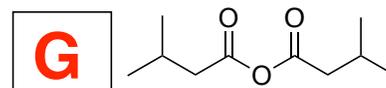
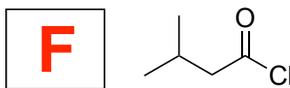


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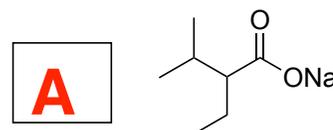
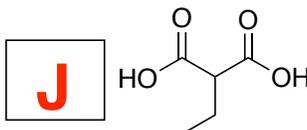
Key

1. (10 pts) Match the name to the structure using the letters.

A sodium 2-ethyl-3-methylbutanoate

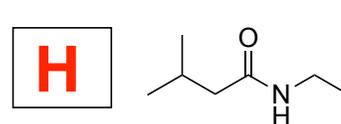
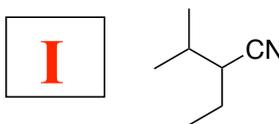


B 1-ethoxy-3-methylbutane



C ethyl 3-methylbutanoate

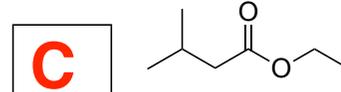
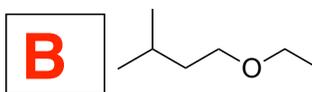
D 2-ethyl-3-methylbutyric acid



E 2-chloro-3-methylbutanoic acid

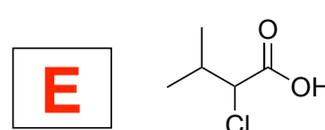
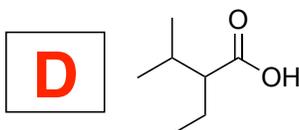
F 3-methylbutanoyl chloride

G 3-methylbutanoic anhydride



H N-ethyl-3-methylbutanamide

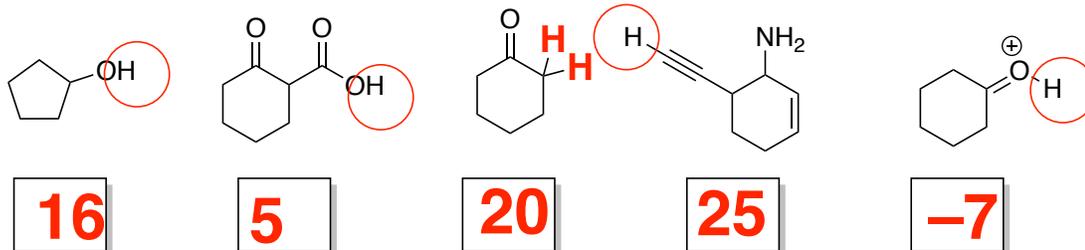
I 2-ethyl-3-methylbutanenitrile



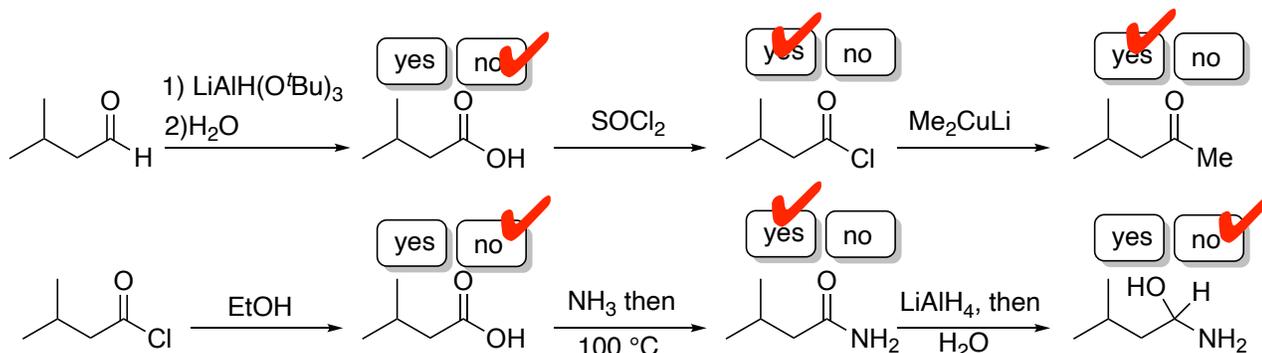
J 2-ethylmalonic acid

2. (10 pts) Circle or draw in the most acidic proton in each molecule and estimate its pKa.

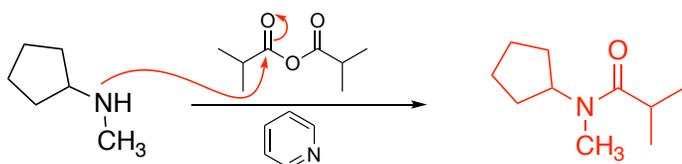
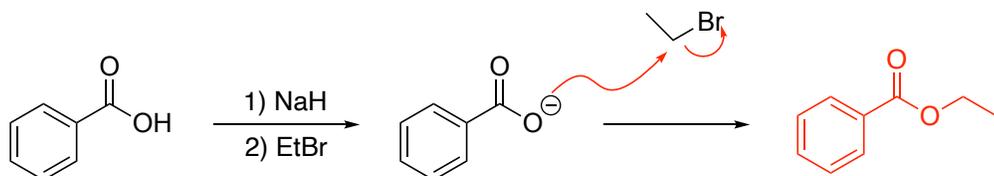
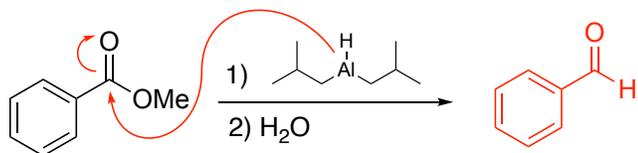
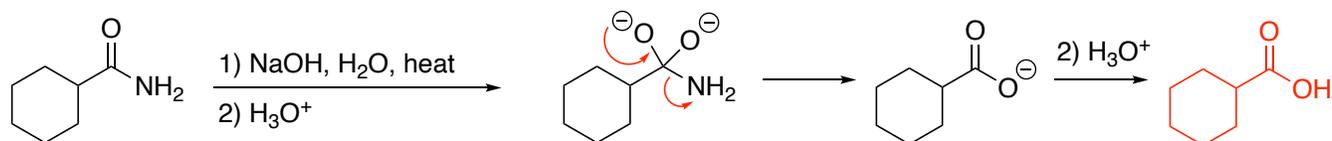
note: if you skip circling (or drawing in) or estimating a pKa, no credit will be given.



3. (12 pts) Indicate (with ✓) whether the 6 reactions below will proceed as written.



4. (16 pts) Provide the major product for the reactions given.



5. (10 pts) Provide a detailed arrow pushing mechanism for the following reaction. Resonance structures that show distribution of charge might be helpful, but they are not necessary.

