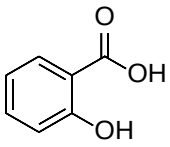
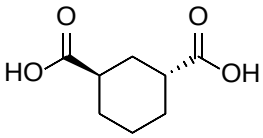
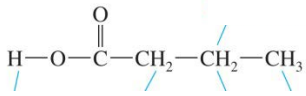
Nomenclature





NMR



The H and C are

Hydroxyl H very low field (δ =).

^{13}C NMR of CAs similar to .

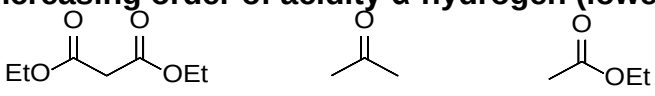
Acidity

Lower pK_a due to the _____ of the positive carbonyl carbon and resonance

Electron-withdrawing substituents increase _____.

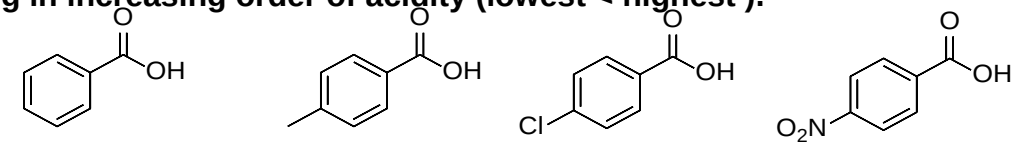
- Due to _____ - 3 EWG on _____ can result in pK_a _____

Rank the following in increasing order of acidity α-hydrogen (lowest < highest).



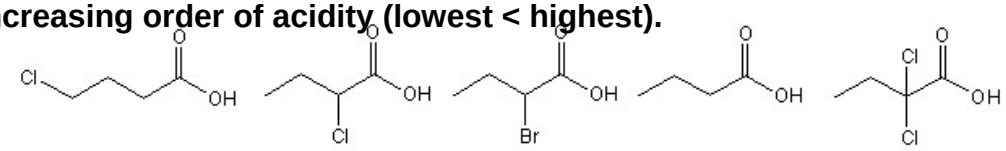
I **II** **III**

Rank the following in increasing order of acidity (lowest < highest).



I **II** **III** **IV**

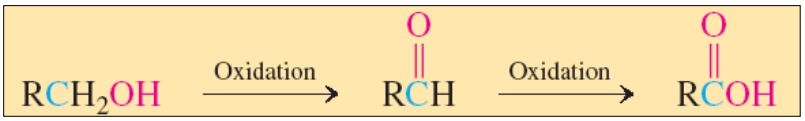
Rank the following in increasing order of acidity (lowest < highest).

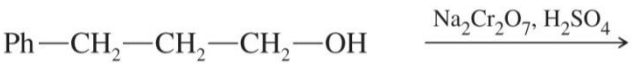


1 2 3 4 5

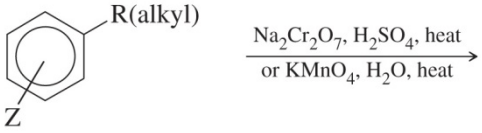
Introducing the Carboxy Group[1]

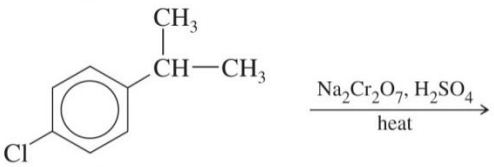
Primary alcohols → →



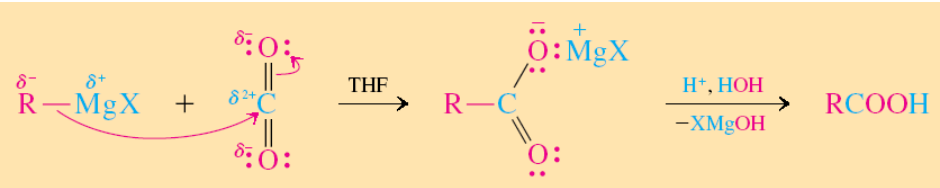


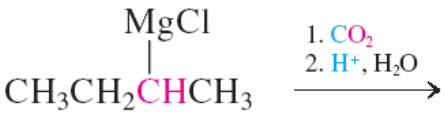
Benzylic Positions



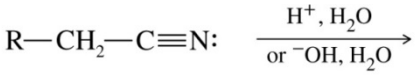


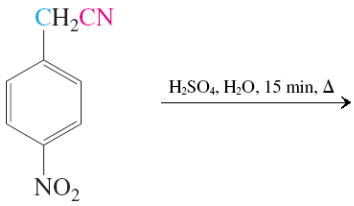
Organometallic reagents + CO_2 → carboxylic acids





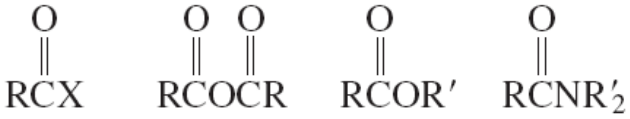
Nitriles → carboxylic acids



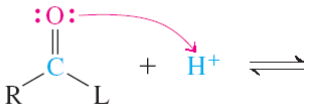


Preferable to Grignard if other functional groups _____

Substitution: Addition-Elimination
The carbonyl carbon is attacked by _____.



Acid mechanism
Step 1: Protonation



Step 2: Addition-elimination

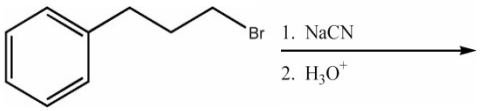
Step 3: Deprotonation

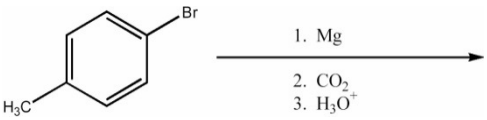
Base mechanism
Step 1: Deprotonation

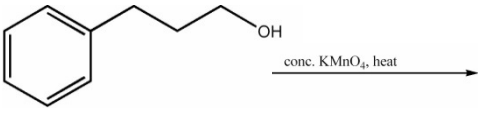
Step 2: Addition-elimination

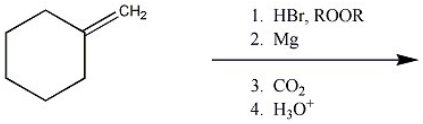
Step 3: Regeneration of Base.

Predict Products









Synthesis

1.
2.
3.
4.