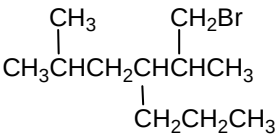
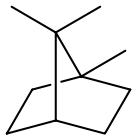
《有机化学 A（上）》期中考试　　2004-04-23

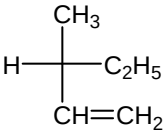
姓名_____　学号_____　总分 _____

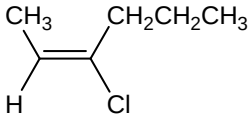
题号	一	二	三	四	五	六
分数						

一、用系统命名法命名或根据名称写结构（10 分）

1. 

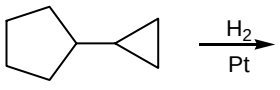
2. 

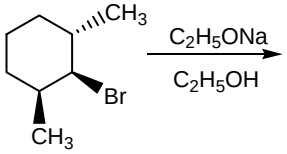
3. 

4. 

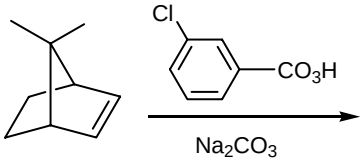
5. 2，7–二甲基–4–异丁基辛烷

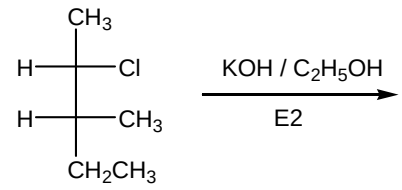
二、写出主要产物，必要时注明产物的立体化学（20 分）

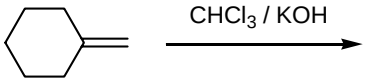
1. 

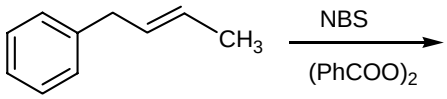
2. 

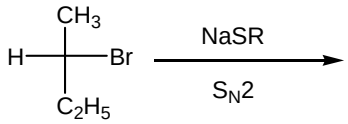
3. $CH_3CH_2CH{=}CHCH{=}CHCF_3$ (1mol) $\xrightarrow{Br_2(1mol)}$

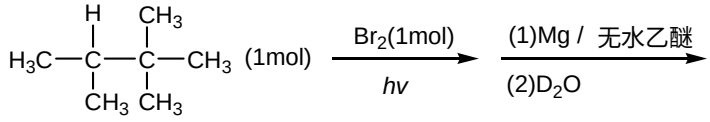
4. 

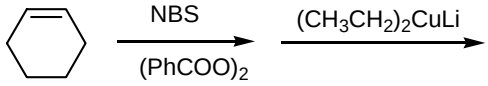
5. 

6. 

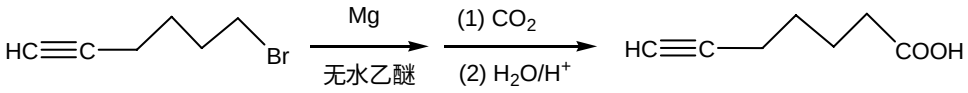
7. 

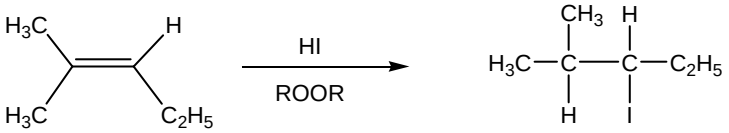
8. 

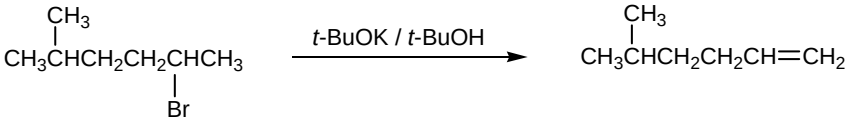
9. 

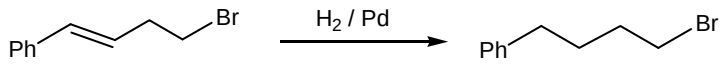
10. 

三、下列哪些合成设计可能不合理，简述问题所在或写出正确的产物（15 分）

1. 

2. 

3. 

4. 

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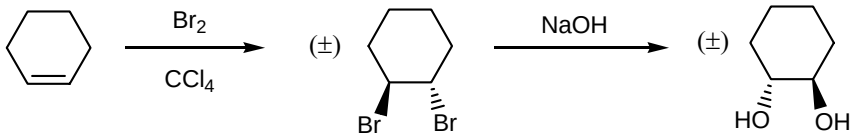

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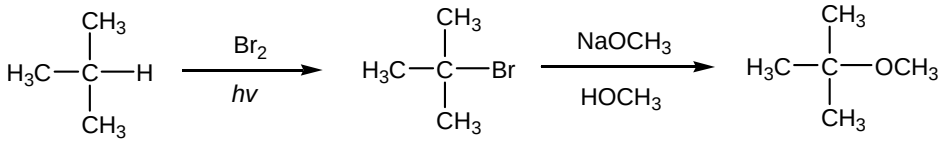

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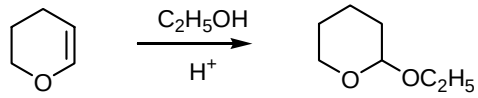

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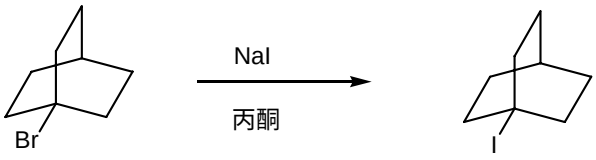
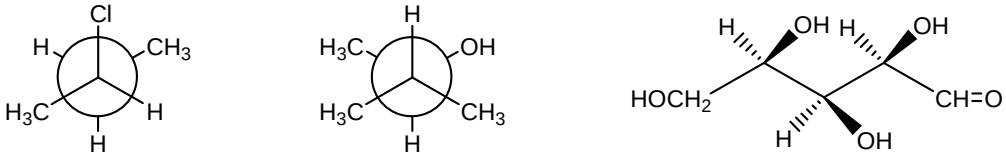
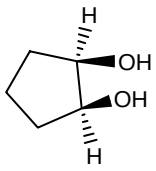


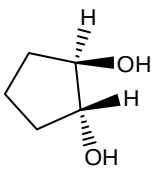
四、按要求回答（20 分）

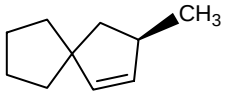
1．将下列结构式改成十字式，并用 R 或 S 标出各手性碳的构型

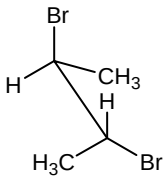


2. 下列哪几个结构为 meso 型化合物？

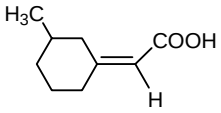




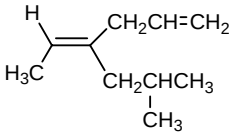




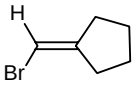
3. 下列哪几个化合物的双键构型标错了，请更正。



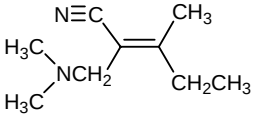
Z 型



E 型

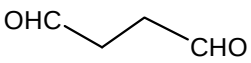


Z 型



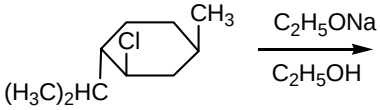
Z 型

4. 化合物**A**为烃类化合物，1mol的**A**催化氢化可吸收 2mol H_2。**A**用O_3氧化，并进一步用锌纷还原水解后只得到丁二醛。写出**A**得结构。

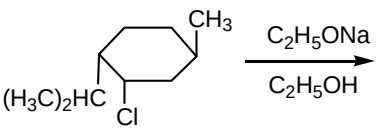


丁二醛

5. 实验室存放 Menthyl chloride 和 Neomenthyl chloride 试剂瓶上的标签脱落，为区分这两个化合物，学生设计了以下 E2 消除反应，通过分析产物及观测反应速率，成功地将两者鉴别开来。请说明其中原因。



Menthyl chloride



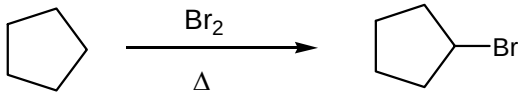
Neomenthyl chloride

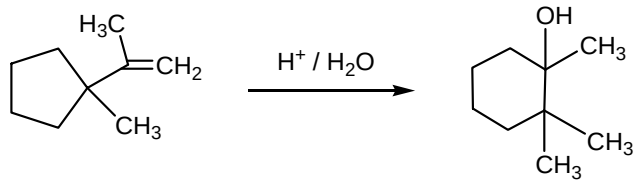
6. 化合物**B**($C_{10}H_{16}$)，与H_2/Pd反应得化合物**C**和**D**($C_{10}H_{18}$)， **C**与**D**为立体异构体，其中**C**为主要产物。**B**用O_3氧化，并进一步水解后得到一个对称的环状二酮**E**($C_{10}H_{16}O_2$)。

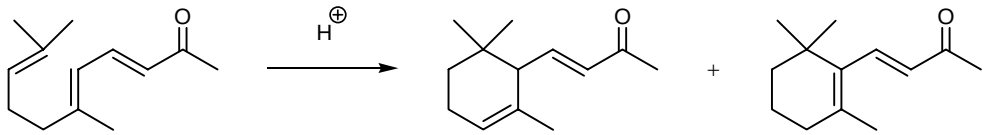
(1)写出 **B、C 、D** 和 **E** 的结构。

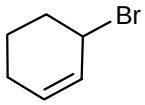
(2)画出产物 **C** 和 **D** 的最稳定构象。

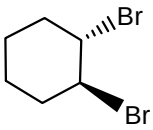
五、写出下列反应的机理或解释下列结果（15 分。第 4 题为附加题，5 分）

1. 

2. 

3. 

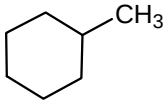
4*. 

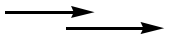
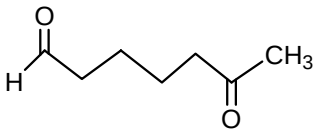
HBr (±) 

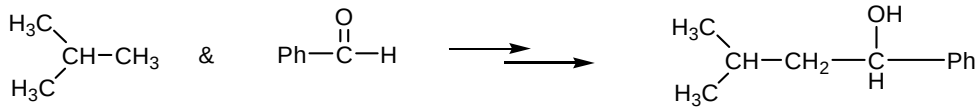
立体专一反应

（附加题）

六、用必要的有机或无机试剂完成下列合成（20 分）

1. 

2. 

3.