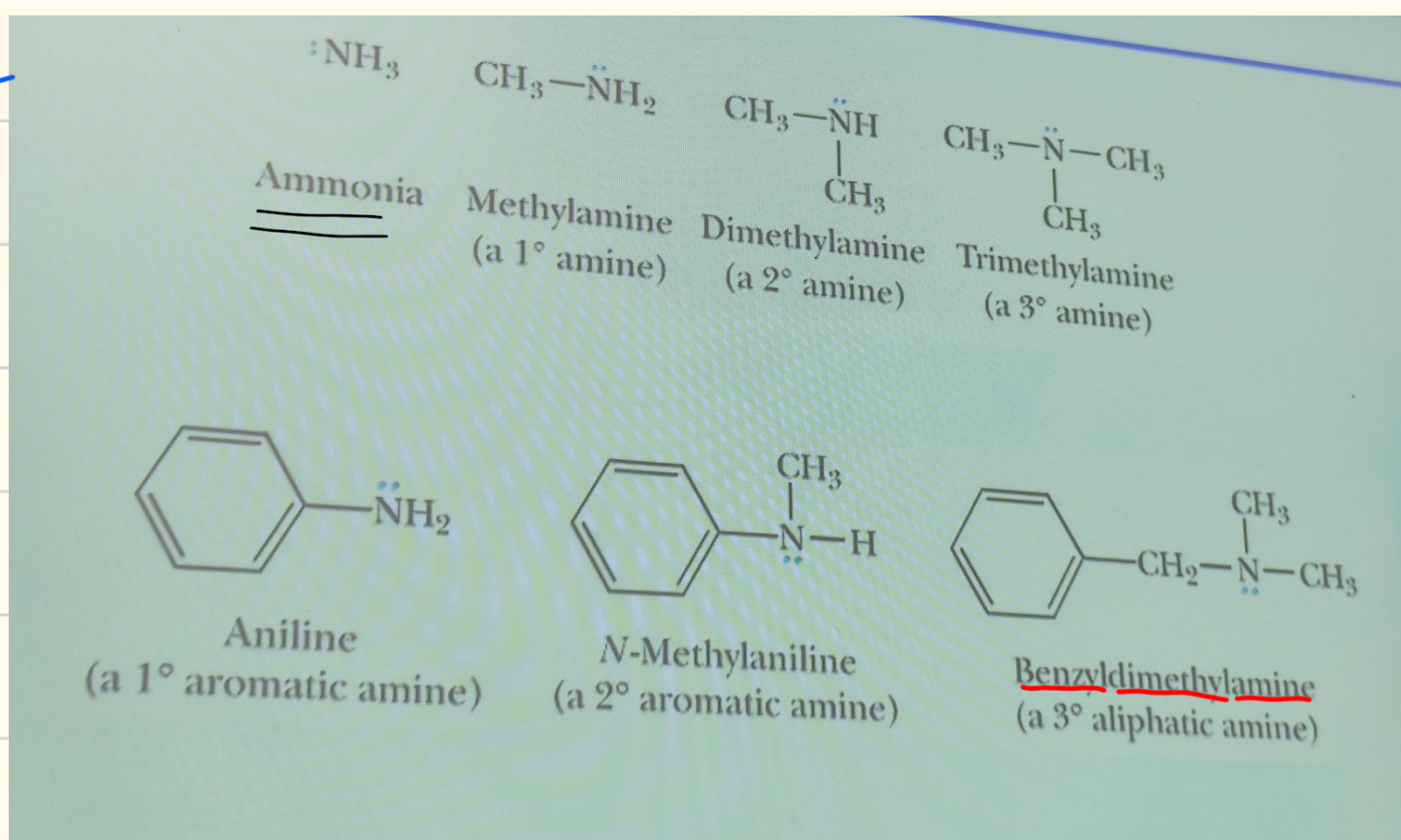
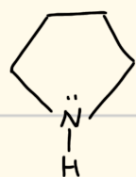


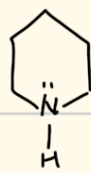
氨/胺



-NH₂ amine

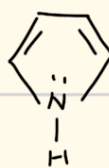


Pyrrolidine



piperidine.

杂环脂肪胺



Pyrrole

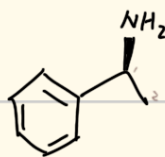


Pyridine

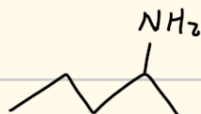
杂环芳香胺



aniline



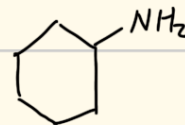
(S)-1-phenylethan-1-amine



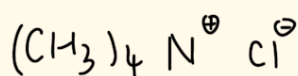
pentan-2-amine



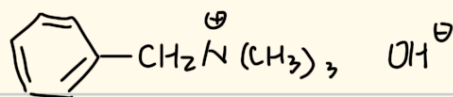
pentane-1,5-diamine



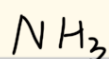
cyclohexanamine



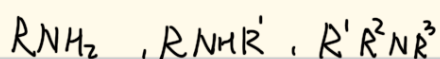
Tetramethylammonium chloride



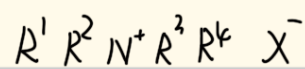
Benzyltrimethylammonium hydroxide



Ammonia 氨

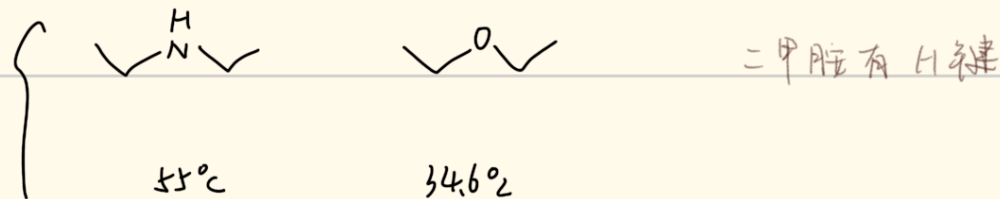
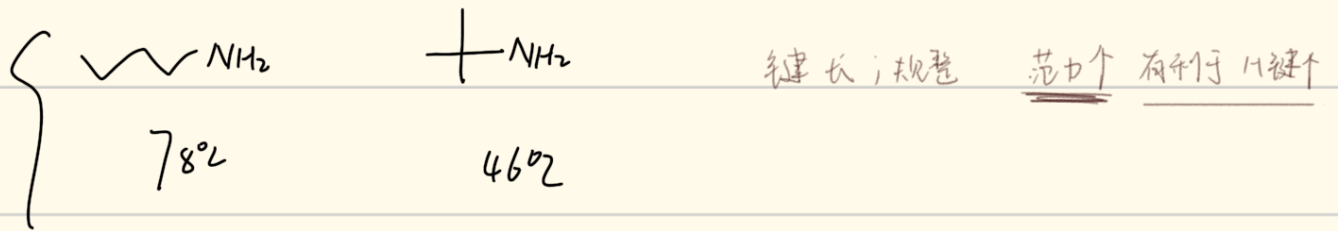


Amine 胺



Ammonium 铵

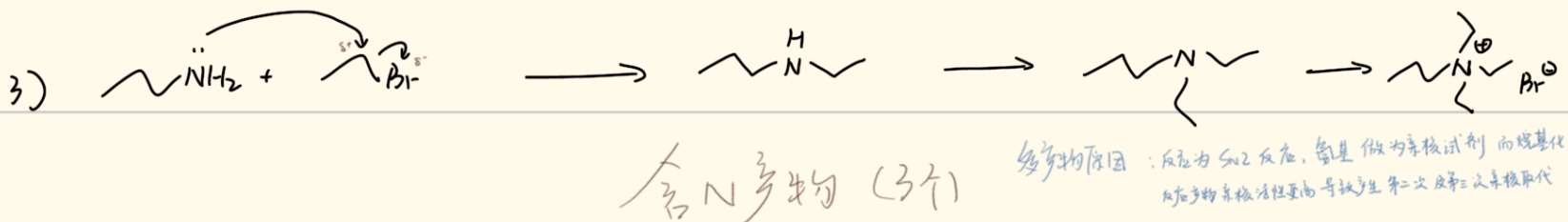
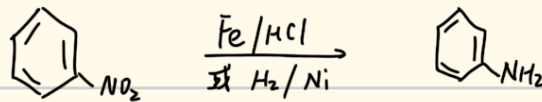
	CH_3NH_2	CH_3OH	原因: O 电负性 > N, 氢键更强
分子量	31.1	32.0	
沸点	-6.3	65.0	



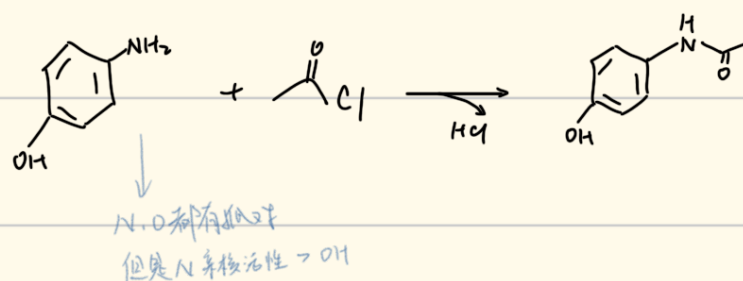
1) 碱性

脂肪胺 > 氨分子
 脂肪胺 > 芳香胺 → 芳香胺孤电子可共轭 减弱结合质子能力

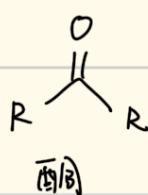
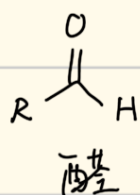
2) 制备



酰化试剂:



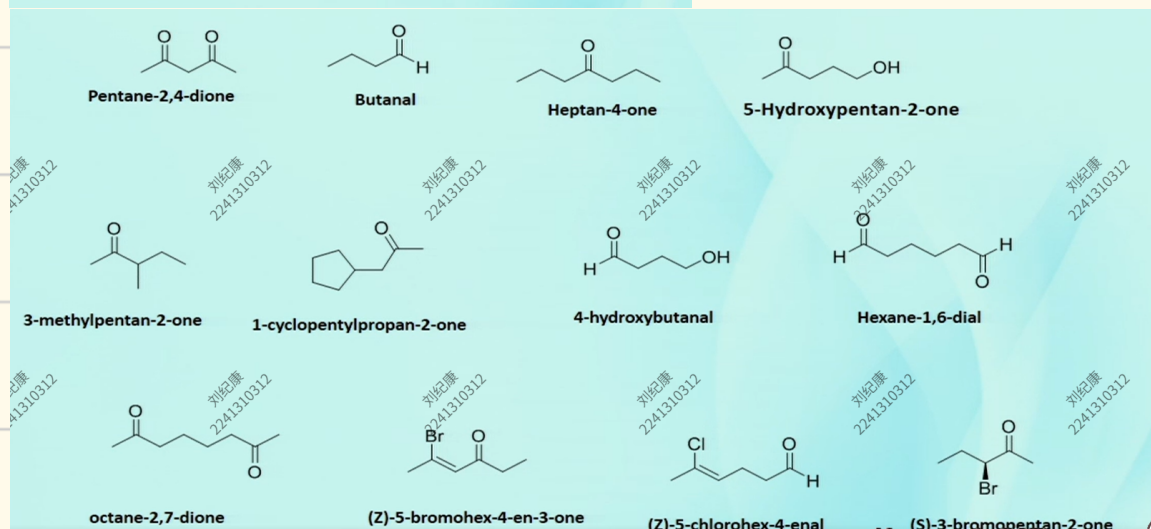
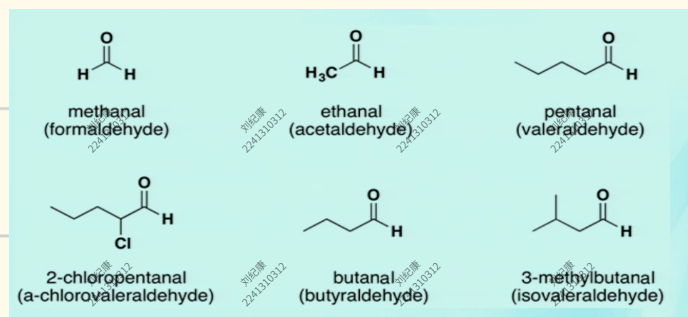
醛 酮



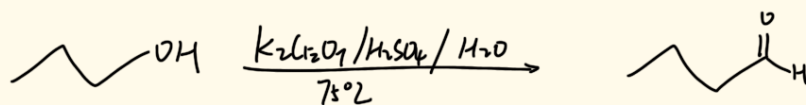
-OH hydroxy

-al

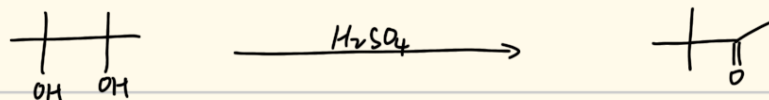
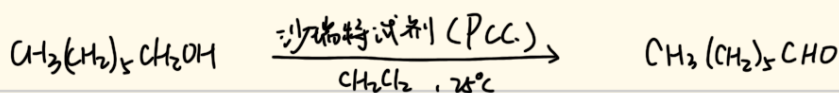
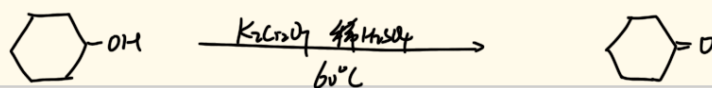
-one



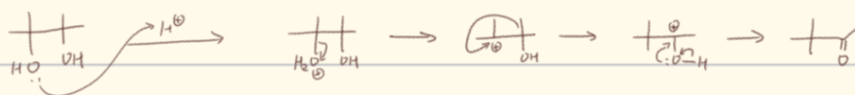
制备 1) 由醇



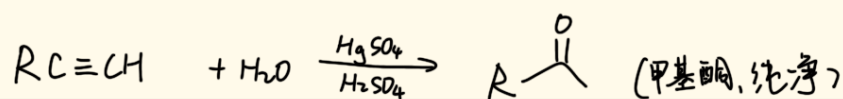
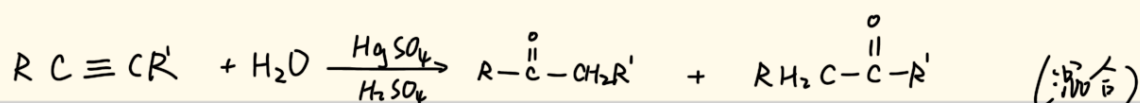
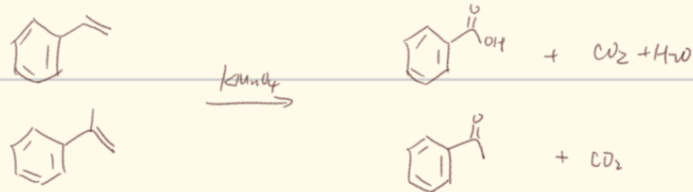
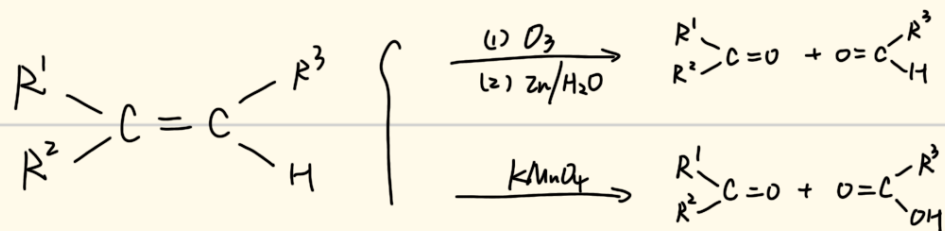
橙色变绿色



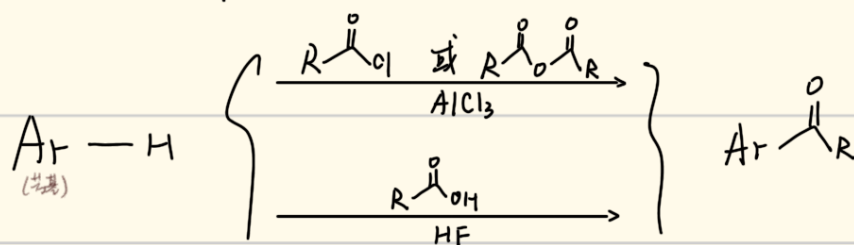
频哪醇重排



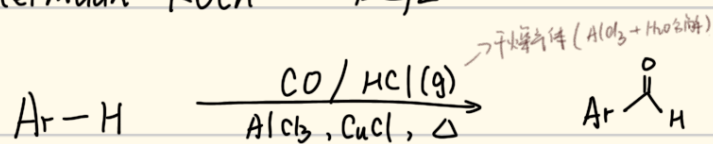
2) 由不饱和烃



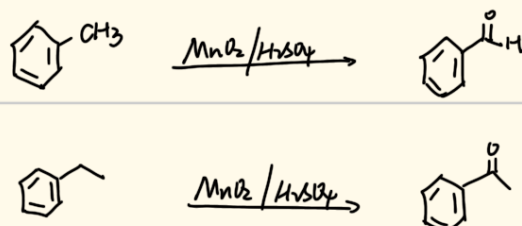
3) Friedel-Crafts 酰基化



4) Gattermann-Koch 反应



5) 芳烃侧链氧化



物理性质

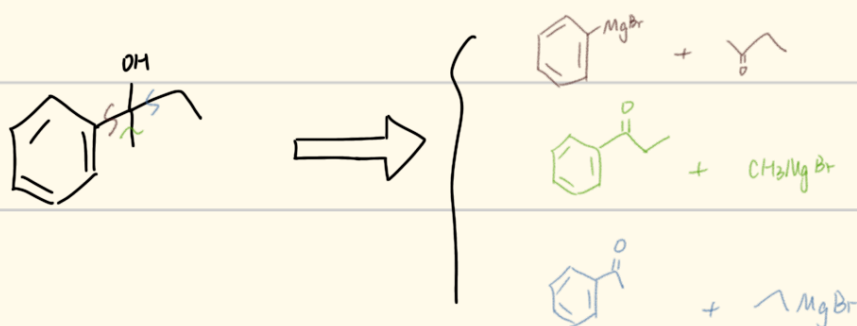
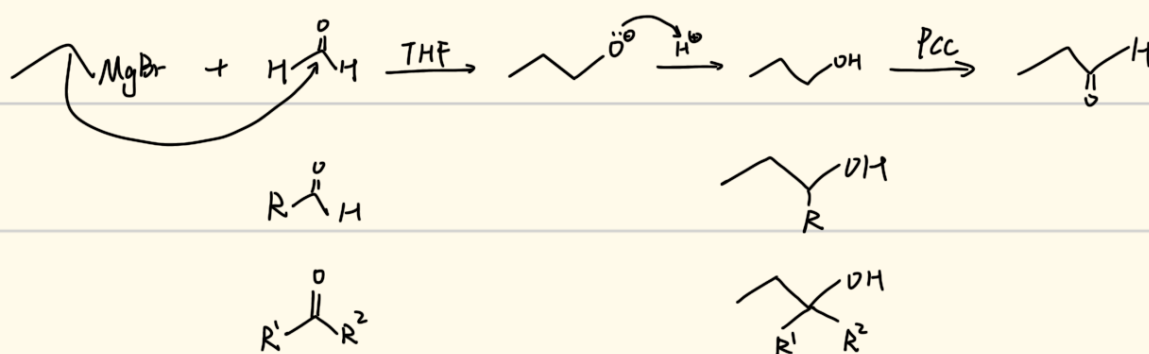
醛酮沸点 > 相应分子量烷烃 (偶极矩增加分子间吸引力)

沸点 < 醇 (无H键)

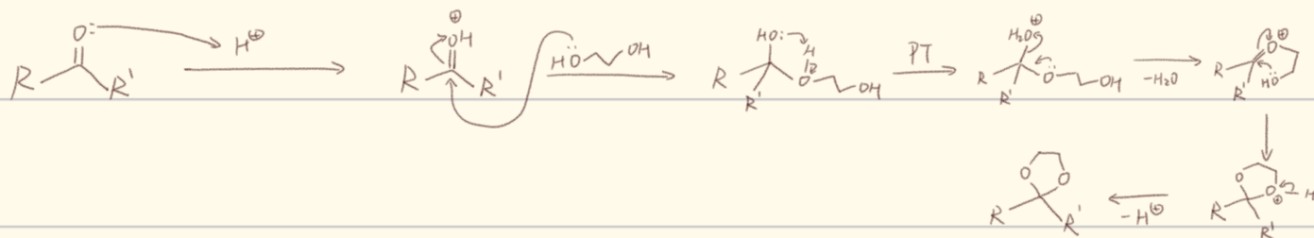
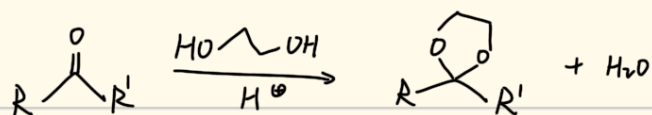
溶解性 < 醇

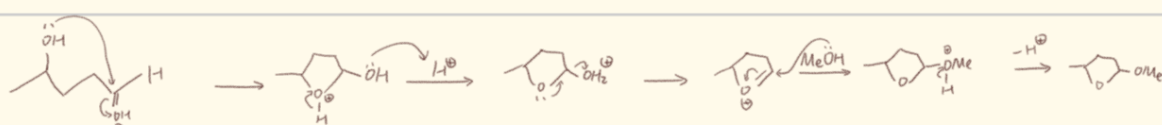
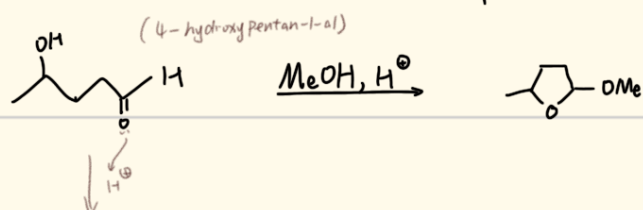
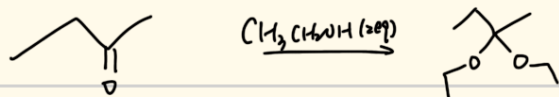
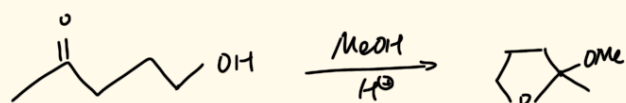
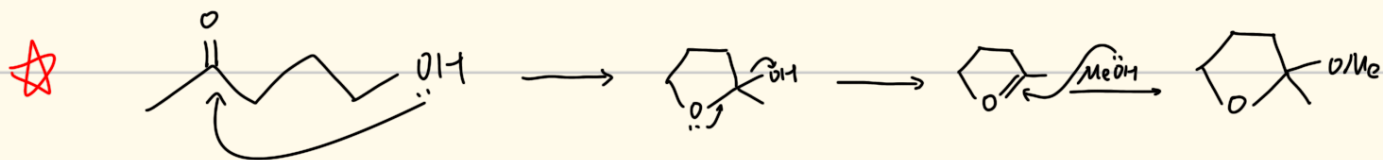
化学性质

1) 格氏试剂

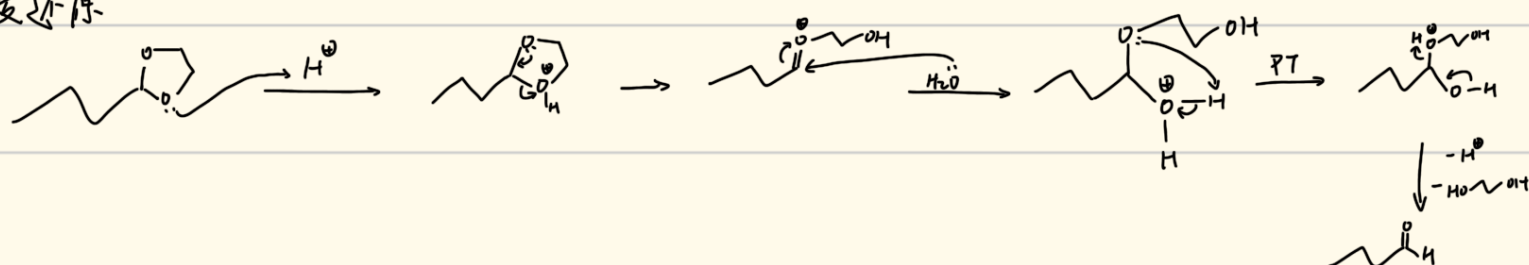


2) 酸催化的缩醛合成

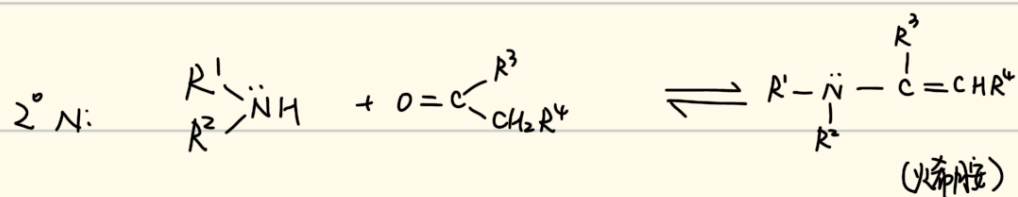
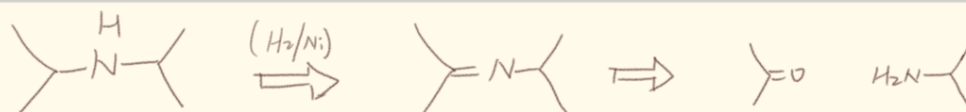
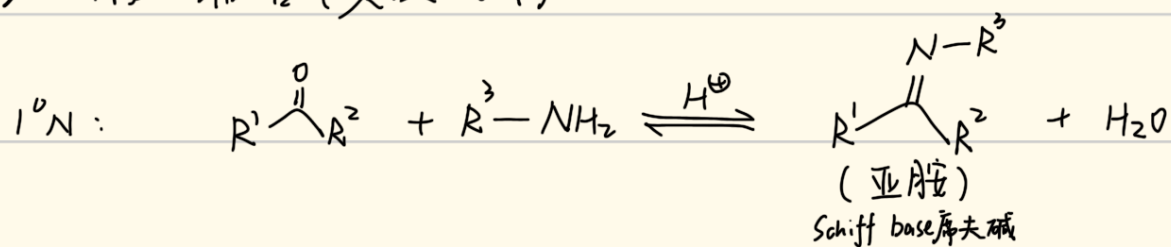


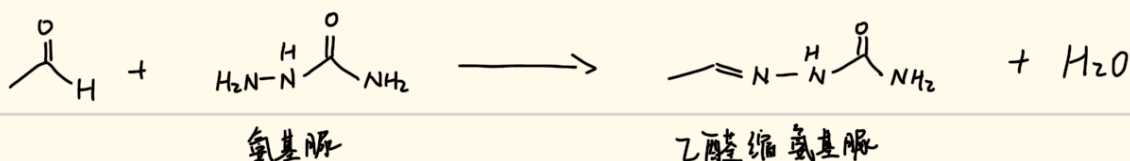
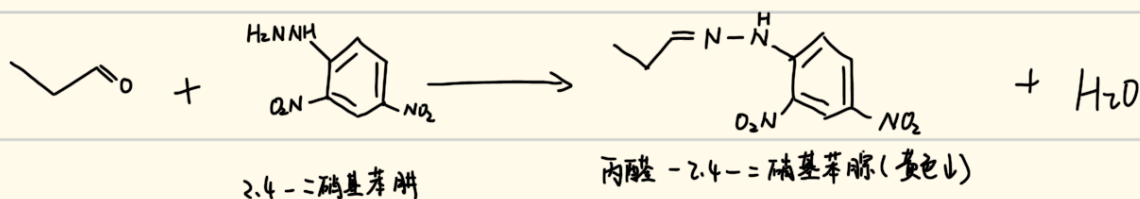
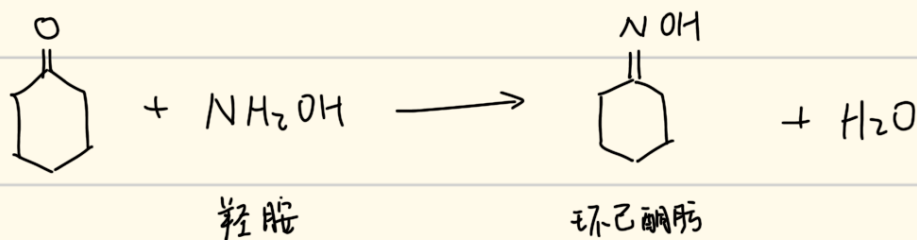


加酸还原



3) 胺缩合 (类似 -OH)





4) 还原反应

① 还原为醇

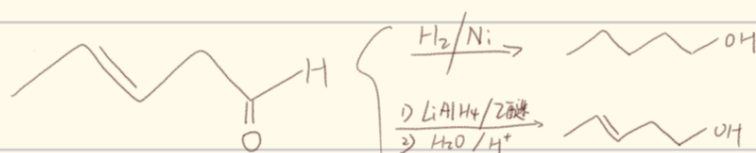


氢化金属还原： LiAlH_4 , NaBH_4 , B_2H_6 有选择性

催化氢化还原： H_2 , 加压 / Pt (Pd, Ni) / 加热 无选择性. (同时还原 C=C 与 C=O)

Meerwein-Ponndorf 还原法： $(i\text{-PrO})_3\text{Al} / i\text{-PrOH}$

金属还原法： $\text{Na}, \text{Li}, \text{Mg}, \text{Zn}$



反应活性： $\text{LiAlH}_4 > \text{NaBH}_4$

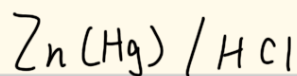
原因：电负性 $\text{Al} (1.61) < \text{B} (2.04)$
H 更富电可去进攻碳

↓
最多可反应 4eq.
(理论还原只需 4eq.)

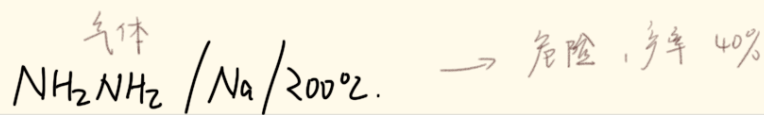
② 还原为亚甲基



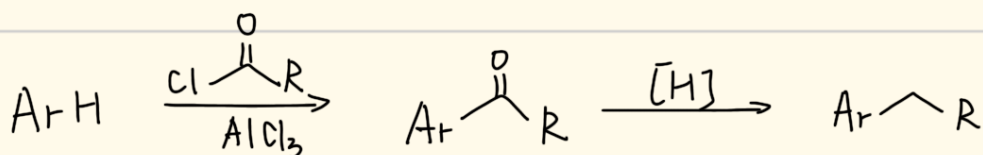
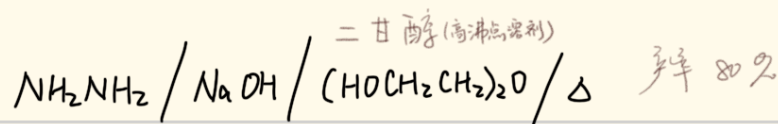
Clemmensen 还原



Wolff-kishner 还原



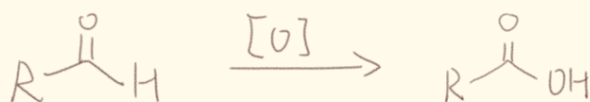
黄鸣龙改良法



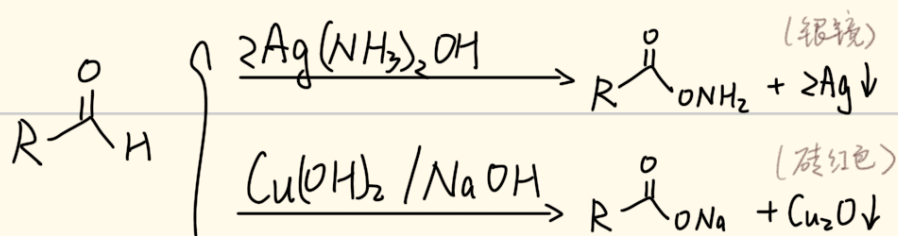
Friedel-Crafts 反应

5) 氧化反应

① 醛

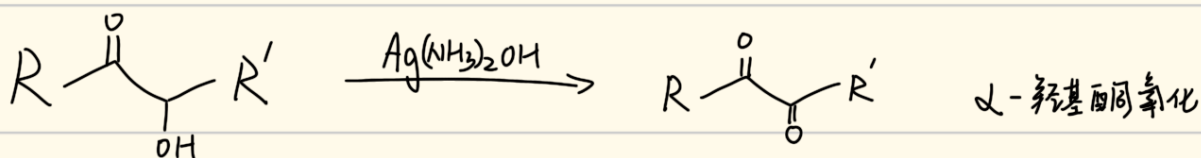


温和氧化剂 (不氧化 C=C)



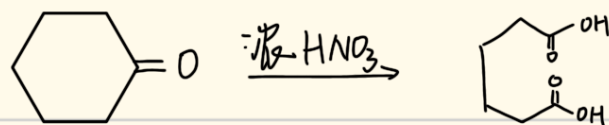
Tollens 试剂

Fehling 试剂



PS: 芳香醛不与 Fehling 试剂反应

② 酮



对称环酮的氧化 (制备二酸)