

* Intro to Carboxylic Acids Warm-up Answers

① Carbonyl (C=O) + Hydroxyl (OH)

② fatty acids

③ High: They H-bond to themselves to form dimers.

④ larger C chains decrease solubility in water b/c C chains are hydrophobic

⑤ 5

⑥ stronger

⑦ Their conjugate bases are resonance stabilized.

⑧ They do not affect acidity (alkyl groups)

⑨ e⁻ w/drawing substituents increase carboxylic acid acidity

⑩ The α C of a benzoic acid is sp^2 hybridized. The α C of an aliphatic acid is sp^3 hybridized. Increase in s character stabilizes the conjugate base & therefore makes the acid more acidic.

⑪

- 1.) Add Ether to collect the ROH (organic layer)
- 2.) Add Base to convert the RCOOH to a salt so that it will dissolve in H_2O (aqueous layer)
- 3.) w/draw organic layer into one beaker & w/draw the aqueous layer into another beaker
- 4.) Distill ether to isolate the ROH
- 5.) Add acid to the aqueous layer to convert the salt back to a RCOOH

⑫ base catalyzed hydrolysis

⑬ Salts of carboxylic acids

⑭ Surfactants

⑮ glycerol + 3 fatty acids

⑯ Micelle = polar head + non-polar tail: non-polar tail directed toward the interior & polar head to the exterior: see picture in the notes