

865-B

华南理工大学
2016 年攻读硕士学位研究生入学考试试卷

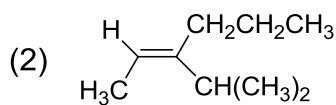
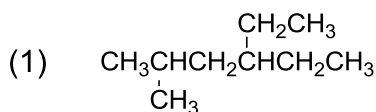
(试卷上做答无效, 请在答题纸上做答, 试后本卷必须与答题纸一同交回)

科目名称: 有机化学

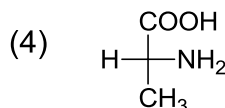
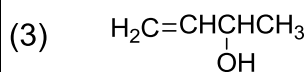
适用专业: 有机化学; 高分子化学与物理; 生物医学工程; 材料学; 材料加工工程;
制糖工程; 发酵工程; 淀粉资源科学与工程; 绿色能源化学与技术; 食品科学与工程;
材料工程(专硕); 轻工技术与工程(专硕); 生物医学工程(专硕); 食品工程(专硕)

共 6 页

一、用系统命名法命名下列化合物或根据名称写出结构式(每小题 2 分, 共 12 分)



(用 Z,E 标记法命名)



(用 R,S 标记命名)

(5) 3-甲基-4-溴苯甲酰氯

(6) 乙二胺四乙酸(EDTA)

二、单项选择题(每小题 2 分, 共 28 分)。

1、下列碳正离子最稳定的是()



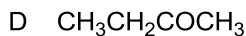
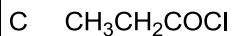
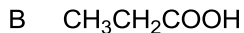
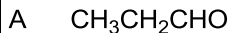
2、鉴别 1-丙醇和 2-丙醇可采用的试剂是()



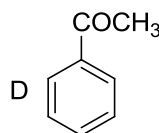
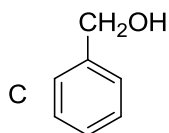
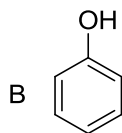
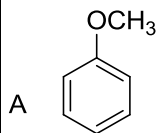
3、苯环上的卤化反应属于()

- A 亲电加成反应 B 亲核取代反应
C 亲核加成反应 D 亲电取代反应

4、下列能发生银镜反应的化合物是 ()



5、下列化合物中与三氯化铁作用显色的是 ()



6、卤代烃的反应中, 下列哪个特征是 $\text{S}_{\text{N}}2$ 反应历程的特征? ()

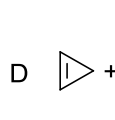
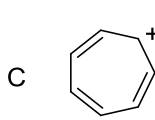
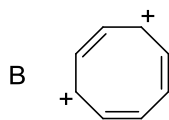
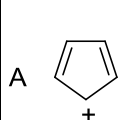
A 在强极性溶剂中反应很快

B 反应产物构型翻转

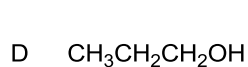
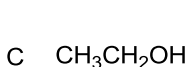
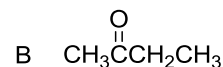
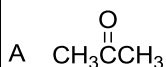
C 反应过程中有碳正离子中间体生成

D 反应分步进行

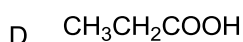
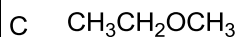
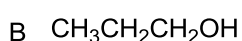
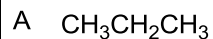
7、按照 Hückel 规则, 判断下列离子哪一个没有芳香性? ()



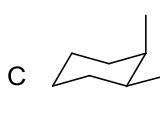
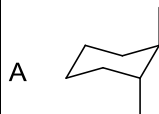
8、下列化合物不能发生碘仿反应的是 ()



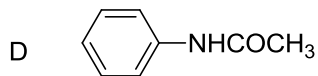
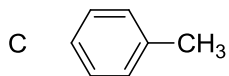
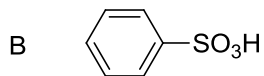
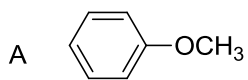
9、下列化合物沸点最高的是 ()



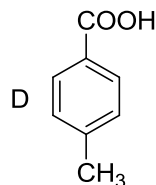
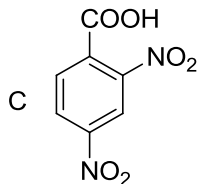
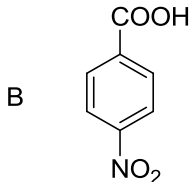
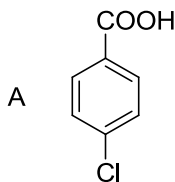
10、1,2-二甲基环己烷最稳定的构象是 ()



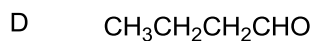
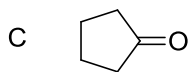
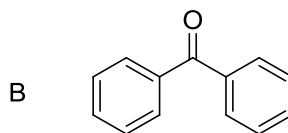
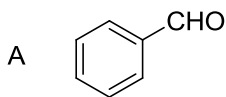
11、下列化合物不能进行 Friedel-Crafts 酰基化反应的是 ()



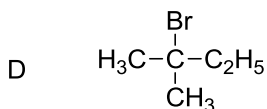
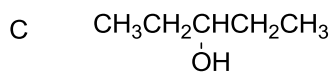
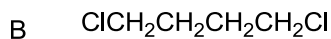
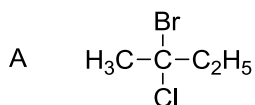
12、下列化合物中酸性最强的是 ()



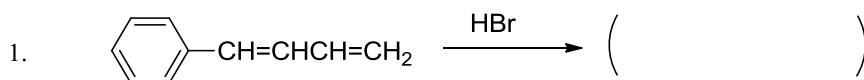
13、下列化合物不能与亚硫酸氢钠饱和溶液反应生成沉淀的是()

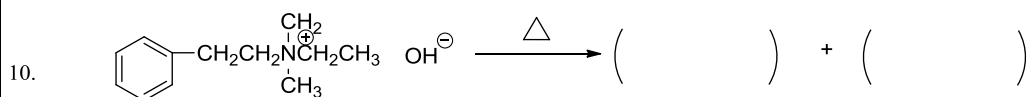
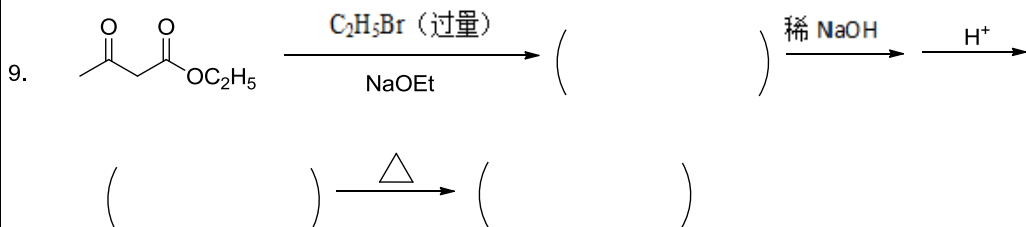
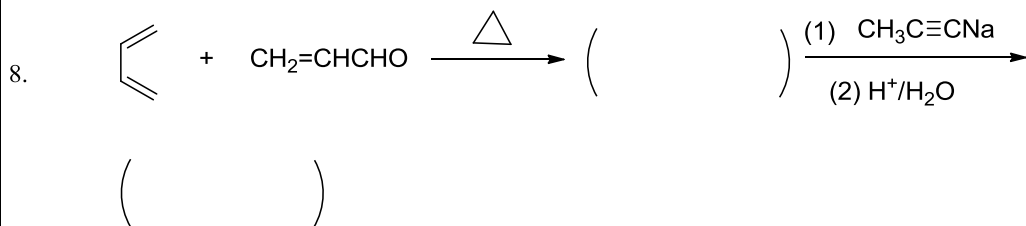
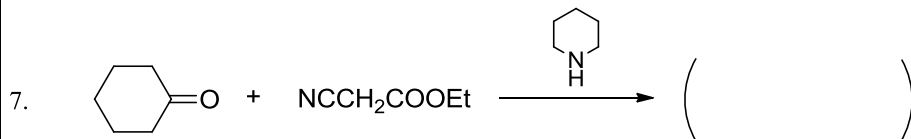
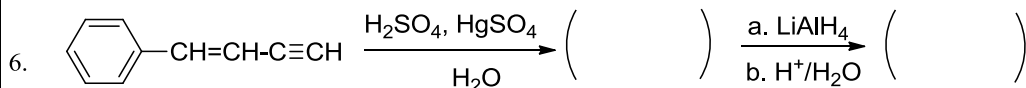
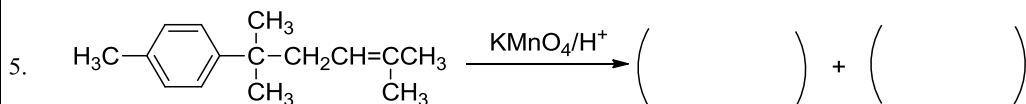
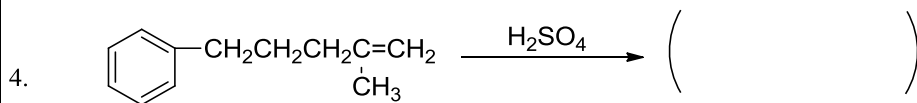
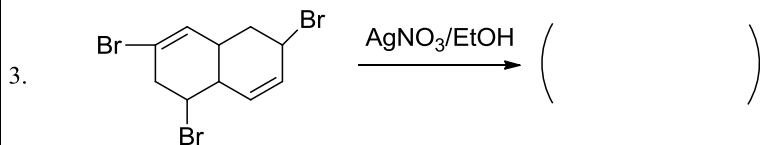
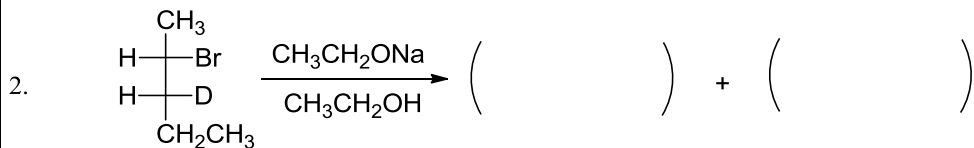


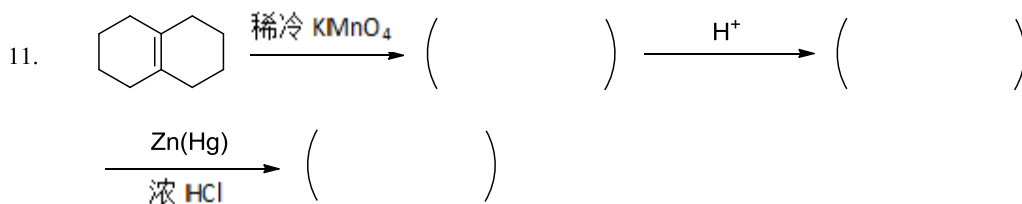
14、下列化合物中有手性碳原子的是 ()



三、完成下列反应式 (第 2, 11 小题需注明立体化学, 每空 2 分, 共 40 分)



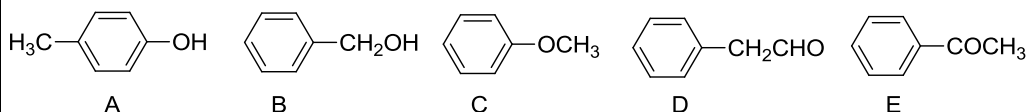




四、简答题（10分）

1. 丙酮（b.p.56°C）碱性条件下发生羟酮缩合得到的β-羟基酮的沸点 164°C，其转化率仅有 5%，写出该反应的反应式（2分）。若要提高转化率，可采用什么措施（2分）？

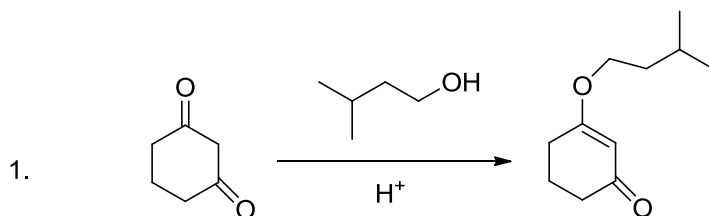
2. 用化学方法鉴别下列化合物（6分）

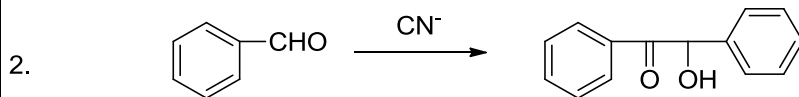


五、推导题（共8分）

一碱性化合物 A ($C_5H_{11}N$)，它被臭氧分解给出甲醛，A 经催化氢化生成化合物 B ($C_5H_{13}N$)，B 也可以由己酰胺加溴和氢氧化钠溶液得到。用过量的碘甲烷处理 A 转变成一个盐 C ($C_8H_{18}NI$)，C 用湿的氧化银处理随后热解给出 D(C_5H_8)，D 与丁炔二酸二甲酯反应给出 E($C_{11}H_{14}O_4$)，E 经钯脱氢得 3-甲基苯二酸二甲酯，试推出 A-E 的各化合物的结构。

六、写出下列转化的反应机理（每题6分，共12分）





七、合成题（每题 8 分，共 40 分）

