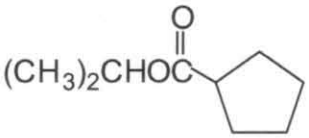
CHEM 201

Some practice

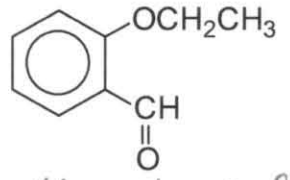
1.(30) Name or draw the following compounds where appropriate. Be sure to pay attention to **stereochemistry.**

a) $(CH_3)_2CHOC(=O)$-cyclopentane



isopropyl cyclopentanecarboxylate

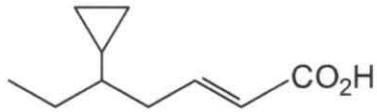
b)



o-ethoxybenzaldehyde

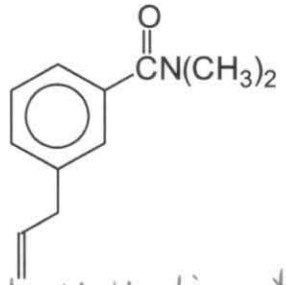
c) isopropyl vinyl ether

d)



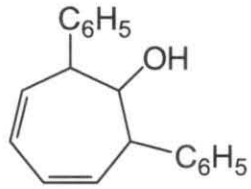
5-cyclopropyl-2(E)-heptenoic acid

e)



m-allyl-N,N-dimethylbenzamide

f)



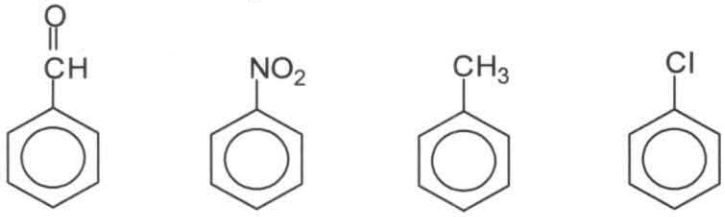
2,7-diphenyl-3,5-cycloheptadienol

4.(15) Arrange the following in order of increasing (1=least or lowest or slowest..)

a) rate of hydrolysis in H_3O^+:

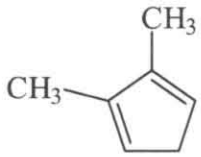
$CH_3CO_2CH_3$	CH_3COCl	CH_3CONH_2	$(CH_3CO)_2O$
2	4	1	3

b) reactivity toward electrophilic aromatic substitution:

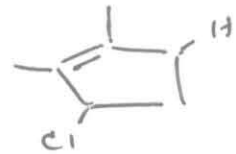


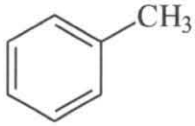
CH	NO_2	CH_3	Cl
2	1	4	3

5.(50) Give the major products for the following reactions:

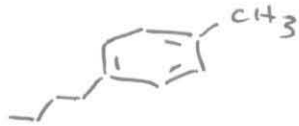
a) 

$\xrightarrow[\text{1,4 add'n}]{\text{HCl, 125 °C}}$



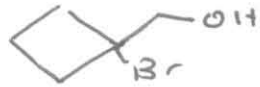
b) 

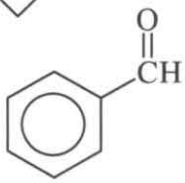
$\xrightarrow[\text{2) } H_2\text{, Pd on Carbon}]{\text{1) } CH_3CH_2CH_2\overset{O}{\overset{\|}{C}}Cl\text{, } AlCl_3}$



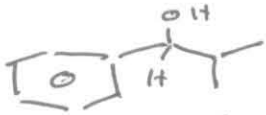
c) 

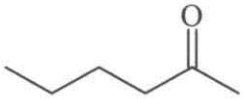
$\xrightarrow{\text{HBr in ether}}$



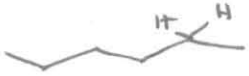
d) 

$\xrightarrow[\text{2) } H_3O^+]{\text{1) } (CH_3)_2CHMgCl\text{ in ether}}$



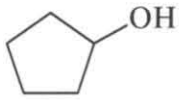
e) 

$\xrightarrow[250^oC]{NH_2NH_2\text{, KOH}}$

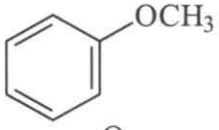


f) 

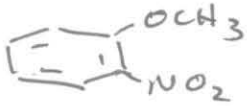
+ $CH_2{=}CHCH{=}CH_2$ $\xrightarrow{\text{heat}}$

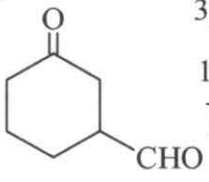
g) 

$\xrightarrow{(CH_3)_3SiCl\text{, pyridine}}$

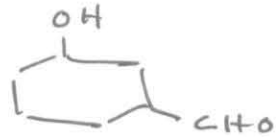
h) 

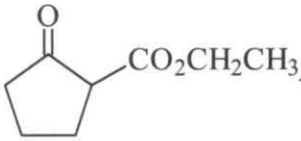
$\xrightarrow[\text{2) } HNO_3\text{, } H_2SO_4\text{ 3) Dil. } H_3O^+]{\text{1) } SO_3\text{, } H_2SO_4}$



i) 

$\xrightarrow[\text{2) } LiAlH_4\text{ 3) } H_3O^+]{\text{1) } HOCH_2CH_2OH\text{, } H^+}$



j) 

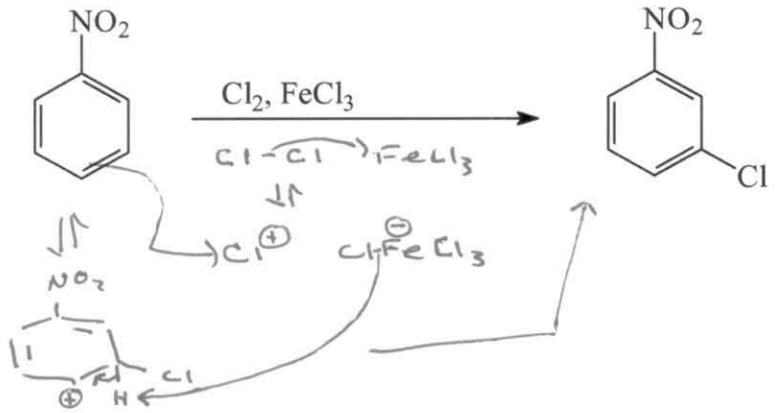
$\xrightarrow[\text{2) 1-bromobutane 3) } H_3O^+\text{/ heat}]{\text{1) NaOEt, EtOH}}$

+ CH_3CH_2OH

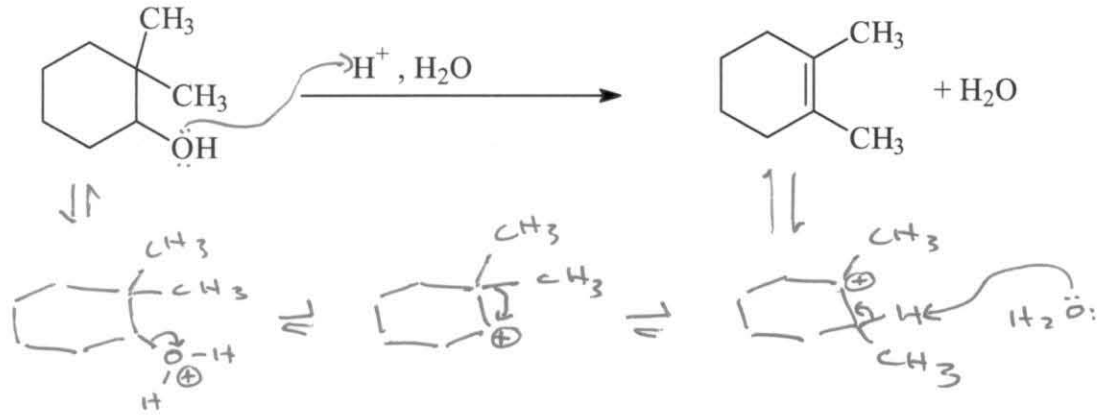
+ CO_2

8.(30) Give reasonable mechanisms for the following reactions. Use only the reagents provided and show all intermediates.

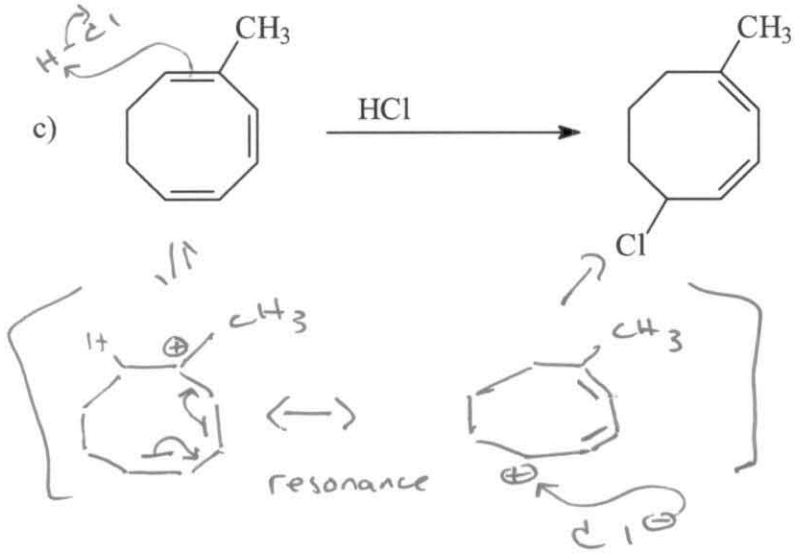
a)



b)

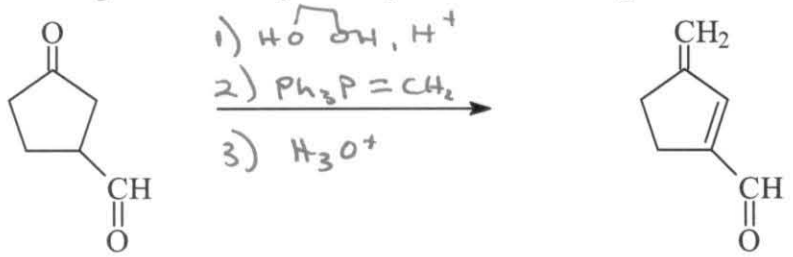


c)

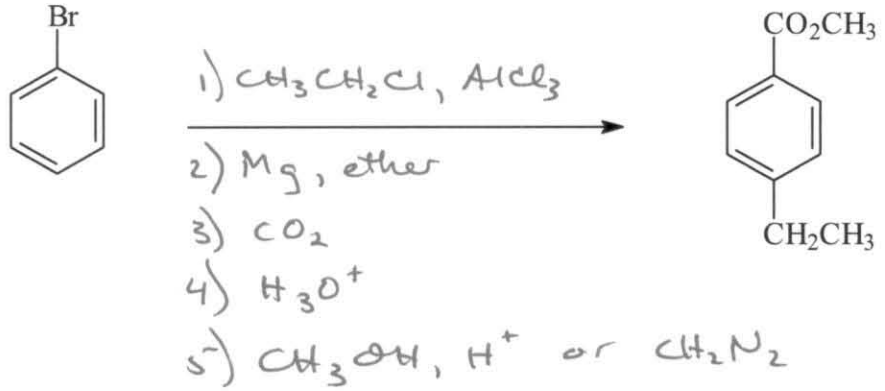


9.(30) Give the reagents necessary to carry out the following transformations:

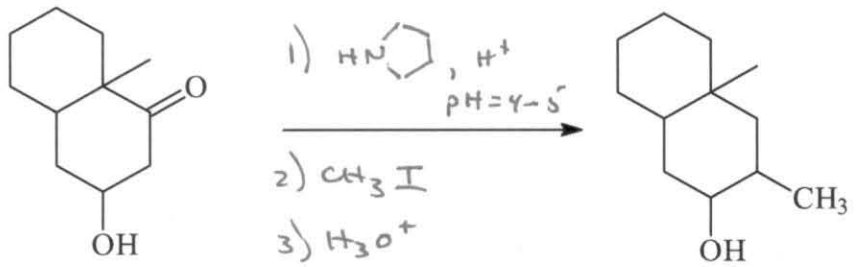
a)



b)



c)



4) NH_2NH_2, KOH in DMSO

(LDA will deprotonate the alcohol; if you want to alkylate with LDA, protect the alcohol first)