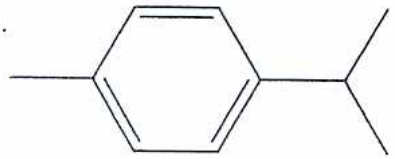
Quiz 2 S343 Summer 2008

Name Key other version different order

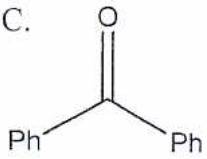
For problems 1-4, match each spectrum to the appropriate compound. (8pts)

A.

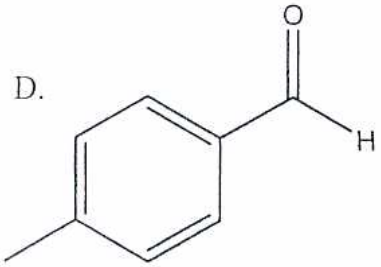


B.

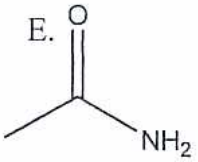
C.



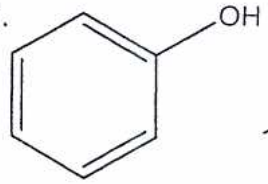
D.



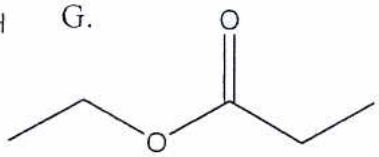
E.



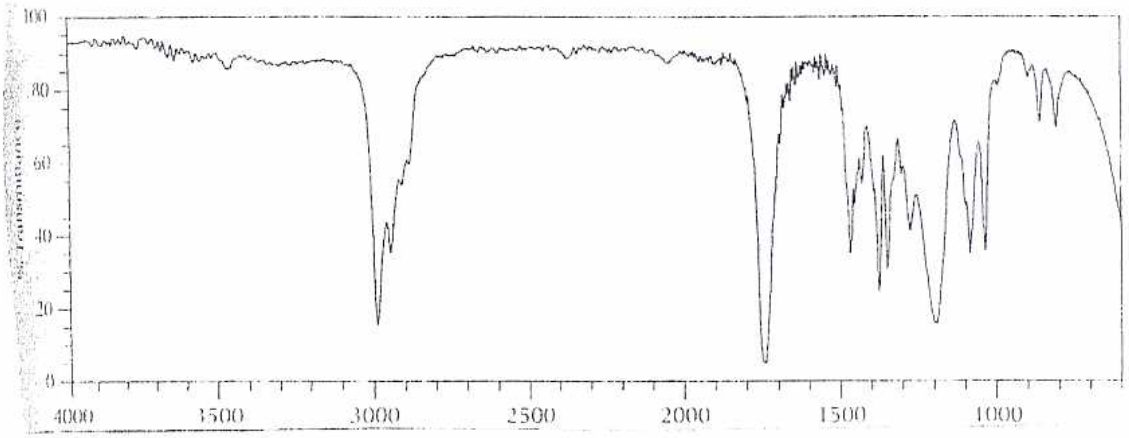
F.



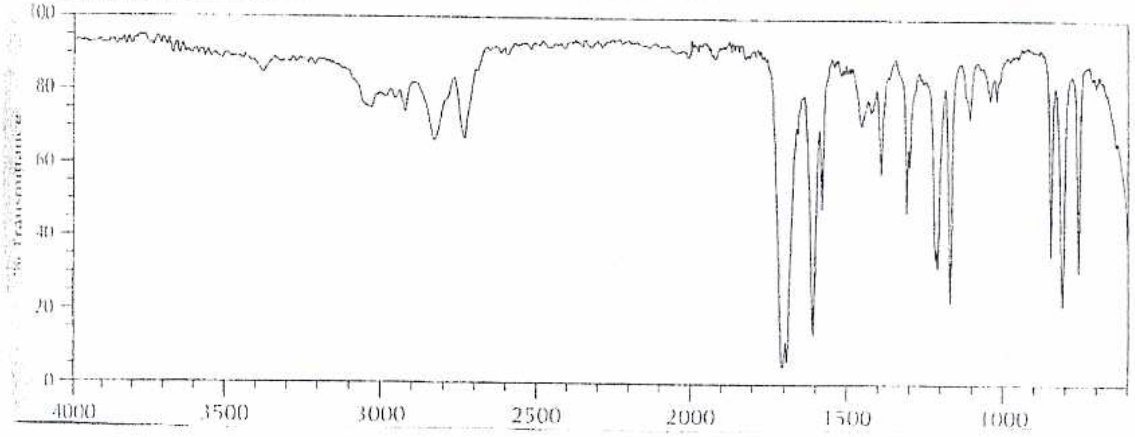
G.



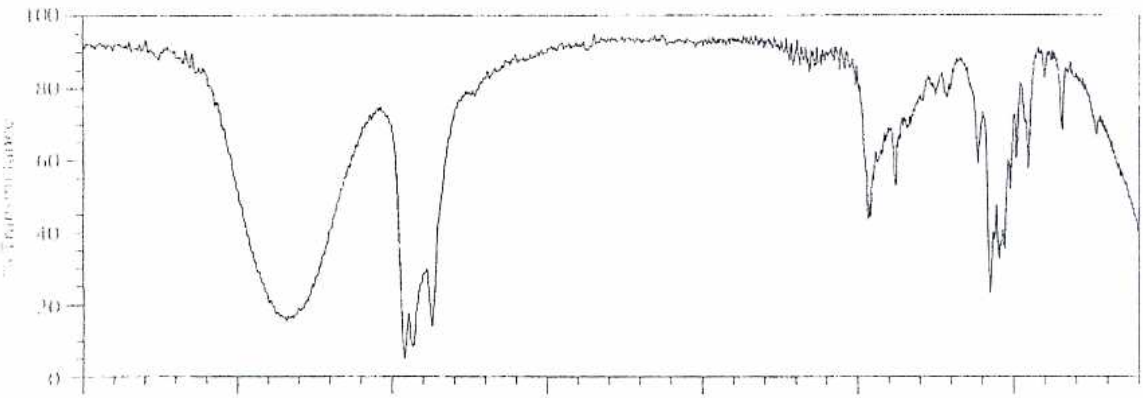
1. G



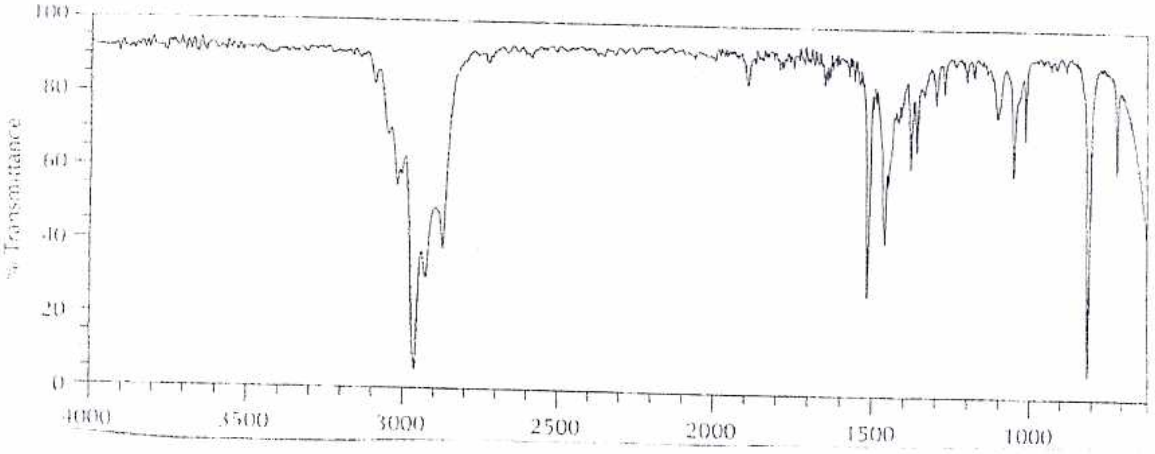
2. D



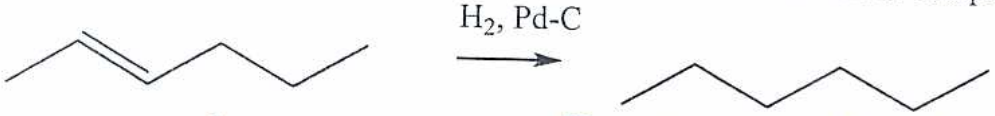
3. B



4. A

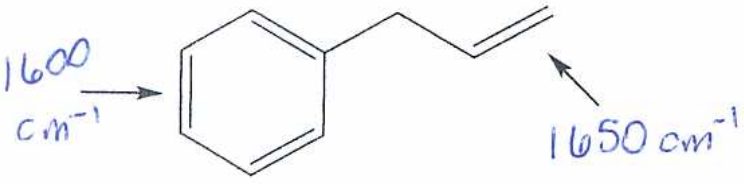


5. (3pts) How could IR be used to determine when this reaction is complete?



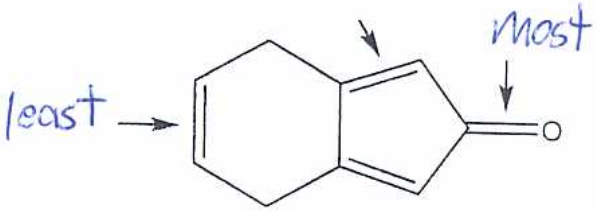
disappearance of $H-C_{sp^2}$ at above 3000 cm^{-1} and C=C at 1650 cm^{-1}

6. (3pts) Label each bond with the expected frequency of IR absorption, then explain the difference in frequency observed for the bond stretches:

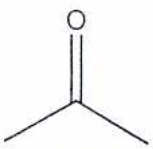


Due to resonance, aromatic C=C bonds have 1.5 bond order. Weaker bond stretches have lower frequency absorption

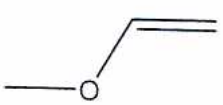
7. (3pts) Which of these bonds would show the most intense IR signal? Which would show the least intense signal?



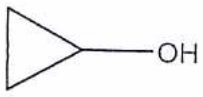
8. (3pts) What is the frequency of the peak that distinguishes each of these isomers from the others?



frequency 1710 cm^{-}



frequency 1650 cm^{-}



frequency 3300 cm^{-}