Ch 3 Extra Problems 34 cdeg, 35 bcdgh,

44 defgh, 46 a-d, 47, 48d-h, 49, 52, 62

(34) Draw conj. base

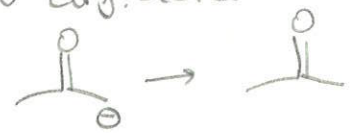
(c) $NH_3 \rightarrow {}^{\ominus}:\ddot{N}H_2$

(d) $H_3O^+ \rightarrow H_2\ddot{O}$

(e) 

(g) $NH_4^+ \rightarrow :NH_3$

(35) Draw conj. acid

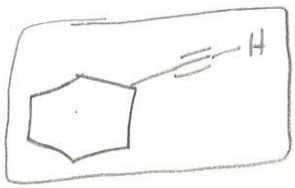
(b) 

(c) $NaNH_2 = {}^{\ominus}:\ddot{N}H_2 \rightarrow :NH_3$

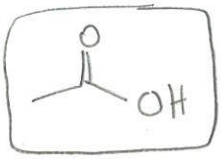
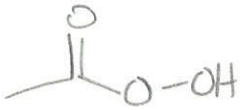
(d) $H_2O \rightarrow H_3O^{\oplus}$

(g) 

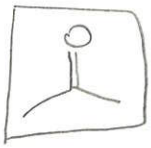
(h) $NaOH = {}^{\ominus}:\ddot{O}H \rightarrow H_2\ddot{O}$

(44) (d)  vs. 

This is an exception to the Rule. sp orbital on C trumps sp^3 orbital on N.

(e)  vs. 

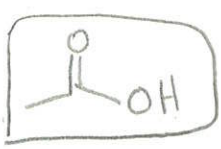
conjugate base is Resonance stabilized

(f)  vs. 

conjugate base is resonance stabilized.

(g)  vs 

conjugate base is resonance stabilized

(h)  vs. 

negative charge on conjugate base is on Oxygen vs. Nitrogen and oxygen is more electronegative. therefore the conj. base is more stable

(46)

(a) 

stronger acid

favors Rightside

(b) 

stronger acid. S is larger than O

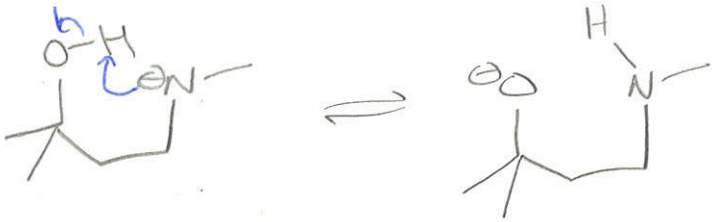
favors Right

(c) 

Stronger acid b/c resonance

favors right

↑ has resonance

(d) 

stronger acid

favors Right

Neg charge on more electronegative atom

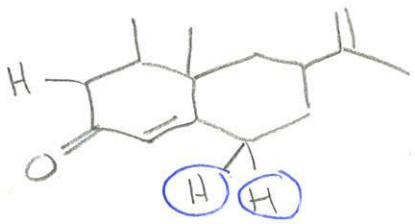
(47) increasing basicity ⇒ less stable = most basic

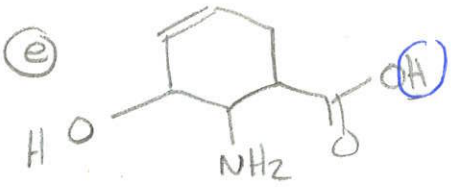
least basic (most stable)

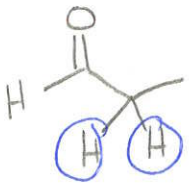
stable b/c Resonance

most basic (least stable)

(48) ID most acidic proton

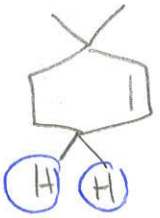
(d) 

(e) 

(f) 

(g) ~~(g)~~

(h) 

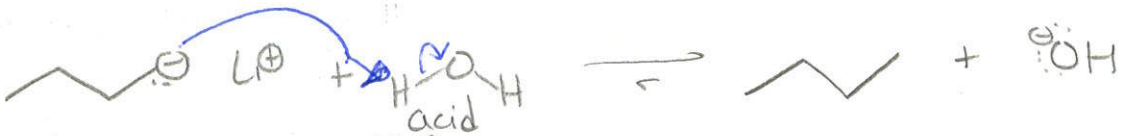
(c) 

(49) (a) 

acid

base

more acidic because conj. base has resonance

(b) 

base

acid

more acidic because neg. charge of conj. base is on more electronegative atom

(49) (c)

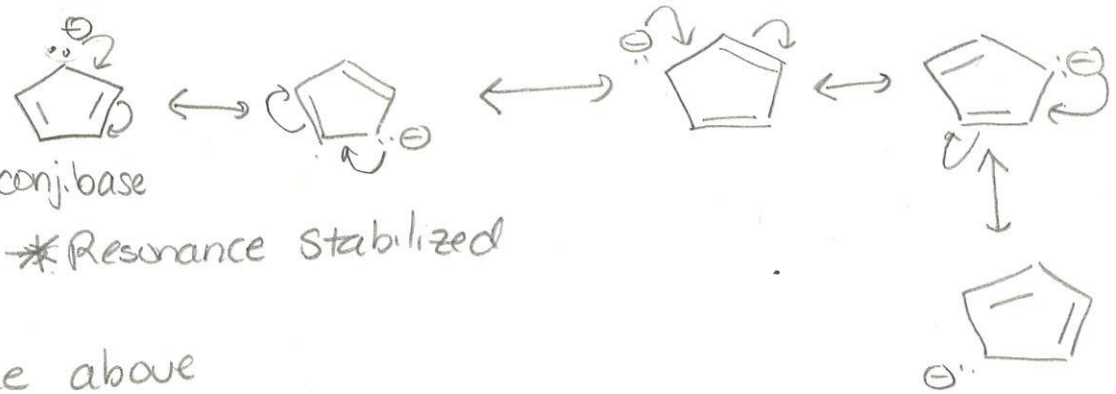
acid base

stronger acid
because conj. base
has resonance

(52)

a) one sp^3 (top carbon; all other carbons are sp^2)

b)



conj. base

* Resonance stabilized

c) see above

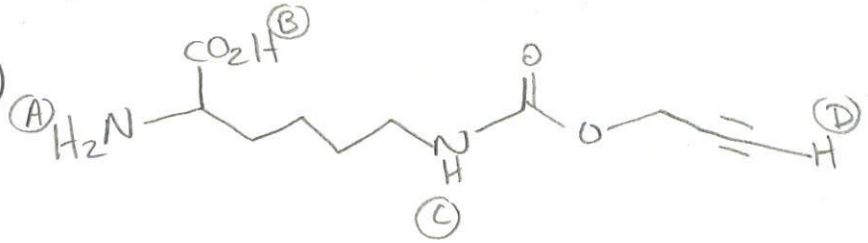
d) None. All are sp^2

e) All C's are sp^2, so trigonal planar. The molecule is flat.

f) 5 H's

g) one lone pair

(62)



least acidic — most acidic

D < A < C < B