

上海电视大学化学系試用教材

有机化学习題解答

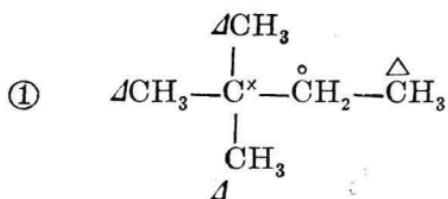
化学系教学小组选编

上海电视大学

答 案

烷 烃

1.



△伯碳原子，其所连接的氢原为伯氢原子。

○仲碳原子，其所连接的氢原为仲氢原子。

* 叔碳原子，其所连接的氢原为叔氢原子。

× 季碳原子。

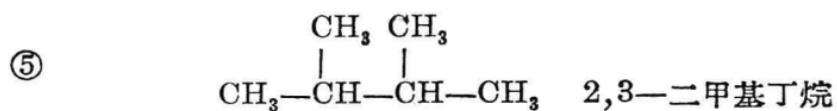
② 略

2. ① $\text{CH}_3-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_2-\text{CH}_3$
正己烷

② $\begin{array}{c} \text{CH}_3-\text{CH}-\text{CH}_2-\text{CH}_2-\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$
2—甲基戊烷

③ $\begin{array}{c} \text{CH}_3-\text{CH}_2-\text{CH}-\text{CH}_2-\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$
3—甲基戊烷

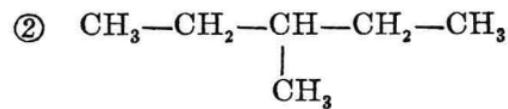
④ $\begin{array}{c} \text{CH}_3 \\ | \\ \text{CH}_3-\text{C}-\text{CH}_2-\text{CH}_3 \\ | \\ \text{CH}_3 \end{array}$
2,2—二甲基丁烷



3. ① 2,4—二甲基己烷 ② 2,2,5—三甲基己烷

4. 2,2—二甲基丁烷

5. ① $\begin{array}{ccccccc} \text{CH}_3 & -\text{CH} & -\text{CH}_2 & -\text{CH}_2 & -\text{CH}_2 & -\text{CH} & -\text{CH}_3 \\ & | & & & & | & \\ & \text{CH}_3 & & & & \text{CH}_3 & \end{array}$



6. $\text{CH}_3\text{CH}_2\text{COONa} \xrightarrow{\text{钠石灰}} \text{CH}_3\text{CH}_3 \xrightarrow{\text{Br}_2} \text{CH}_3\text{CH}_2\text{Br} \xrightarrow{2\text{Na}}$
 $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$

故原化合物为 $\text{CH}_3\text{CH}_2\text{COONa}$

烯 烃

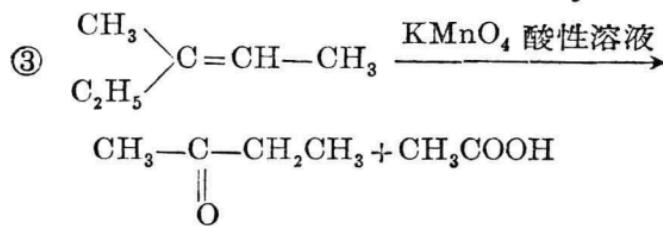
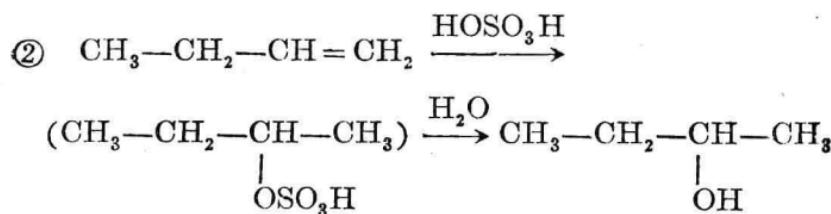
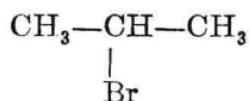
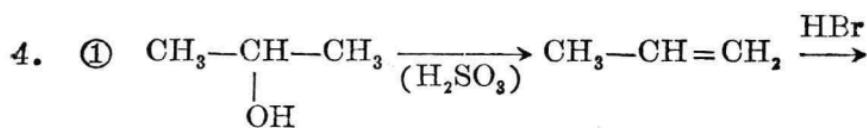
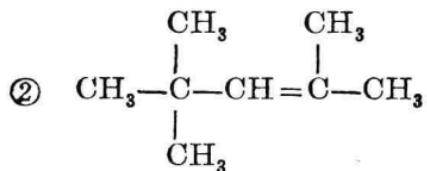
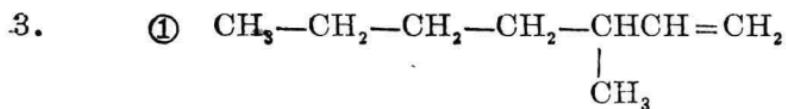
1. $\begin{array}{cc} \text{C}-\text{C}-\text{C}-\text{C}=\text{C} & \text{C}-\text{C}=\text{C}-\text{C} \\ & | \\ \text{戊烯-[1]} & \text{C} \end{array}$ 2—甲基丁烯-[2]

$\begin{array}{cc} \text{C}-\text{C}-\text{C}=\text{C} \\ | \\ \text{C} \end{array}$ 戊烯-[2]

$\begin{array}{cc} \text{C}-\text{C}-\text{C}=\text{C} \\ | \\ \text{C} \end{array}$ 2—甲基丁烯-[1]

$\begin{array}{cc} \text{C}-\text{C}-\text{C}=\text{C} \\ | \\ \text{C} \end{array}$ 3—甲基丁烯-[1]

2. 3—乙基己烯-[2]

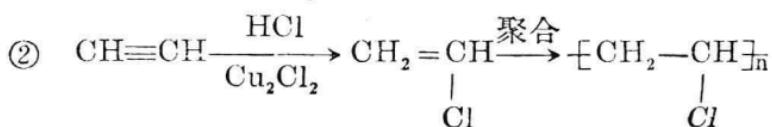
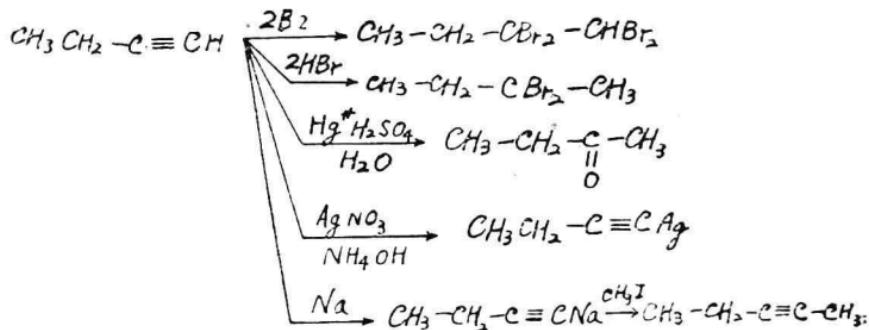
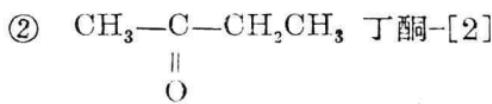
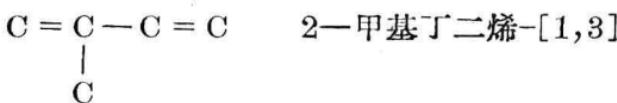
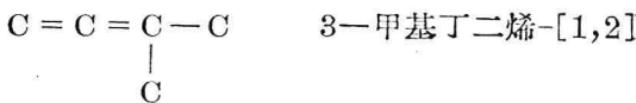
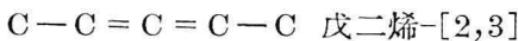
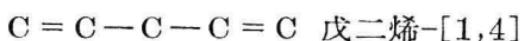
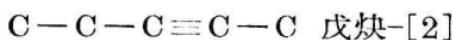
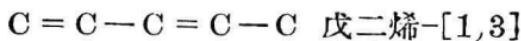


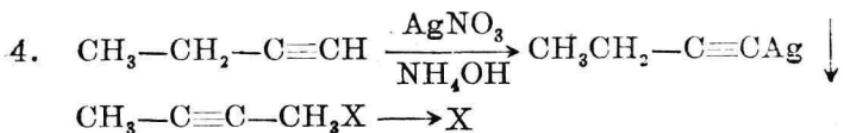
5.6 略

炔烃和二烯烃

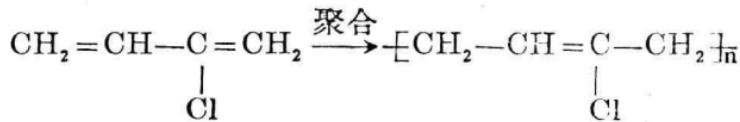
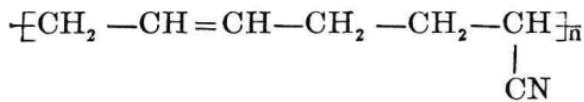
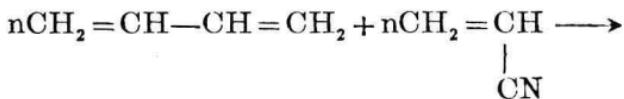
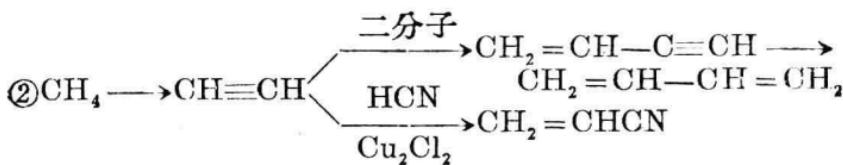
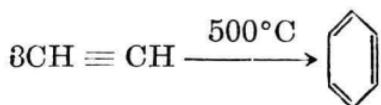
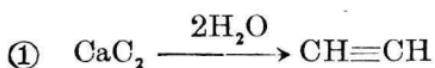
1. $\text{C}=\text{C}=\text{C}-\text{C}-\text{C}$ 戊二烯-[1,2]

$\text{C}-\text{C}-\text{C}-\text{C}\equiv\text{C}$ 戊炔-[1]



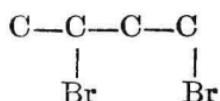
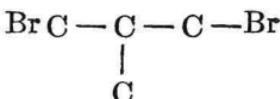
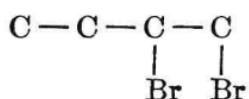
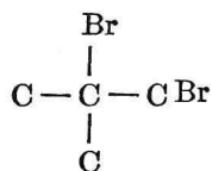
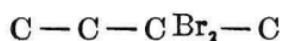
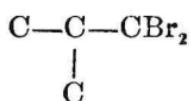
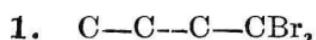


5. 合成

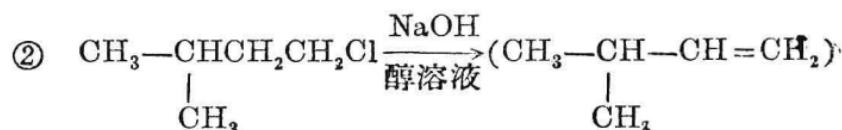
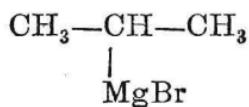
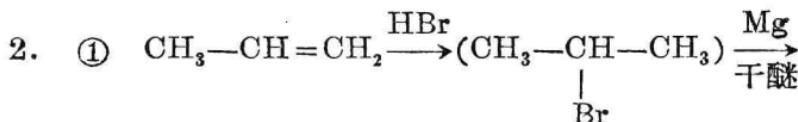
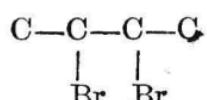
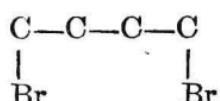


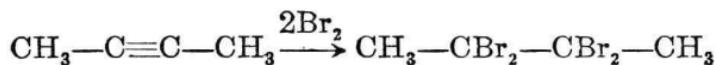
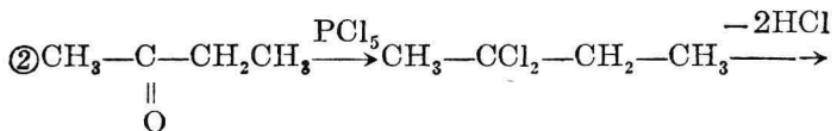
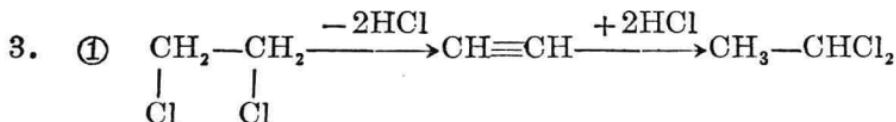
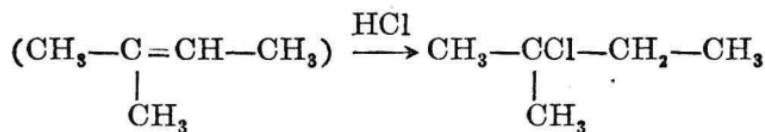
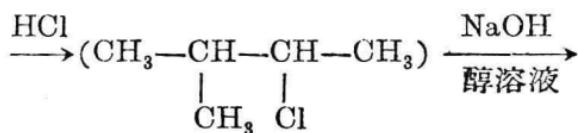
6. $\text{CH}_3\text{C}\equiv\text{C}-\underset{\text{CH}_3}{\text{CH}}-\text{CH}_3$

烃的卤素衍生物

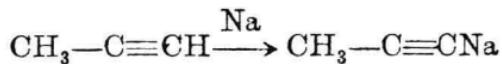
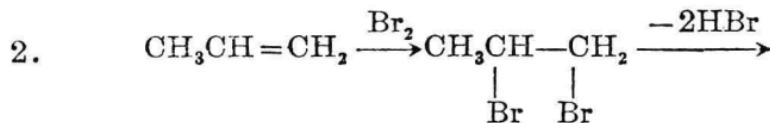
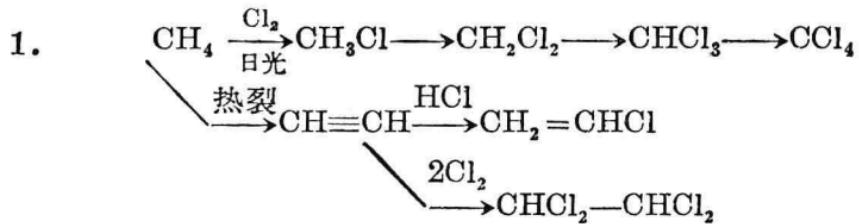


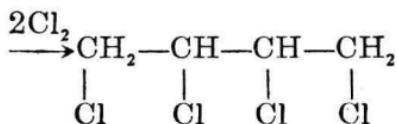
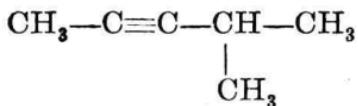
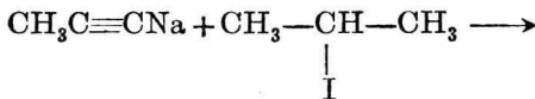
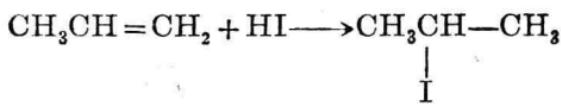
(命名略)





第一章至第五章阶段复习題

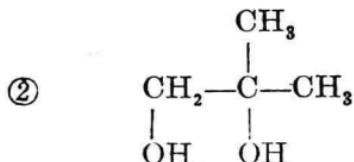
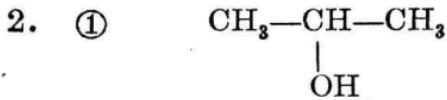




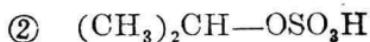
4—10 略

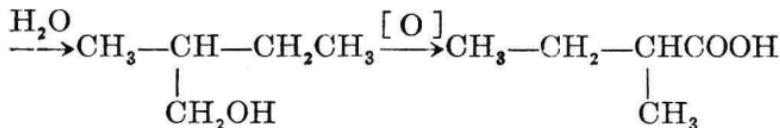
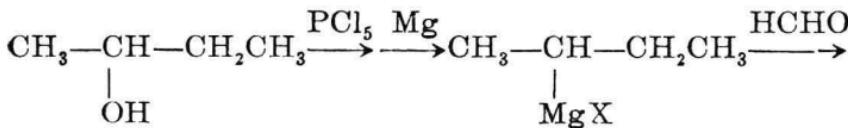
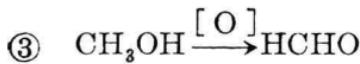
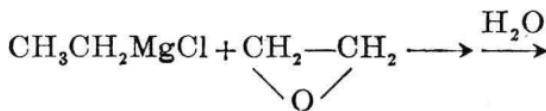
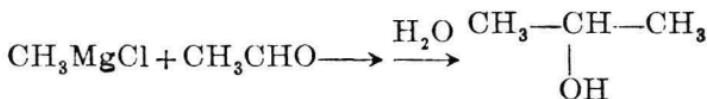
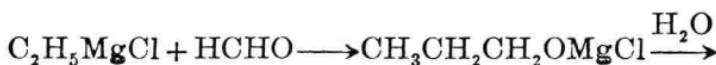
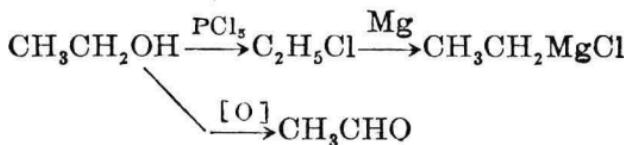
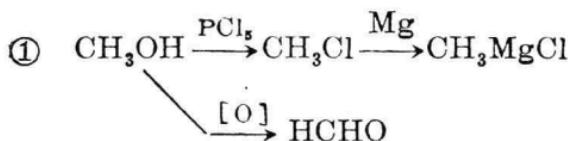
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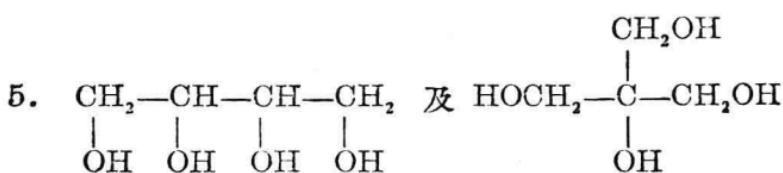
1. 2,3—二甲基戊醇-[3]



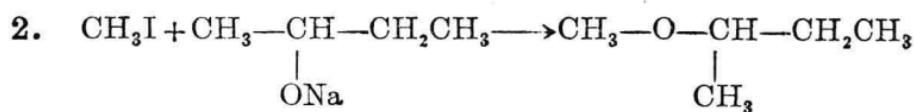
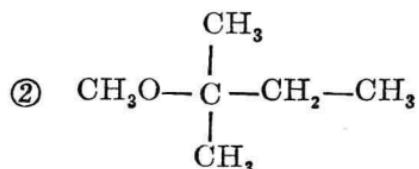
3. ① 硫酸乙酯钠







醚

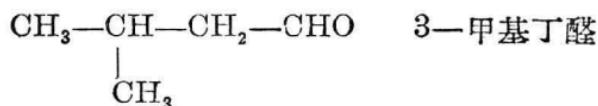
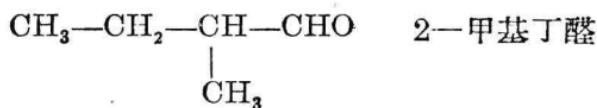


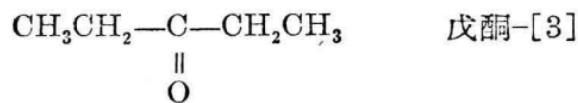
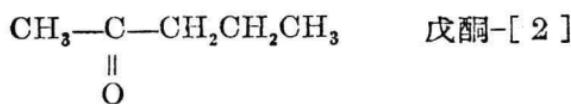
3. 查本校教材表 $\text{C}_5\text{H}_{11}\text{OH}$ 知各种异构体中

$\text{CH}_3(\text{CH}_2)_3\text{CH}_2\text{OH}$ 的沸点为 138°C

故原化合物结构为 $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{OCH}_2\text{CH}_3$

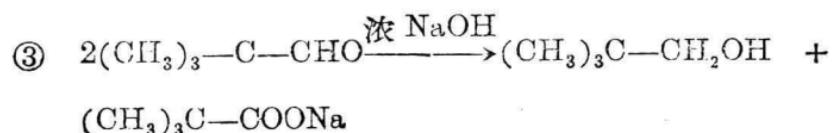
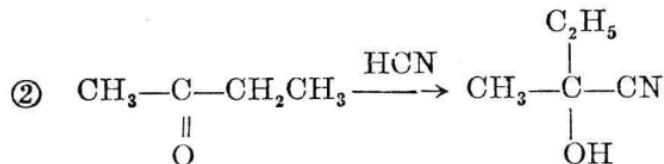
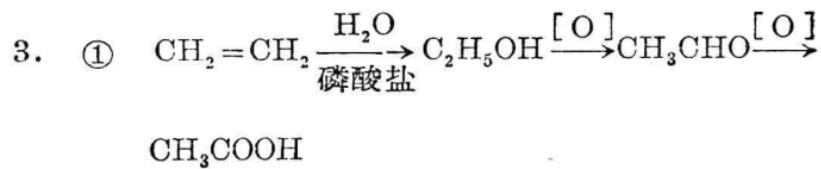
醛 和 酮

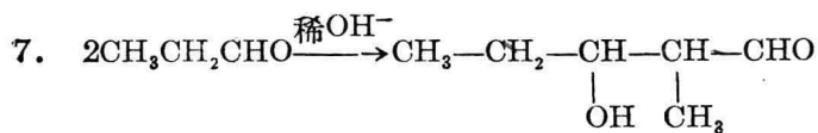
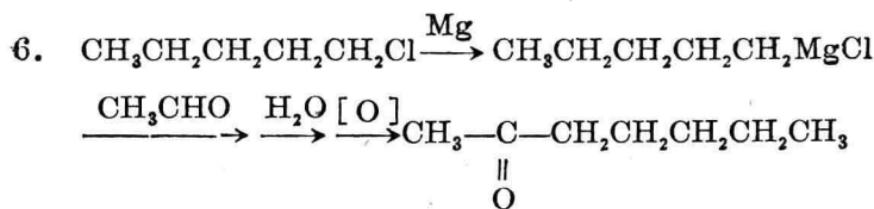
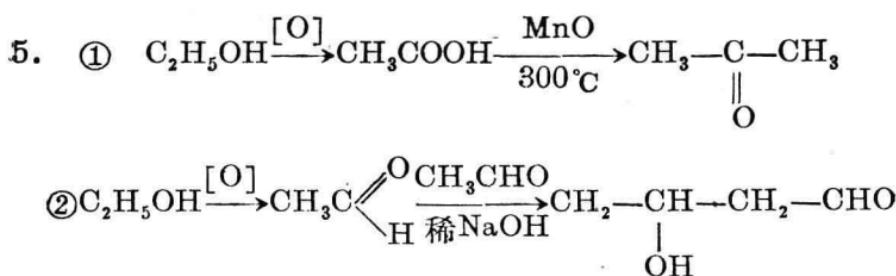
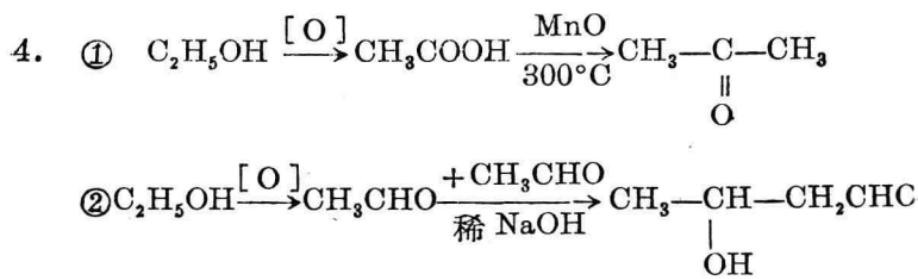




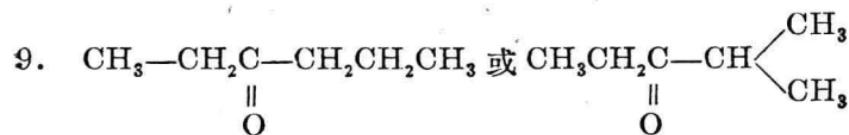
2.

- ① 丁二酮
- ② 乙稀酮
- ③ 丙烯醛



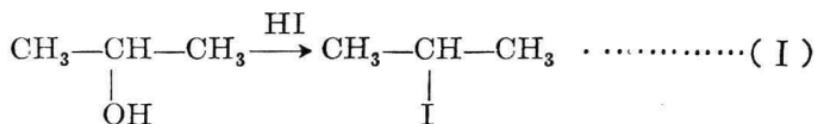
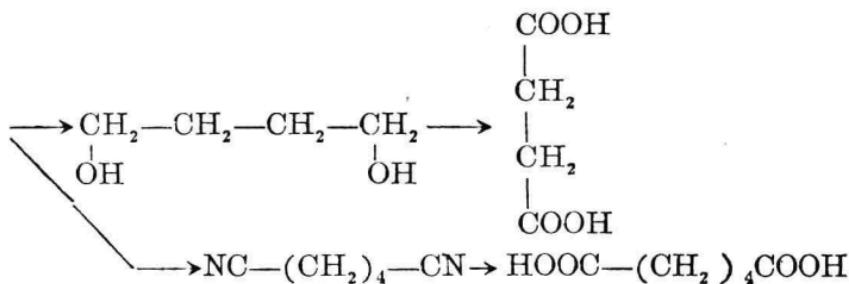
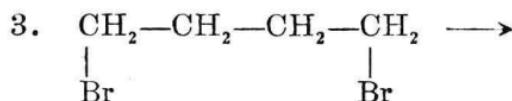
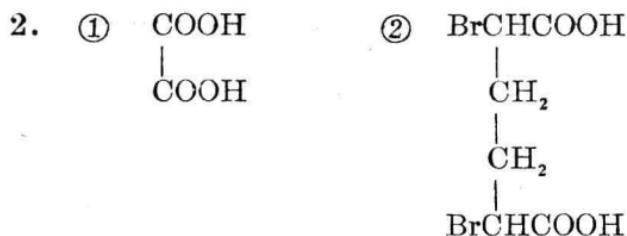
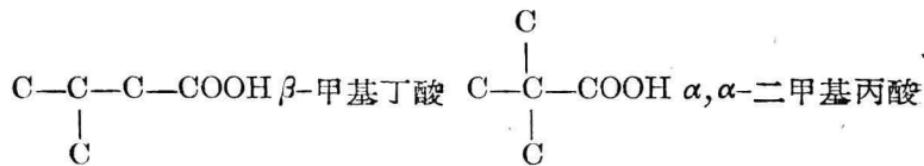
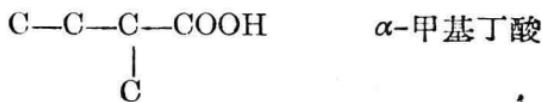


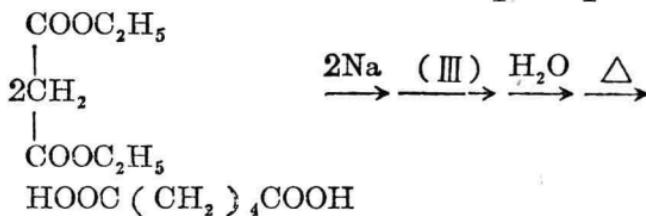
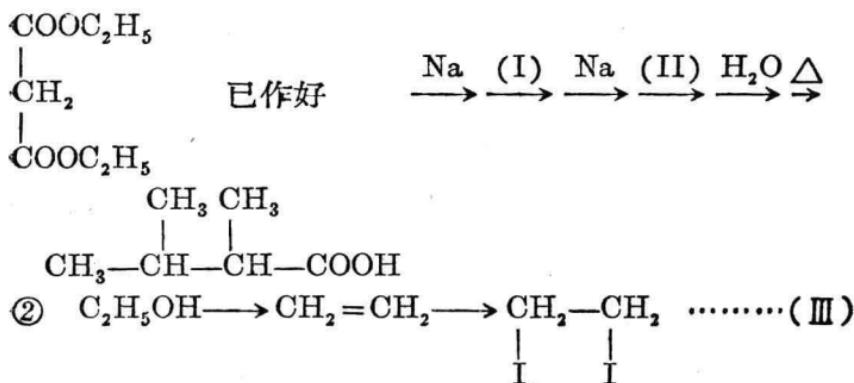
8. ①②都能起反应



羧 酸

1. $\text{C}-\text{C}-\text{C}-\text{COOH}$ 戊酸



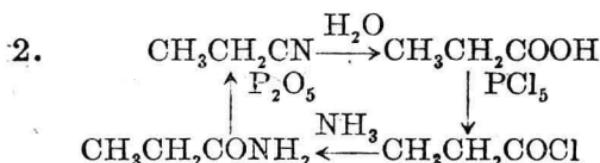
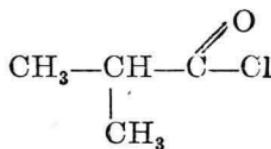


5. ①甲酸有银镜反应 而乙酸及丙二酸无
 ②加热时丙二酸会放出 CO_2 而乙酸无

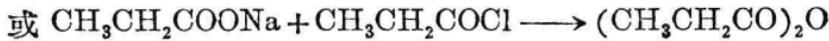
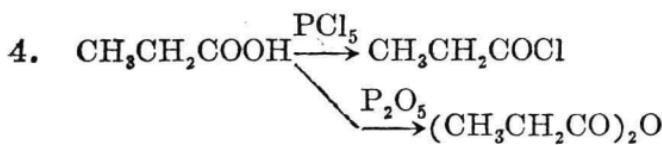
6. 略

羧酸衍生物

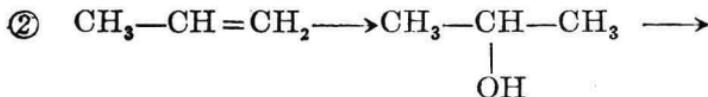
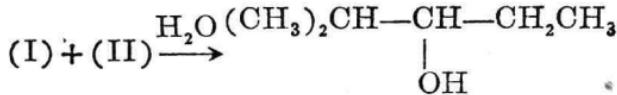
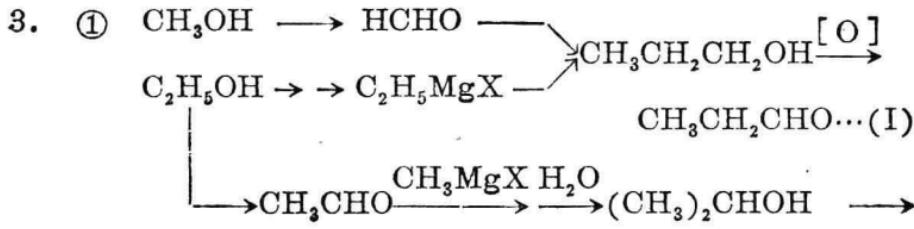
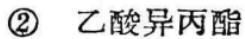
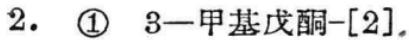
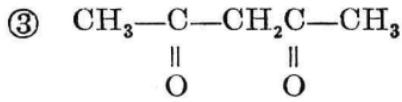
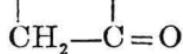
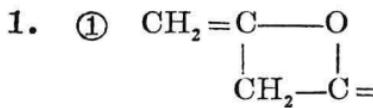
1. ① 乙酰氯 ② 乙酸乙酯 ③ 乙酸乙酯
 ④ 乙酰胺 ⑤ 丙(酸)酐、⑥

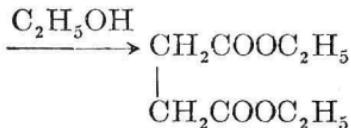
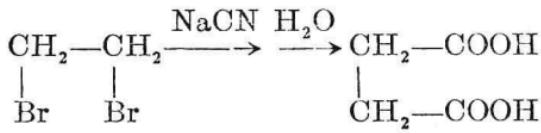
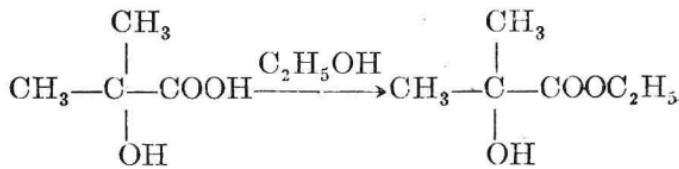
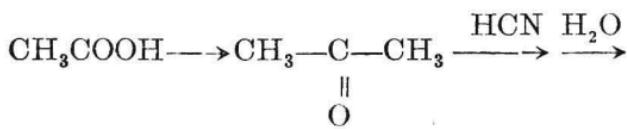
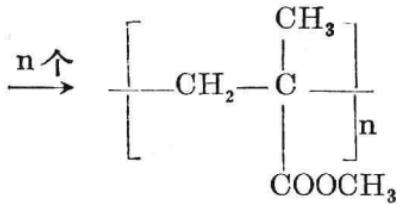
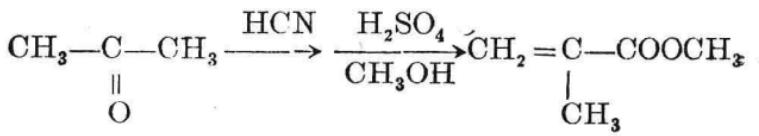


3. CH_3COCl 易水解生成 HCl 而 $\text{CH}_3\text{CH}_2\text{Cl}$ 不易。



第六章至第十章阶段复习題





4. ① $\text{C}_2\text{H}_5\text{OH}$ 可与 Na 作用，而 $\text{C}_2\text{H}_5\text{OC}_2\text{H}_5$ 不能作用。
 ② 乙醛有银镜反应而乙醇、乙酸无。
 乙醇及乙酸中加乙酸，有香味者（生成酯）为乙醇。
 ③ 戊醛有银镜或褪色品红反应，戊酮-[2]及戊酮-[3]无。