Chemistry 118B **Name** _____

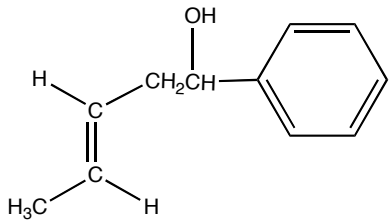
Practice Final – Spring – 2011

Instructors: Dr. Nasiri & Dr. Lievens

Chem Specialist: Alicia Hart

1. Provide the IUPAC name for each of the following compounds.

a)



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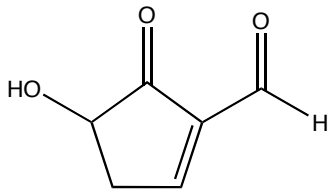
b)



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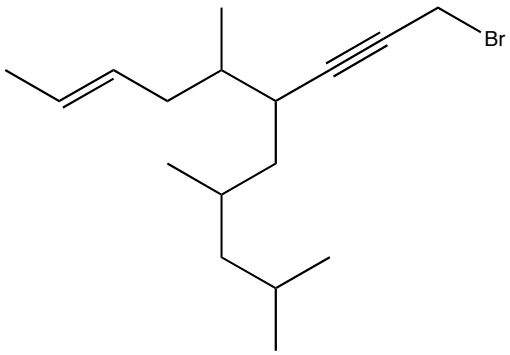
c)



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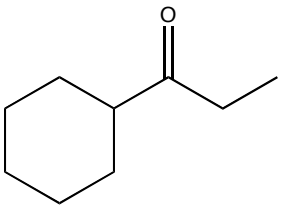
2. Give the structure(s) of the major organic product(s) expected from each of the following reactions. Clearly indicate stereochemistry when necessary. Assume one mole unless stated otherwise.

a)

$NCHC{=}{=}CH_2$

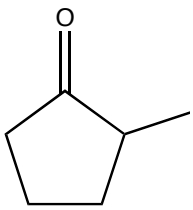
Δ

b)



$HOCH_2CH_2OH$, H+

c)



NH_2NH_2, KOH

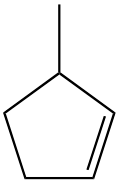
Δ

d)

CH_3CH_2I

1. $(C_6H_5)_3P$
2. t-BuO^-K^+
3. cyclohexanone

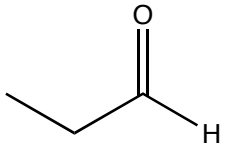
e)



Br_2

$(CH_3)_2CHOH$

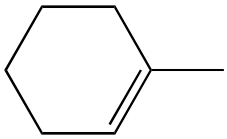
f)



$(CH_3)_2NH$

H^+, H_2O

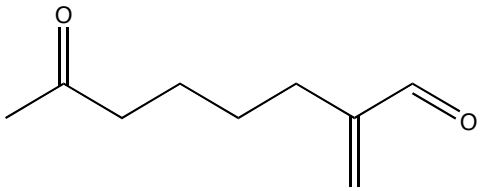
g)



1. CH_3CO_3H, CH_2Cl_2

2. CH_3ONa, CH_3OH

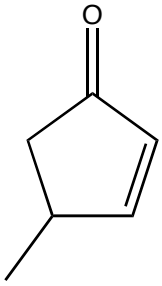
h)



$NaOH$, H_2O

Δ

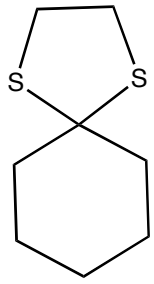
i)



1. $CH_3CH_2)_2CuLi$

2. $(CH_3)_2CHBr$

k)



H_2O, $HgCl_2$

$CaCO_3$, CH_3CN

3. **Vocabulary**: Fill in the blanks with the appropriate vocabulary word. If two words are given, circle the correct one.

a) The hydrogen alpha to an aldehyde is **more/less** acidic than a alkane hydrogen and has a pka around **10/18/25/35/44**.

b) Give an example of a weakly deactivating group _____.

c) The hydrogen belonging to an aldehyde will show up between _____ ppm in the H NMR spectra.

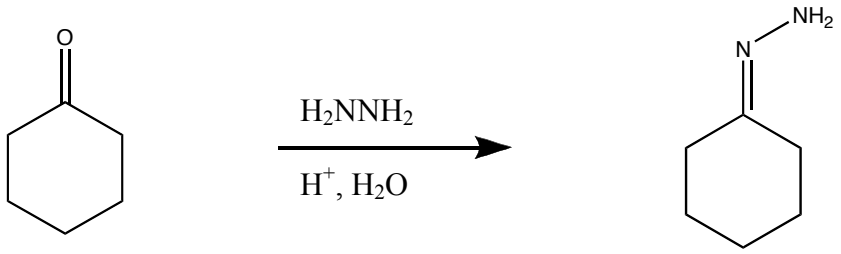
d) **True/ False** Intramolecular aldol condensations prefer to make 3-4 carbon rings.

e) According to the IUPAC naming system, **alcohols/aldehydes/ketones/alkenes** are given priority over the others.

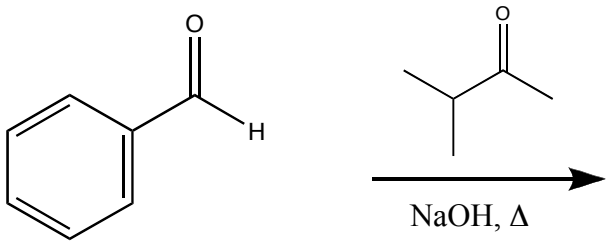
f) Acetals **can/cannot** be used as protecting groups for aldehydes and ketones.

g) When an aldehyde or ketone is reacted with a primary amine in an acidic medium, this produces a _____.

4. Write a complete, detailed stepwise mechanism for the following reaction. Include all steps and draw the structures of all intermediates.

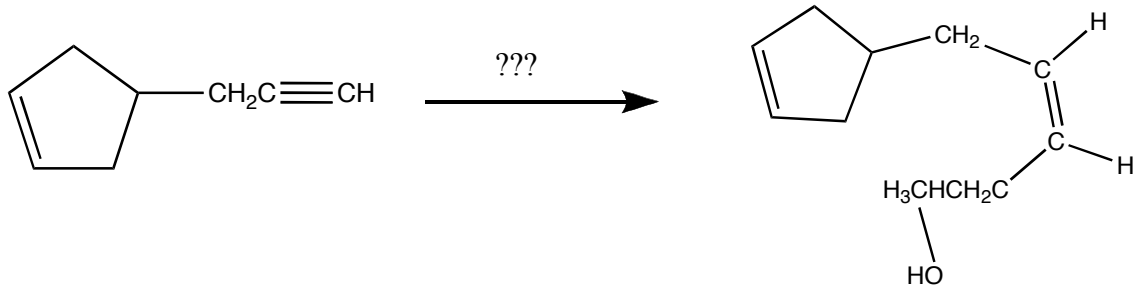


5. Write a complete, detailed stepwise mechanism for the following reaction. Include the structures of all intermediates and products.

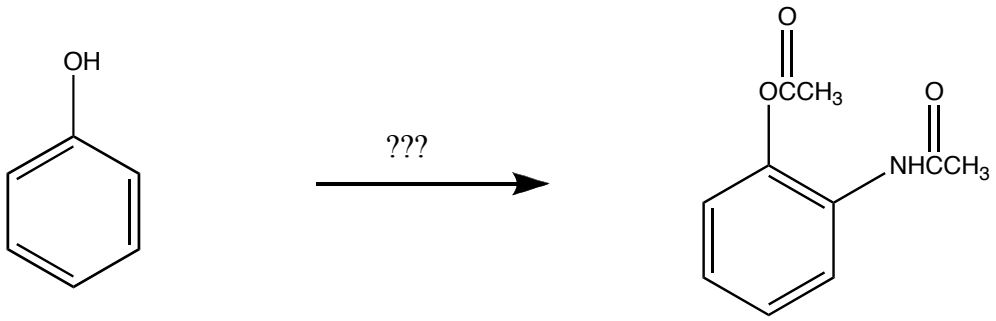


6. Show how you would carry out the following transformation. You will probably need more than one step. Make sure to include all of the intermediates to receive full credit.

a)



b)



c)