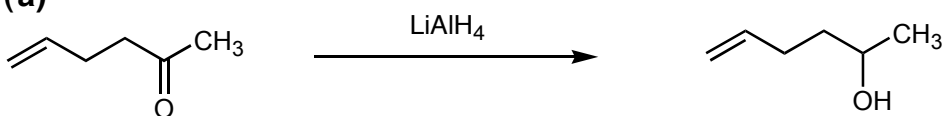


APRIL/MAY 2005 FINAL EXAMINATION
CHEMISTRY 249H

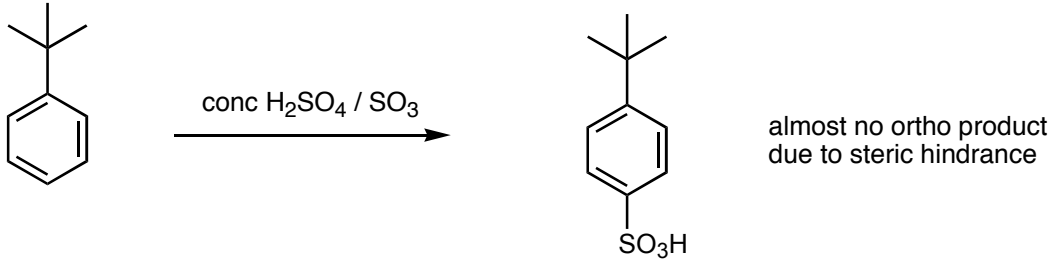
ANSWER GUIDE

1.

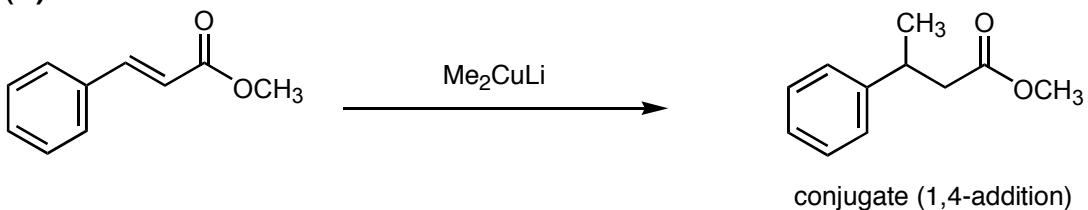
(a)



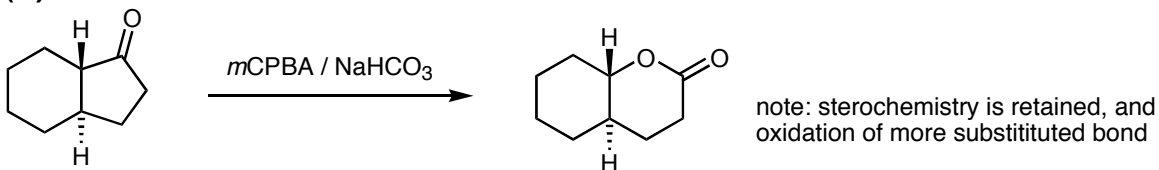
(b)



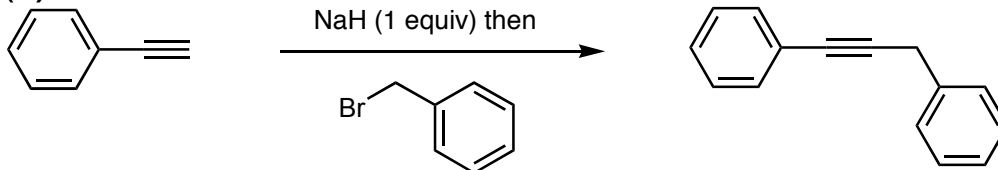
(c)



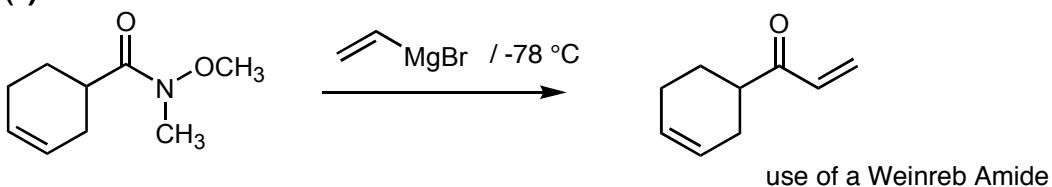
(d)

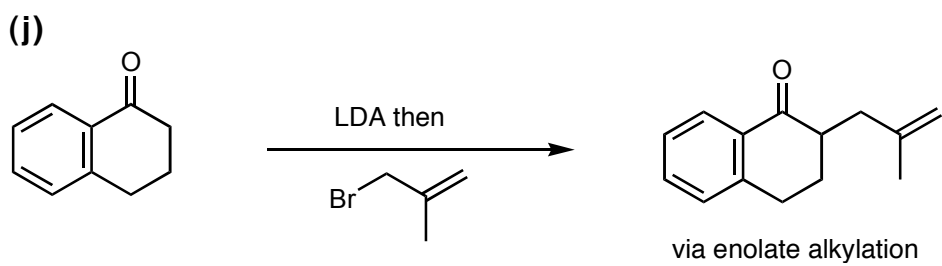
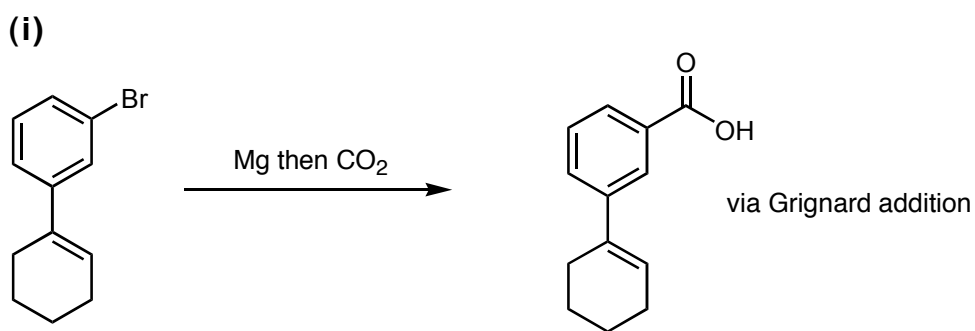
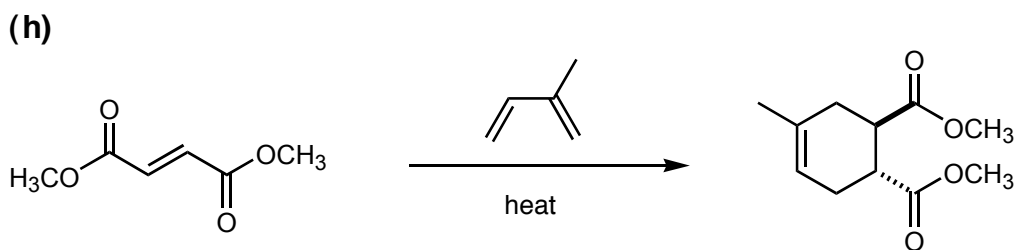
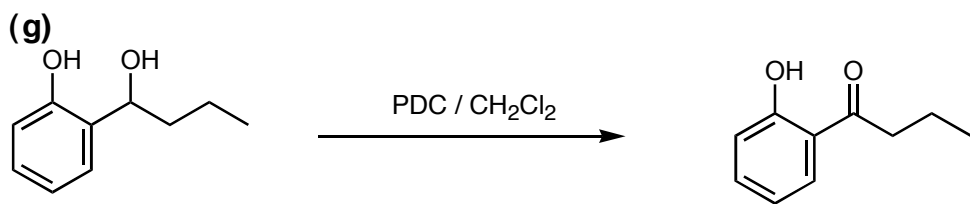


(e)

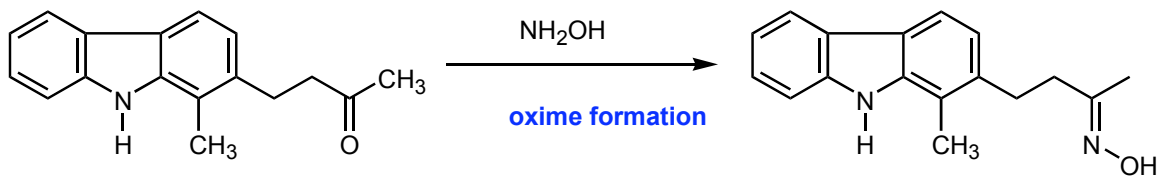
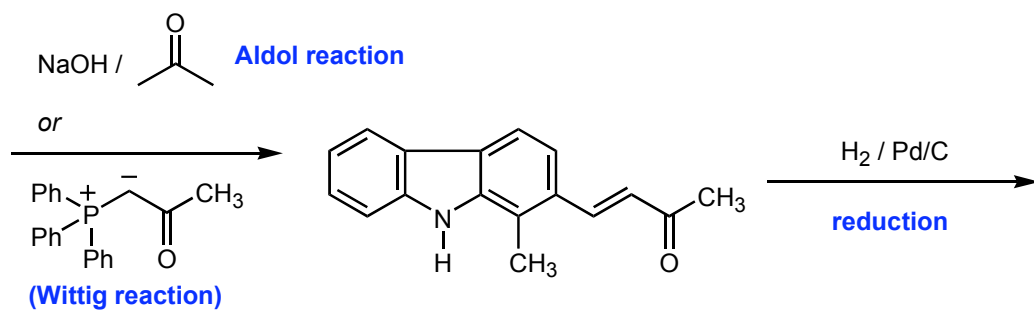
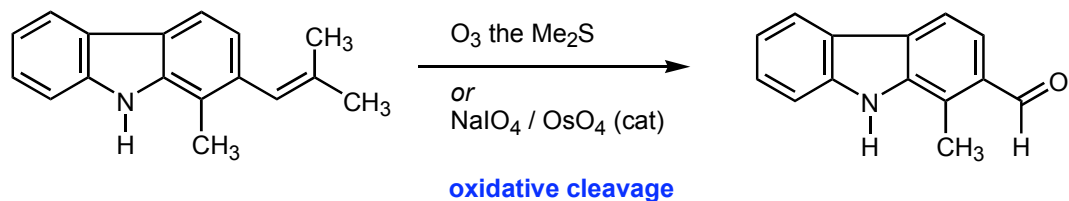


(f)

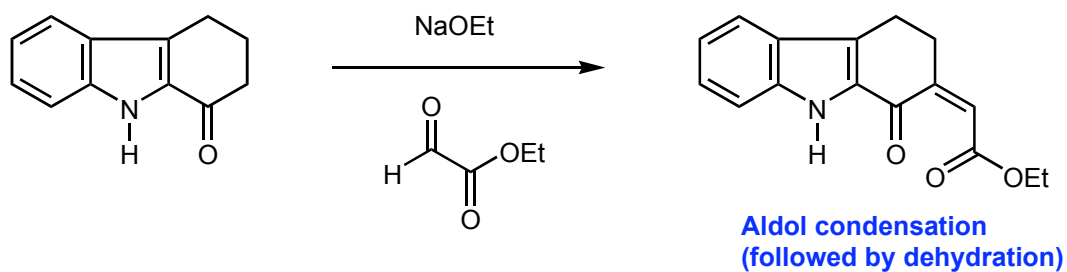




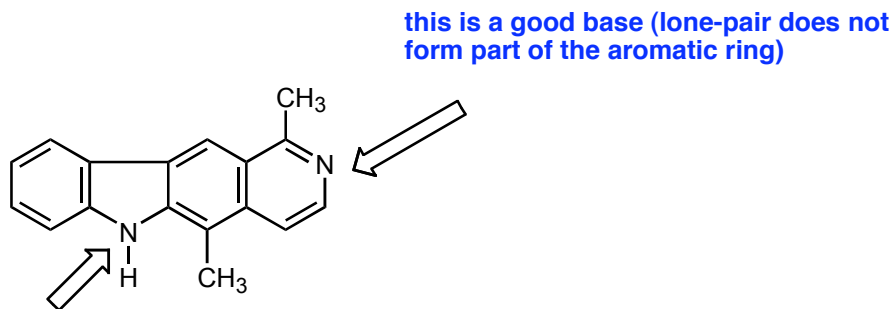
2.
(a)



(b)



(c)



this is not a good base (lone-pair forms part of the aromatic ring)

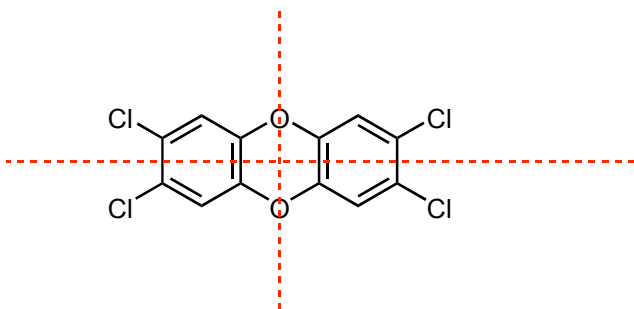
this is a good base (lone-pair does not form part of the aromatic ring)

3.

(a) This reaction is given in lecture notes – it involves nucleophilic aromatic substitution by hydroxide anion, followed by deprotonation of the phenol product.

(b) It is called dioxin. Dioxin poisoning was used in a plot to poison the then **Ukrainian** opposition leader Viktor Yushchenko.

(c) There would be 3 peaks in the ^{13}C NMR of “X”, due to the symmetry of the molecule:



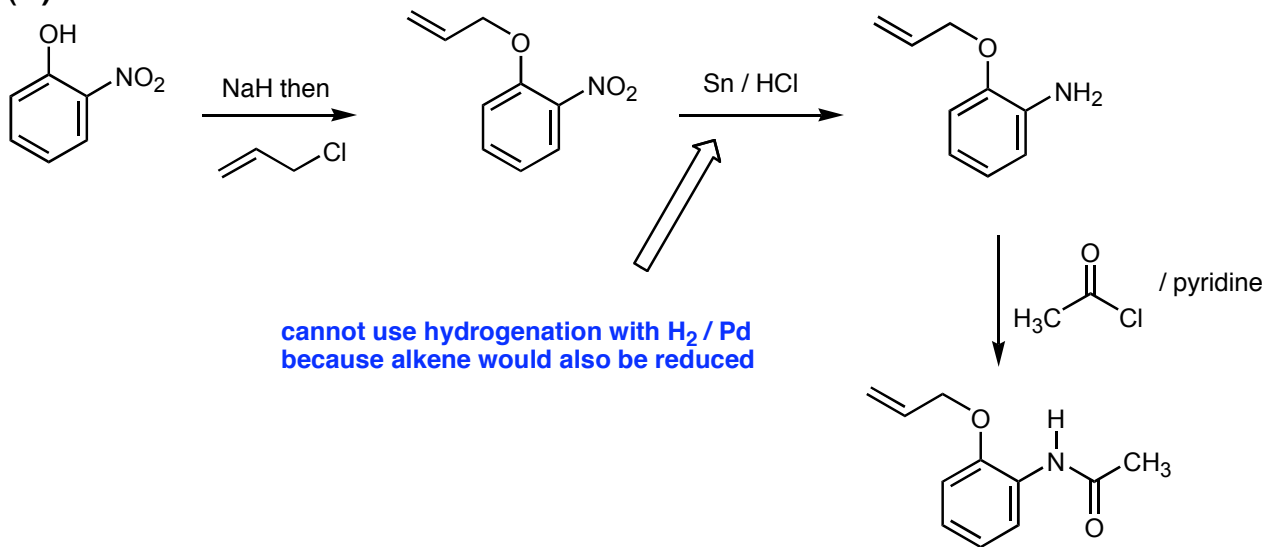
4.

(a) Epoxide formation under acidic conditions – see lecture notes.

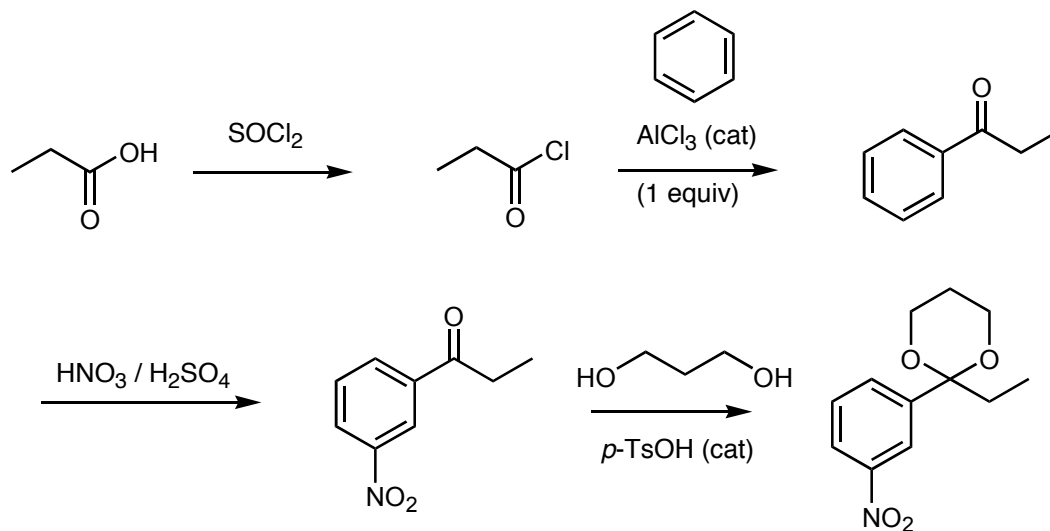
(b) Wittig reaction - - see lecture notes.

5.

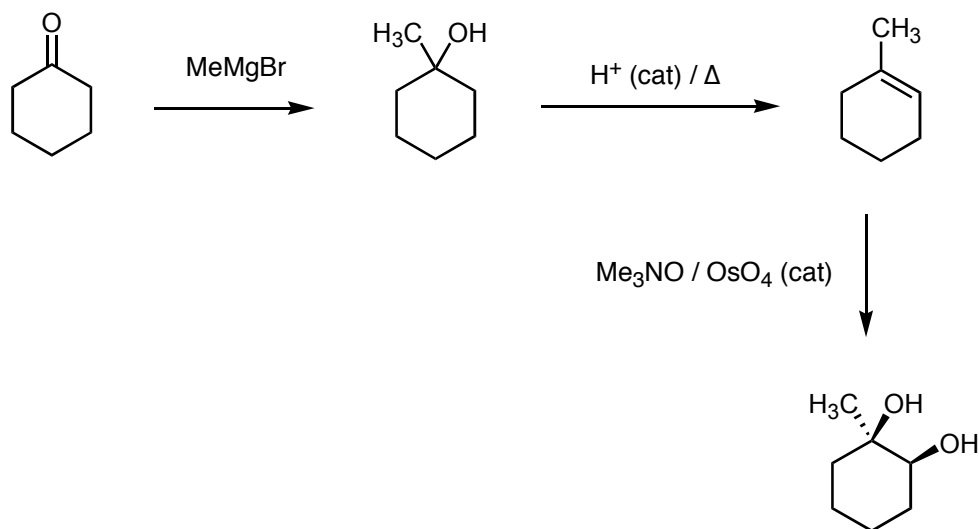
(a)



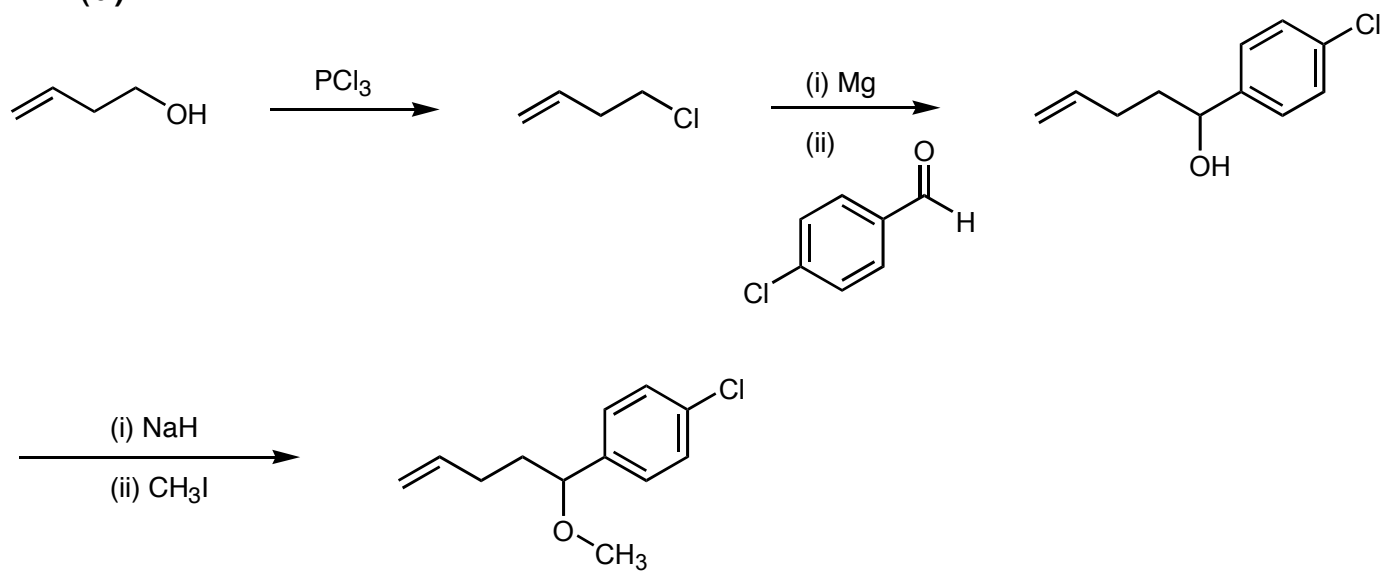
(b)



(c)

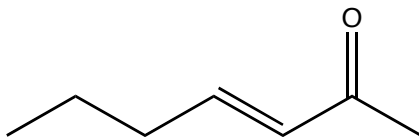


(d)



6.

(a) **COMPOUND A:**



(b) **COMPOUND B:**

