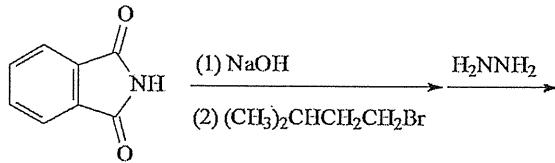
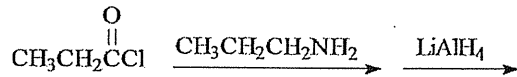


※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

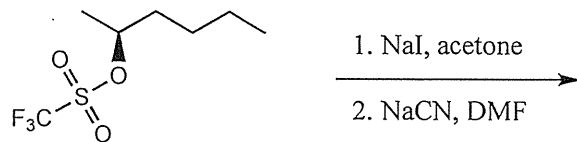
1) (10%) Give the major final product of the following reaction.



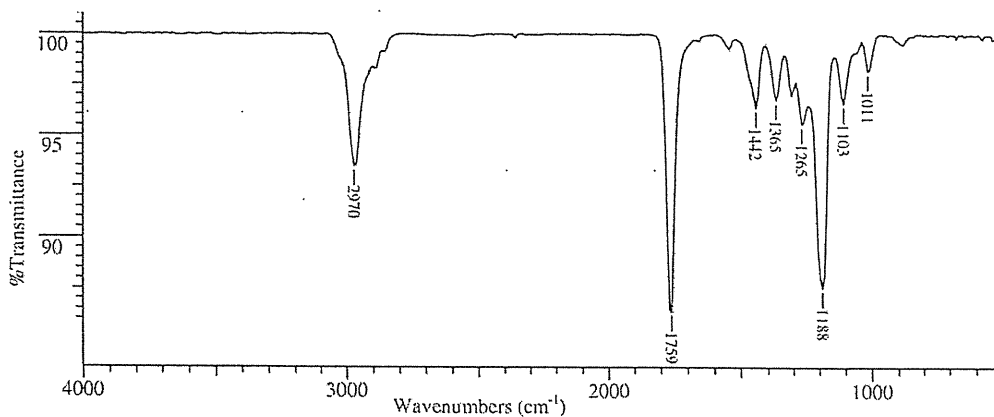
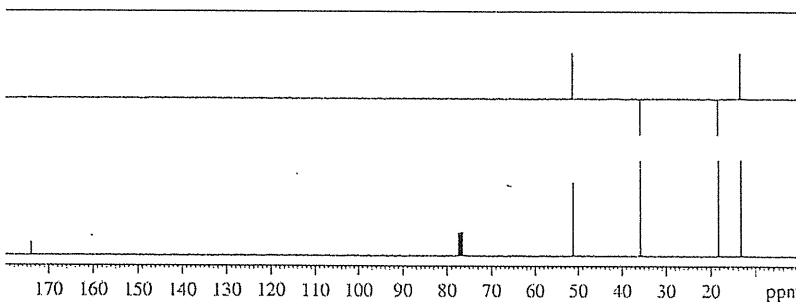
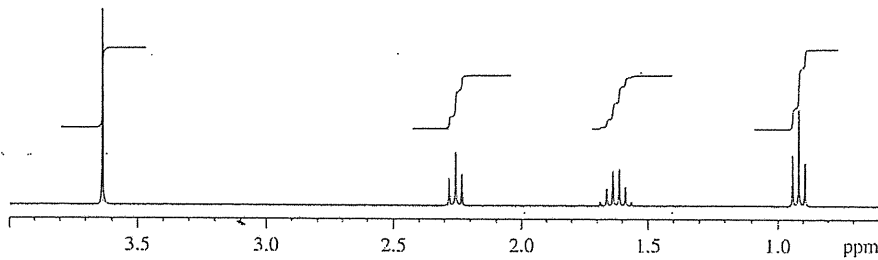
2) (10%) Give the major final product of the following reaction.



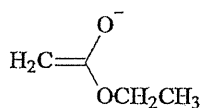
3) (10%) Give the major final product of the following reaction.



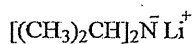
4) (10%) An unknown compound, L, has the formula $\text{C}_5\text{H}_{10}\text{O}_2$. Give the structure of L by scrutinizing its ^1H NMR, ^{13}C NMR and IR spectra, shown below.



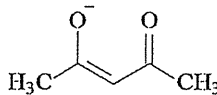
- 5) (10%) What is the relationship between (2*R*,4*S*)-2,4-dichloropentane and (2*S*,4*R*)-2,4-dichloropentane?
 6) (10%) Draw the structure of (2*S*,3*R*,4*S*)-2,4-dichloro-3-methylhexane with Fisher projection.
 7) (10%) Arrange the following bases in order of decreasing basicity.



I

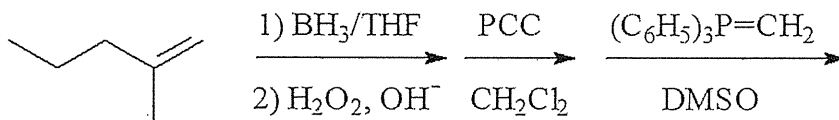


II

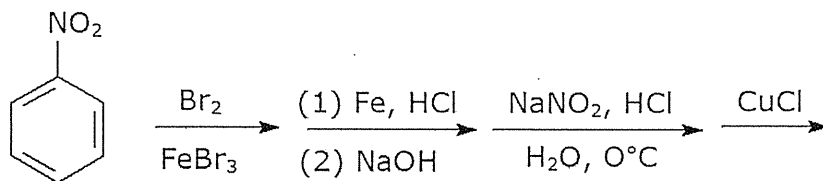


III

- 8) (10%) Give the major final product of the following reaction



- 9) (10%) Give the major final product of the following reaction



- 10) (10%) Describe how to prepare *meta*-bromobenzoic acid from toluene.