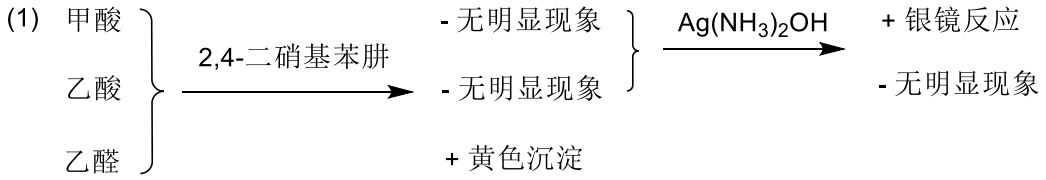
第三次作业答案

P36

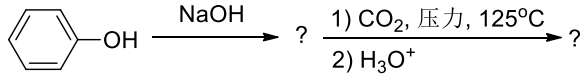
4. 用化学方法区别下列化合物:

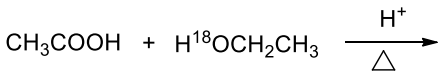
(1) 甲酸、乙酸和乙醛

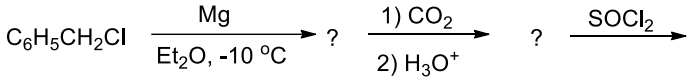
解答:

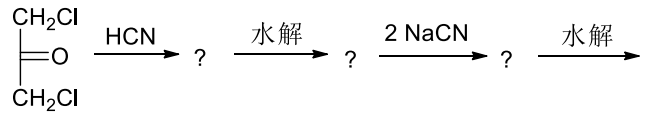


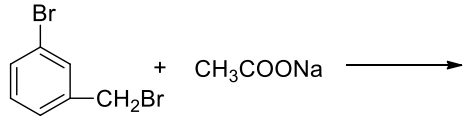
5. 指出下列反应的主要产物:

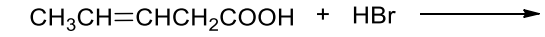
(1) 

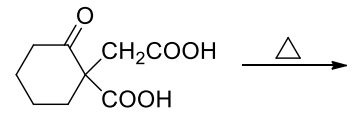
(2) 

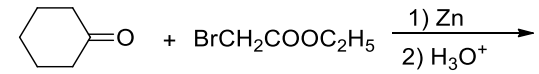
(3) 

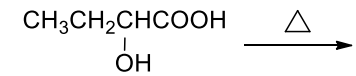
(4) 

(5) 

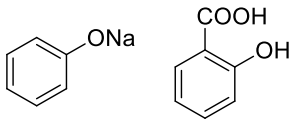
(6) 

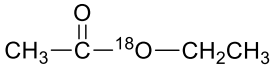
(7) 

(8) 

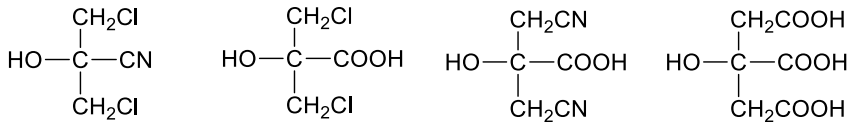
(9) 

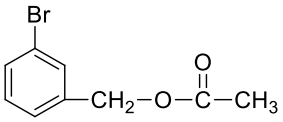
解答:

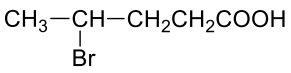
(1) 

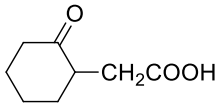
(2) 

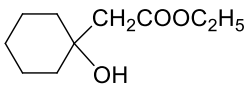
(3) $C_6H_5CH_2MgCl$ $C_6H_5CH_2COOH$ $C_6H_5CH_2COCl$

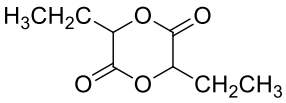
(4) 

(5) 

(6) 

(7) 

(8) 

(9) 

7. 完成下列转变:

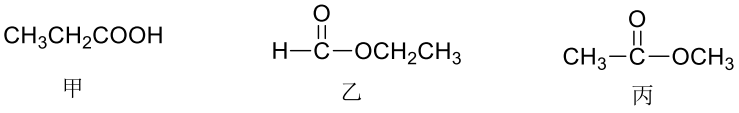
(4) $CH_3CH_2COOH \longrightarrow$ 乳酸

解答:

(4) $CH_3CH_2COOH \xrightarrow[P\ (催化量)]{Cl_2} CH_3\underset{Cl}{CH}COOH \xrightarrow[(2)\ H_3O^+]{(1)\ NaOH,\ H_2O} CH_3\underset{OH}{CH}COOH$

8. 化合物甲、乙、丙的分子式都是 $C_3H_6O_2$，甲与 Na_2CO_3 作用放出 CO_2，乙和丙不能，但在 NaOH 溶液中加热后可水解，在乙的水解液蒸馏出的液体有碘仿反应，试推测甲、乙、丙的结构。

解答: 根据题意推测得化合物甲、乙、丙的结构如下：



甲　　乙　　丙

11. 按照要求以降序排列下列各组化合物：

(2) 碱性：

① CH_3^-、CH_3O^-、$CH{\equiv}C^-$　② CH_3O^-、$(CH_3)_3CO^-$、$(CH_3)_2CHO^-$

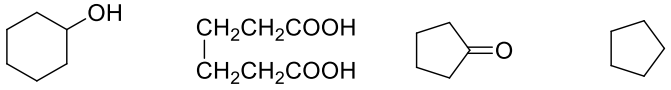
解答：

(2) ① $CH_3^- > CH{\equiv}C^- > CH_3O^-$

② $(CH_3)_3CO^- > (CH_3)_2CHO^- > CH_3O^-$

16. 分子式为 $C_6H_{12}O$ 的化合物 A，氧化后得 B ($C_6H_{10}O_4$)，B 能溶于碱，若与乙酐（脱水剂）一起蒸馏则得化合物 C，C 能与苯肼作用，用锌汞齐-浓盐酸处理得化合物 D，后者的分子式为 C_5H_{10}。请写出化合物 A、B、C、D 的结构式。

解答：根据题意推测出化合物 A、B、C、D 的结构如下：



A　　B　　C　　D

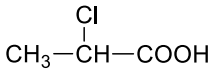
18. 给出与下列各组 ^{1}H NMR 数据相符的一个或几个结构：

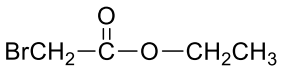
(1) $C_3H_5ClO_2$: δ1.7, 双重峰, 3H; δ4.5, 四重峰, 1H; δ11.2, 单峰, 1H。

(2) $C_4H_7BrO_2$: δ1.3 , 三重峰, 3H; δ3.8, 单峰, 2H; δ4.2 , 四重峰, 2H。

(3) $C_4H_7BrO_2$: δ1.1, 三重峰, 3H; δ2.1, 五重峰, 2H; δ4.2 , 三重峰, 1H; δ11.0, 单峰, 1H。

解答：根据化合物的分子式及核磁共振氢谱数据，可以推测出它们的结构如下：

(1) 

(2) 

(3)