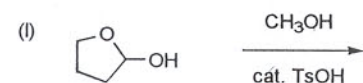
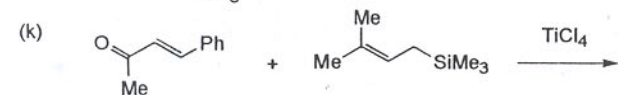
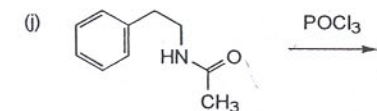
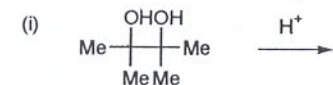
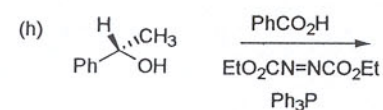
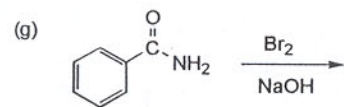
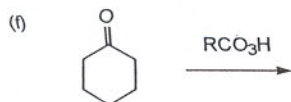
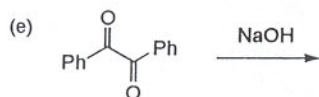
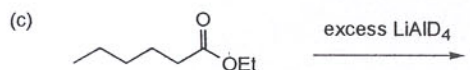
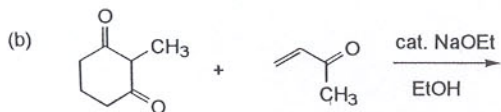
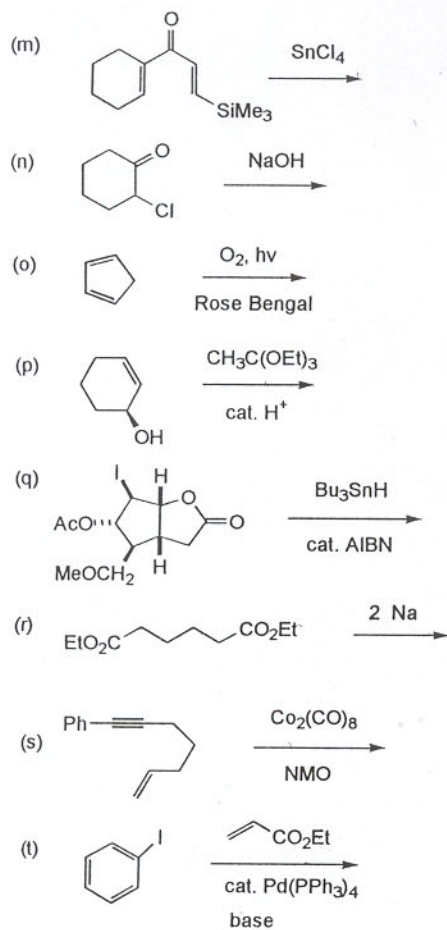
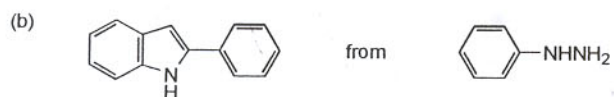
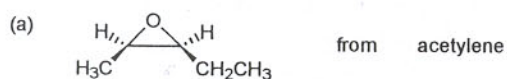


(60%) 1. Give the major product of the following reactions.





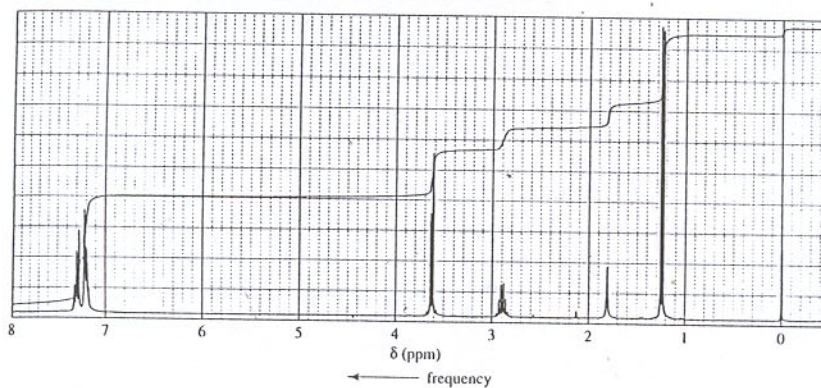
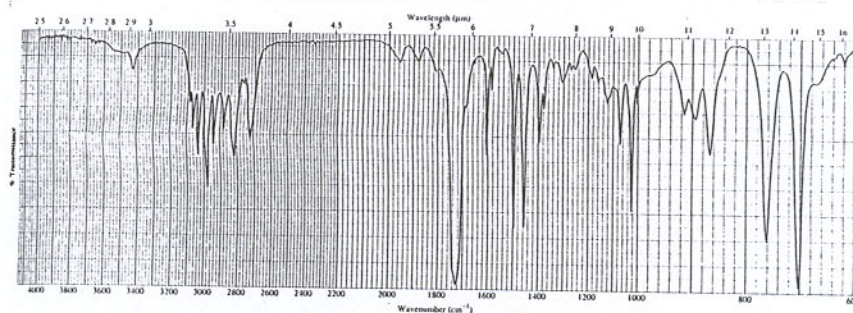
(6%) 2. Describe how the following compounds could be synthesized by the given starting material.



(30%) 3. Define and give an example for each of the following terms.

- (a) Zaitsev's rule
- (b) Hukel's rule
- (c) Hammond postulate
- (d) Hyperconjugation
- (e) diastereomers
- (f) meso compounds
- (g) stereoselective reaction
- (h) regioselective reaction
- (i) racemic mixture
- (j) pro-*R*-hydrogen

(4%) 4. A compound gives the following IR spectrum. Upon reaction with sodium borohydride followed by acidification, the product with the following ¹H NMR spectrum is formed. Identify the compounds.



<可使用計算機>

問答題, 1-13 題(每題 7 分), 14 題 9 分

1. What are the responsibilities of the institutional review board (IRB) for human drug experimentation?
2. What are the three phases for clinical studies of a new drug in humans?
3. What are the primary literatures and secondary literatures used as information resources in pharmacy and the pharmaceutical sciences?
4. Calculate the pH of a 0.026 M solution of ammonium chloride. Assume that K_b for ammonia is 1.74×10^{-5} and K_w is 1.00×10^{-14} .
5. What are the approaches used for drug stabilization?
6. Describe the van Deemter equation in chromatography.
7. Describe the size-exclusion chromatography.
8. Describe the theory and application of 2D-electrophoresis.
9. Describe the classification and properties of ointment bases.
10. Describe pharmacogenetics.
11. Describe the theory and procedure of polymerase chain reaction (PCR).
12. Describe the instrumental components of fluorometer
13. Describe the theory of MALDI-TOF mass spectrometry.
14. Terms in method validation
 - (a) The zero-blind method
 - (b) Linearity
 - (c) Precision
 - (d) Specificity
 - (e) Robustness
 - (f) Limit of detection