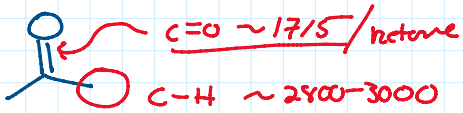
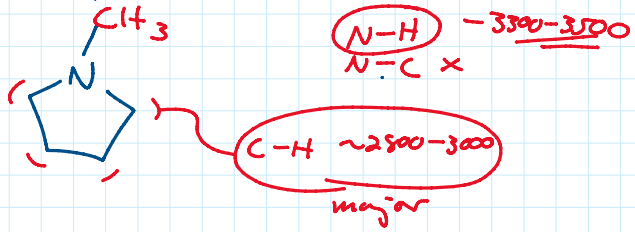
WS1

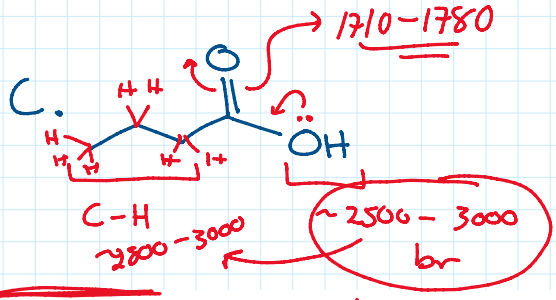
September 17, 2021 10:55 AM

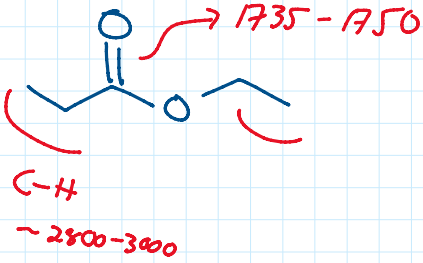
See posted WS1 problems

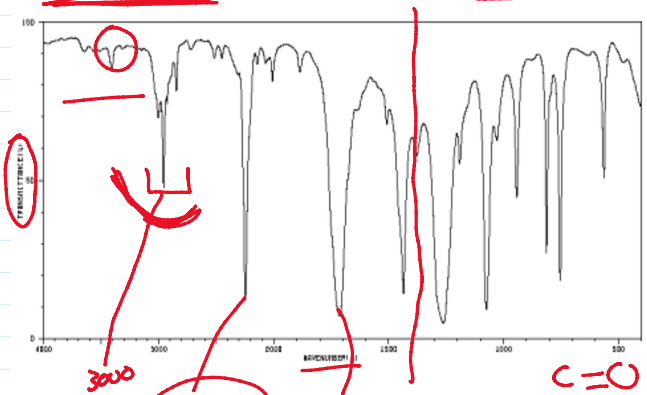
1. Predict the major IR absorption bands

A. 

B. 

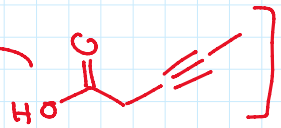
C. 

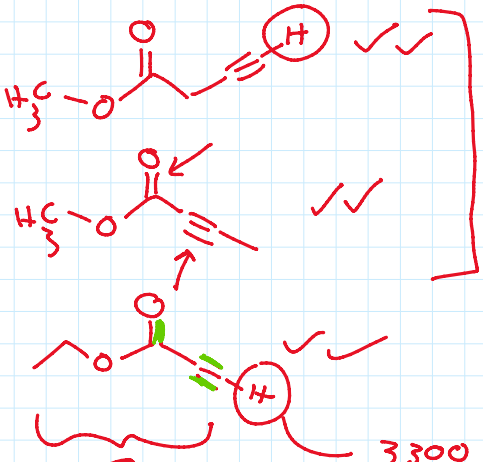
D. 



2. Propose a structure for a cmpd w/ the formula: $C_5H_6O_2$ & the IR spec. shown.

-ketone •
-carboxylic acid x
ester •
aldehyde •





$$DoU = \frac{2C+2+N-H-X}{2}$$

Degree of unsaturation

$C_5H_6O_2$

$$\frac{2\cdot5+2-6}{2}$$

$$\frac{10+2-6}{2} = \frac{6}{2} = 3$$

DoU

0 H_3C-CH_3

1 $H_2C=CH_2$

2 $H-C\equiv C-H$

valid • Conserve charge
• No atoms, single bond

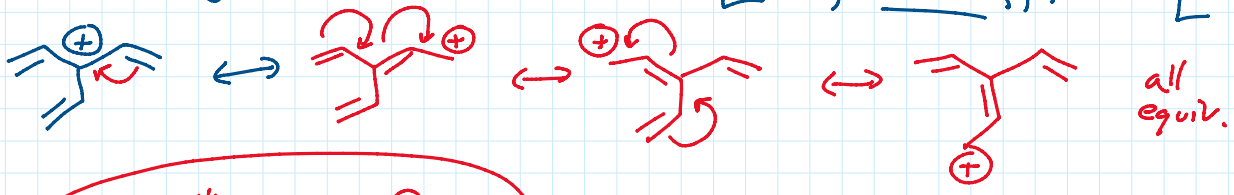
major/minor
• # cov. bonds
• filled valence

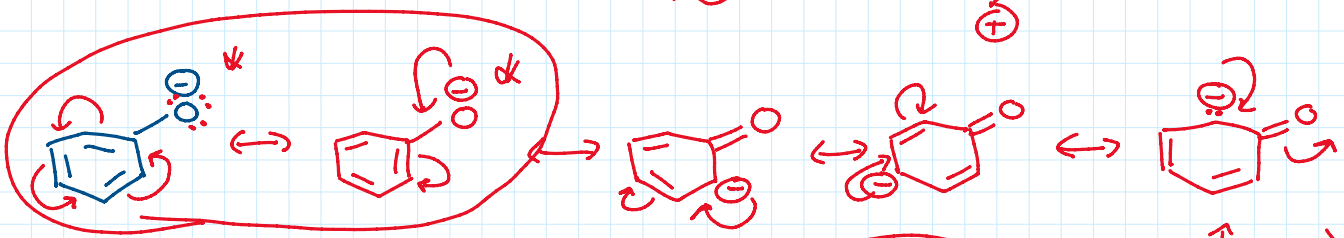
2 H–C≡C–H

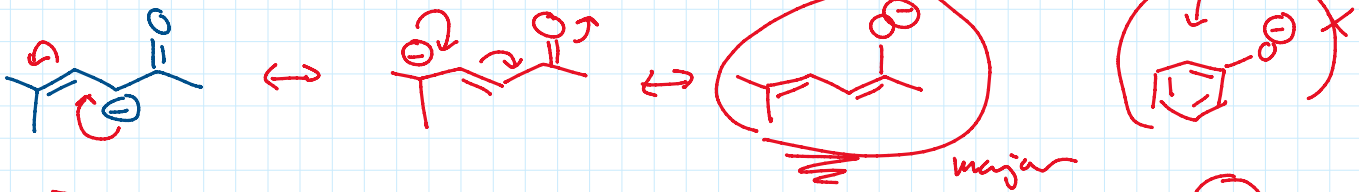
valid
- Conserve charge
- No atoms, single bonds
- Obey valency rules
- LP, non-bonding, π

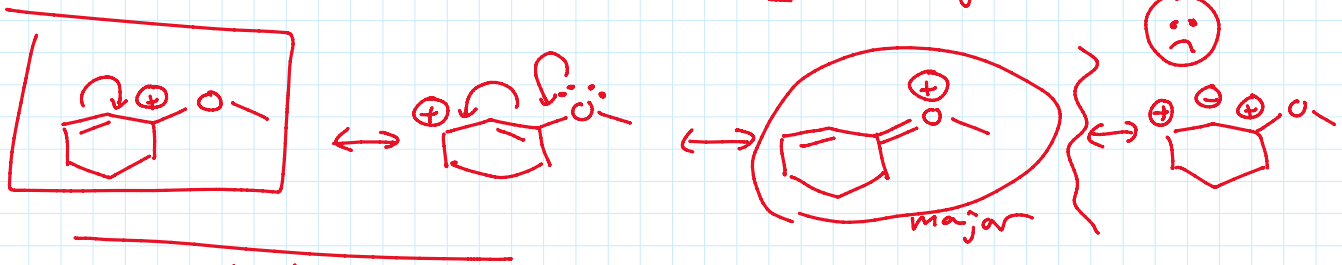
major/minor
- # cov. bonds
- filled valence
- sep. of charge
- EN

3. Draw major resonance forms

A. 

B. 

C. 

D. 

- unfilled valence
- covalent bonds

- ⊕ on oxygen