

復旦大學

2005 年招收攻读硕士学位研究生入学考试试题

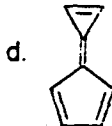
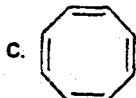
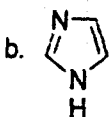
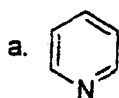
考试科目:有机化学

注意: 答案请做在答卷纸上, 做试题上一律无效。

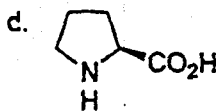
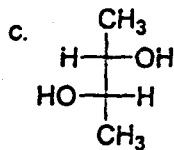
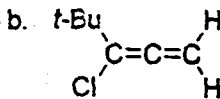
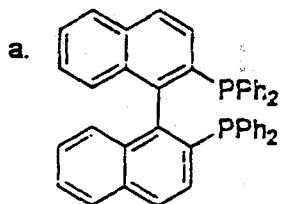
(共 4 页)

一、请给出符合题意的选项 (每小题 2 分, 本题共 10 分)

1. 下列化合物中, 何者不具芳香性



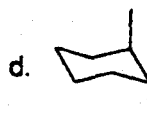
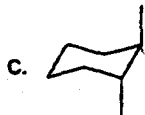
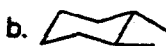
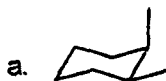
2. 下列化合物中没有对映异构体的是



3. 由 DNA 水解得到的糖类分子是

a. D-核糖 b. L-核糖 c. 2'-脱氧-D-核糖 d. 2'-脱氧-L-核糖

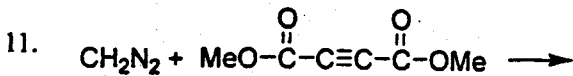
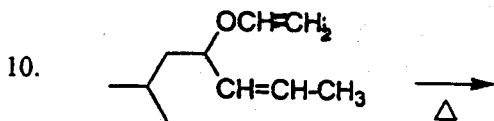
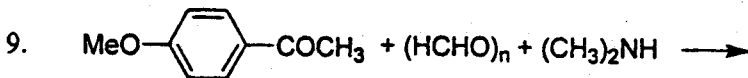
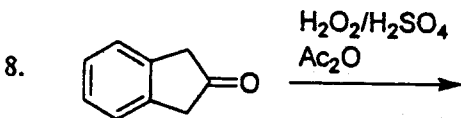
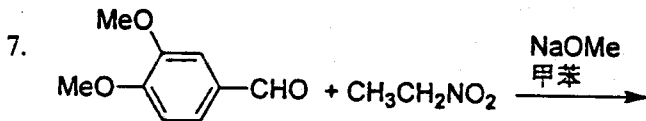
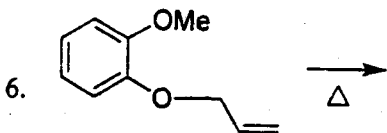
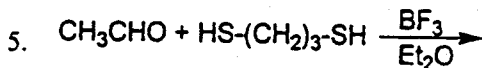
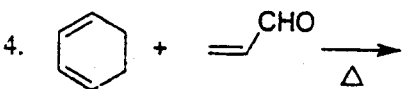
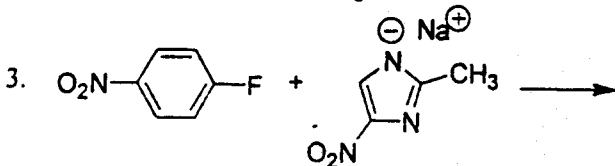
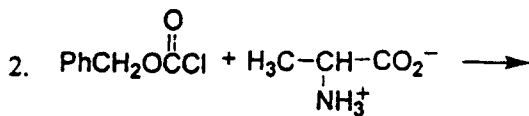
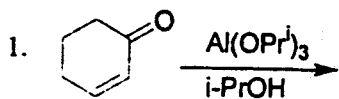
4. 顺-1,2-二甲基环己烷的一个稳定构象是

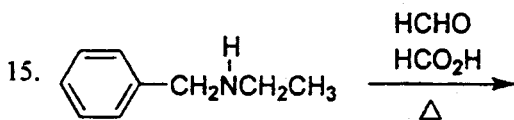
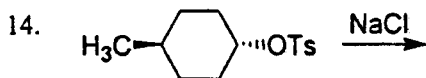
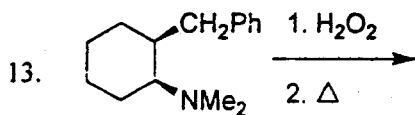
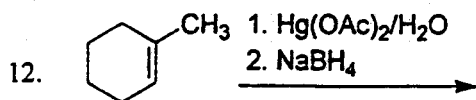


5. 适用于区别醛糖与酮糖的试剂是

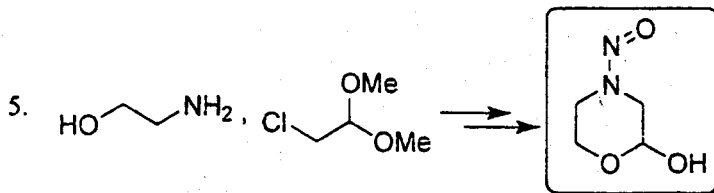
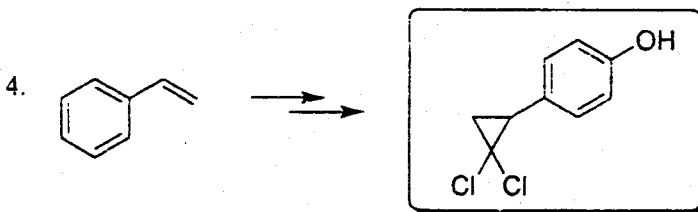
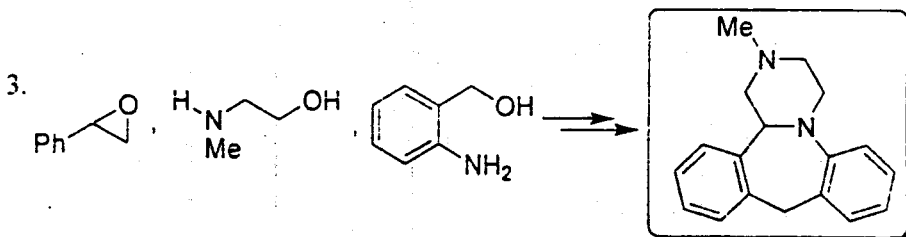
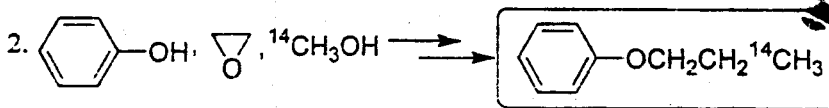
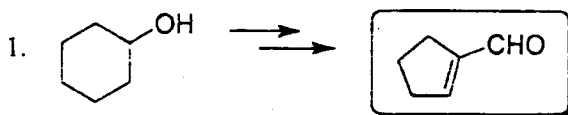
a. 稀硝酸 b. $\text{Br}_2/\text{H}_2\text{O}$ c. Fehling 试剂 d. Tollens 试剂

二、完成下列反应，给出反应的主要产物。若有必要，请注意正确地表示产物的立体化学特征。(每小题3分，本题共45分)

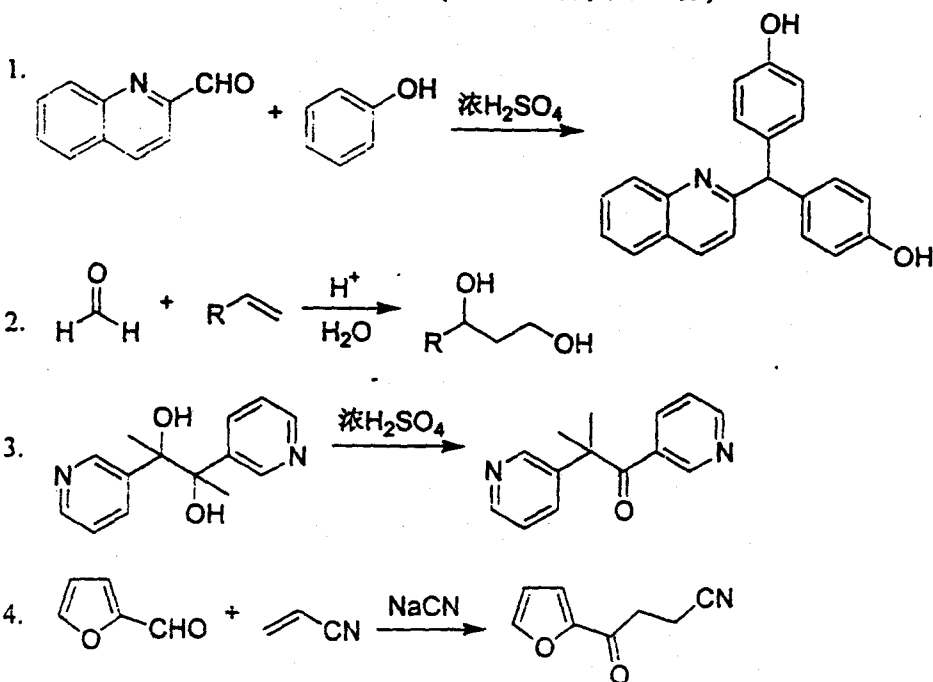




三、请按要求设计下列目标化合物的合成路线（其它必需的无机、有机等试剂任选）。（每小题7分，共35分）。

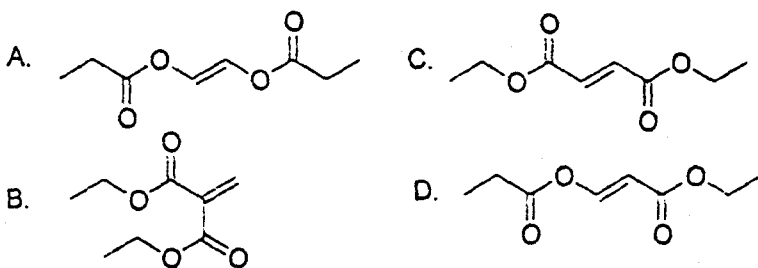


四、对下列转变提出合理的反应机理。(每小题 7 分, 共 28 分)



五、结构确定和谱图解析。(本题共 20 分)

某研究生合成得到了一化合物, 其可能结构如 A-D 所示。请根据下列分析测试数据确定具体是哪一个, 并对所有核磁数据(^1H & ^{13}C)进行归属。



^1H NMR (270 MHz, CDCl_3/TMS) δ : 1.21 (t, J 7.8 Hz, 3H), 1.29 (t, J 7.0 Hz, 3H), 2.50 (q, J 7.8 Hz, 2H), 4.20 (q, J 7.0 Hz, 2H), 5.70 (d, J 12.6 Hz, 1H), 8.30 (d, J 12.6 Hz, 1H); ^{13}C NMR (67.5 MHz, CDCl_3/TMS) δ : 8.60, 14.3, 27.2, 60.4, 105.6, 149.3, 166.0, 170.2; HRMS (EI) calcd for $\text{C}_9\text{H}_{12}\text{O}_4$ [M] $^+$ 172.0736, found 172.0747.

六、扼要回答: 根据操作条件的不同, 你知道色谱方法有哪些类型? 色谱方法在有机化学中有哪些重要的用途? (本题 12 分)