定的构象

二、完成下列反应式 (20×1.5分)



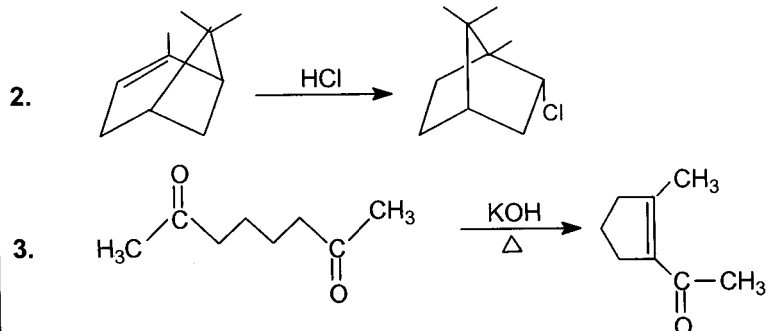
7. COc1ccc(C=O)cc1 $\xrightarrow{\text{Ph}_3\text{P}-\text{C}_6\text{H}_{11}}$?
 $\xrightarrow[\text{HCl}]{\text{Zn-Hg}}$?
8. O=C1CCCCC1 $\xrightarrow{\text{CH}_3\text{CO}_3\text{H}}$?
 $\xrightarrow[\text{HN}(\text{CH}_3)_2 \cdot \text{HCl}]{\text{CH}_2\text{O}, \Delta}$?
9. HCOOC2H5 $\xrightarrow[2) \text{H}_3\text{O}^+]{1) 2 \text{CH}_2=\text{CHCH}_2\text{MgBr}}$?
10. C1=CCCCC1 $\xrightarrow{\text{Cl}_2}$? $\xrightarrow[\Delta]{2\text{KOH}, \text{醇}}$?
11. [N+]#Nc1ccccc1.[Cl-] $\xrightarrow{\text{SnCl}_2-\text{HCl}}$? $\xrightarrow{\text{OH}^-}$?
12. C1=CCCCC1C2=CCCCC2 $\left\{ \begin{array}{l} \xrightarrow{h\nu} ? \\ \xrightarrow{\Delta} ? \end{array} \right.$

三、鉴别下列各组化合物 (2×6 分)

1. CC1CCCCC1 CC1=CCCCC1 CC1=CCCCC1 C=C1CCCCC1
2. OCC1OC(O)C(O)C(O)C1O OCC1OC(O)C(O)C(O)C1O OCC1OC(O)C(O)C(OC)C1O

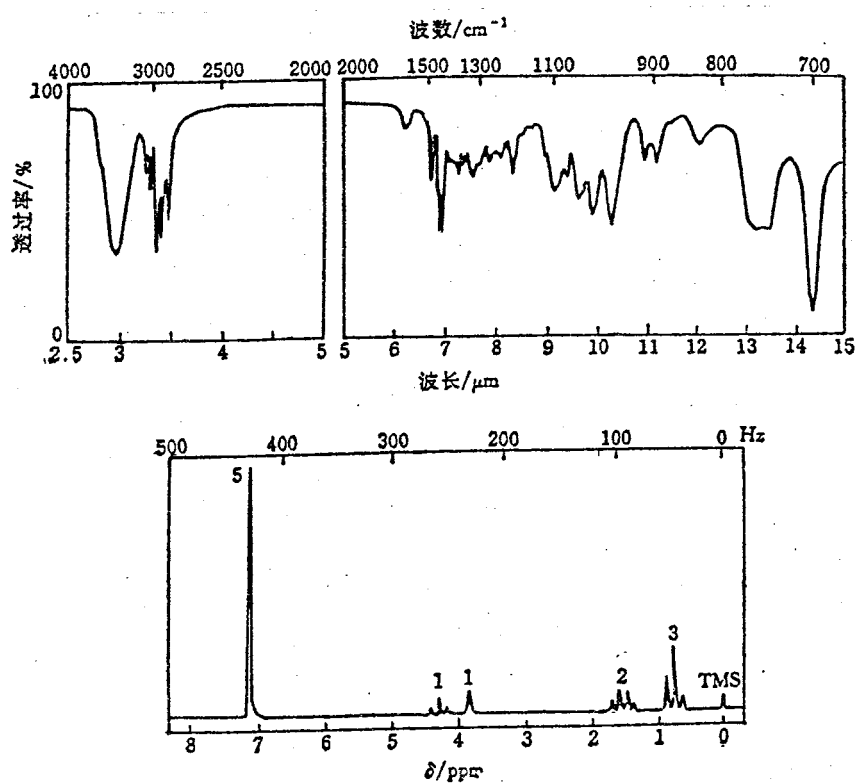
四、机理 (3×6 分)

1. NCC1(O)CCCCC1 $\xrightarrow{\text{HNO}_2}$ O=C1CCCCC1






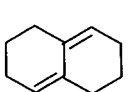


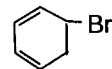
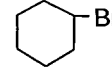
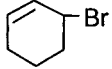
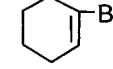
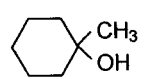
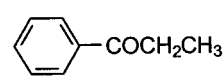
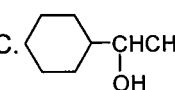
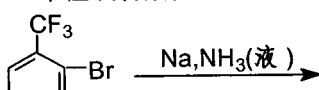
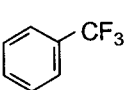
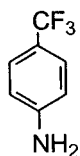
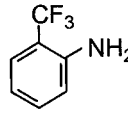
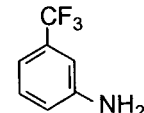


五、推导结构 (2×10 分)

- 某化合物 A, 分子式为 $C_8H_{17}N$, 其核磁共振谱无双重峰, 它与 2mol 碘甲烷反应, 然后与 Ag_2O (湿) 作用, 接着加热, 生成一个中间体 B, 其分子式为 $C_{10}H_{21}N$ 。B 进一步甲基化后与湿的 Ag_2O 作用, 转变为氢氧化物, 加热则生成三甲胺、1,4-辛二烯和 1,5-辛二烯的混合物。写出化合物 A 和 B 的结构式, 并表示所有的转变过程。
- 化合物 $C_9H_{12}O$ 的红外光谱和核磁共振谱图如下, 确定其构造。

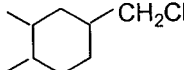


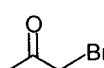
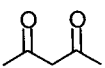
六、选择题 (10×2分)

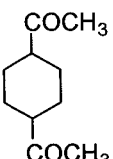
- 下列化合物沸点高低顺序为----- ()
 a.  b.  c.  d. 
 A. $a > b > c > d$ B. $d > c > b > a$ C. $b > a > c > d$ D. $a > d > b > c$
- 下列化合物与 HBr 发生加成反应, 不遵循马氏规则的是----- ()
 A. $\text{CH}_2=\text{CH}-\text{Cl}$ B. $\text{CH}_2=\text{CH}-\text{CF}_3$ C. $\text{CH}_2=\text{CH}-\text{CH}_3$ D. $\text{CH}_2=\text{CH}-\text{OCH}_3$
- 下列化合物可以发生 Diels-Alder 反应的是----- ()
 A.  B.  C.  D. 
- 下列试剂亲核性的强弱顺序正确的是----- ()
 a. $(\text{CH}_3)_3\text{C}^-$ b. CH_3O^- c. $(\text{CH}_3)_2\text{N}^-$ d. F^-
 A. $a > b > c > d$ B. $a > c > b > d$ C. $d > b > c > a$ D. $b > a > c > d$
- 下列化合物在 $\text{KOH}/\text{CH}_3\text{CH}_2\text{OH}$ 中, 消除 HBr 反应活性顺序正确的是----- ()
 a.  b.  c.  d. 
 A. $a > b > c > d$ B. $b > a > c > d$ C. $a > c > b > d$ D. $c > a > d > b$
- 下列化合物中, 能发生碘仿反应的是----- ()
 A.  B.  C.  D. $\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$
- 在水溶液中, 下列化合物的碱性强弱顺序正确的是----- ()
 a. $(\text{CH}_3)_3\text{N}^+\text{C}_2\text{H}_5\text{OH}^-$ b. $(\text{CH}_3\text{CH}_2)_2\text{NH}$ c. $(\text{CH}_3\text{CH}_2)_3\text{N}$ d. NH_3
 A. $a > b > c > d$ B. $d > c > b > a$ C. $c > b > d > a$ D. $b > c > d > a$
- 下列化合物水解反应速率由大到小的顺序正确的是----- ()
 a. CH_3COCl b. $\text{CH}_3\text{COOC}_2\text{H}_5$ c. CH_3CONH_2 d. $(\text{CH}_3\text{CO})_2\text{O}$
 A. $a > b > c > d$ B. $a > d > b > c$ C. $a > b > d > c$ D. $b > c > d > a$
- 芳香族重氮盐与芳叔胺偶合的条件是----- ()
 A. 中性或弱酸性 B. 强碱性 C. 强酸性 D. 弱碱性
- 该反应的主产物为----- ()

 A.  B.  C.  D. 


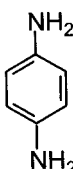
七、合成 (5×6分)

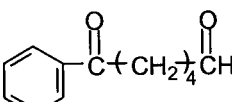
1. 以丙炔为原料合成: $\text{CH}_2=\text{CHCH}_2\text{C}(\text{H})=\text{C}(\text{H})\text{CH}_3$ (无机试剂任选)

2. 以乙炔、丙烯为原料合成:  (无机试剂任选)

3.  \longrightarrow  (其它试剂任选)

4. 以乙酰乙酸乙酯和乙烯为原料合成:  (无机试剂任选)

5.  \longrightarrow  (其它试剂任选)

6. 以苯和环己醇为原料合成:  (无机试剂任选)