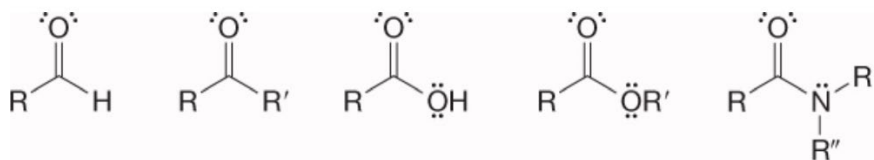
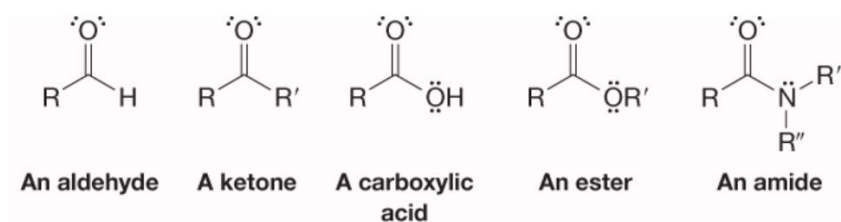


Topics 3 and 4 Review

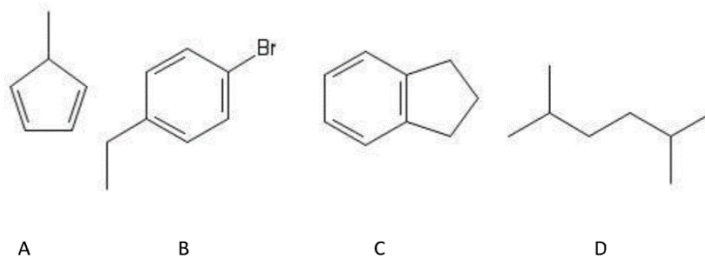
1. Classify these carbonyl compounds:



Answer:



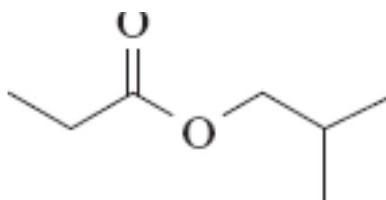
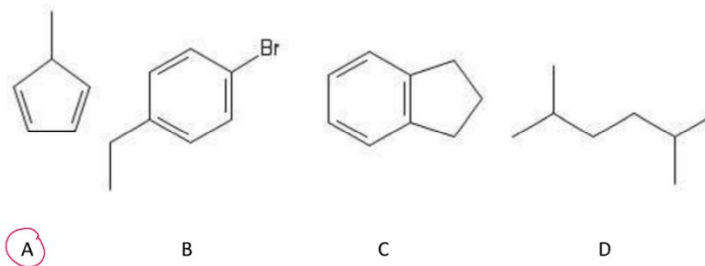
3. Which of the following molecules would give 4 signals on an ^1H NMR and a ^{13}C NMR?



2.

Answer:

3. Which of the following molecules would give 4 signals on an ^1H NMR and a ^{13}C NMR?



3. Name the following compound:

Answer: Isobutyl propanoate

- What compounds can be reduced by NaBH_4 ? (**ketones and aldehydes**)
- Is DIBAL-H used for reduction or oxidation? (**reduction**)
- What does LAH reduce esters to? (**primary alcohols**)
- What does LAH reduce nitriles to? (**primary amines**)
- What does K_2CrO_4 oxidize primary alcohols to? (**carboxylic acids**)

9. T/F K_2CrO_4 can oxidize tertiary alcohols to carboxylic acids. (F)
10. T/F PCC is a great reductant. (F)
11. T/F DMP can oxidize a secondary alcohol to a ketone. (T)
12. T/F acyl chlorides and anhydrides can be reacted to form amides without a catalyst. (T)
13. T/F Anhydrides are the most reactive carboxylic acid derivative. (F)
14. T/F Hemiacetals are a great protecting group for ketones. (F)
15. T/F Organocuprates usually add an ethyl group to the compound of interest. (F)
16. T/F The Wittig Reaction uses ylides to form an alkene from a carbonyl. (T)