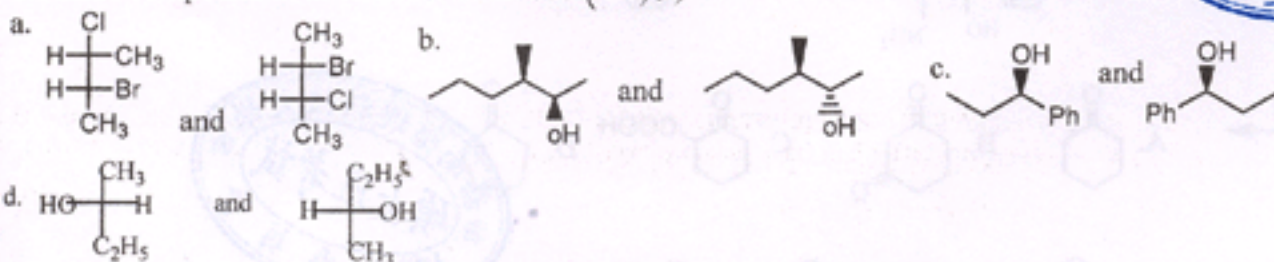


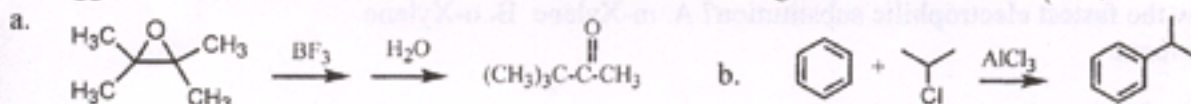


1. Identify whether the two structures in each pair enantiomers, diastereomers or two molecules of the same compound in different orientations. (>0%)



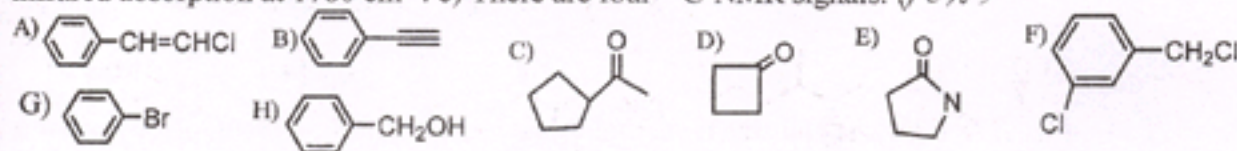
Ans.

2. Suggest a reasonable mechanism for each of the following known conversion: (20%)



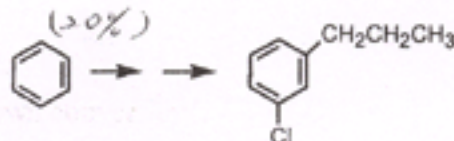
Ans.

3. Match each statement with the structure(s) a) The intensities of M and M+2 peaks in the mass spectrum are approximately 3:1. b) The base peak appears in the mass spectrum at 91. c) There are absorptions in the infrared spectrum between 2000 ~ 2500 cm⁻¹. d) The compound which will show infrared absorption at 1780 cm⁻¹. e) There are four ¹³C-NMR signals. (10%)



Ans.

4. Show how to prepare the following compound from benzene: (>0%)

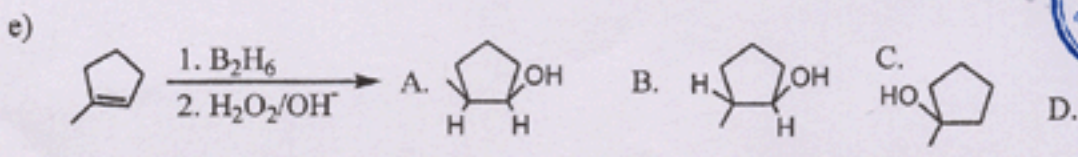
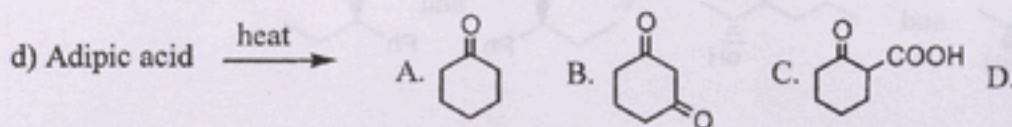
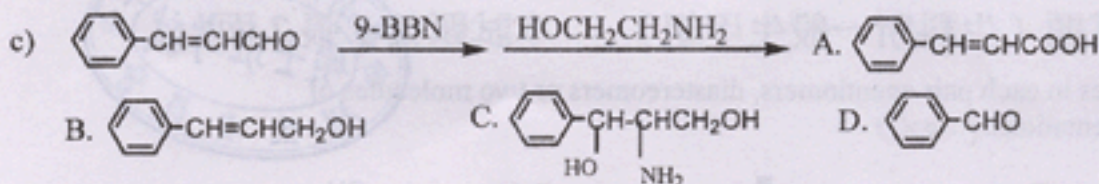
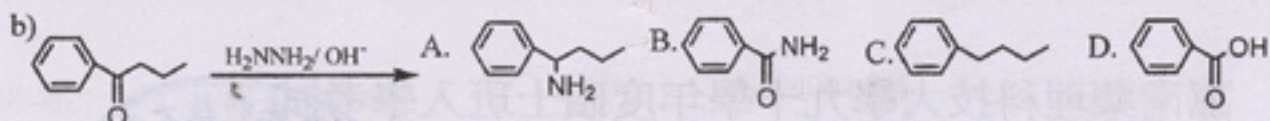
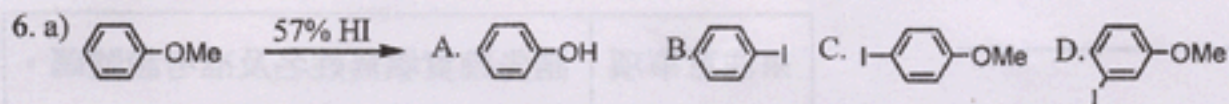


Ans.

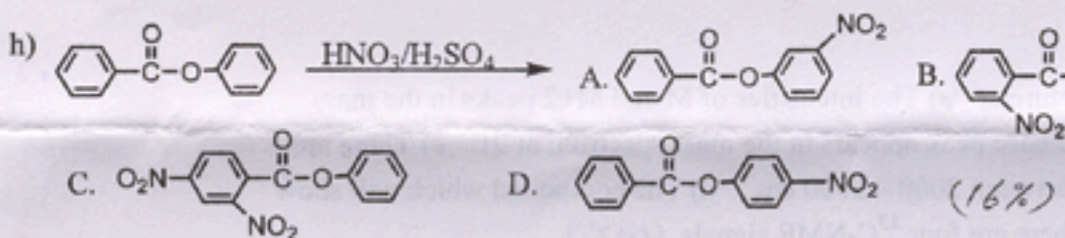
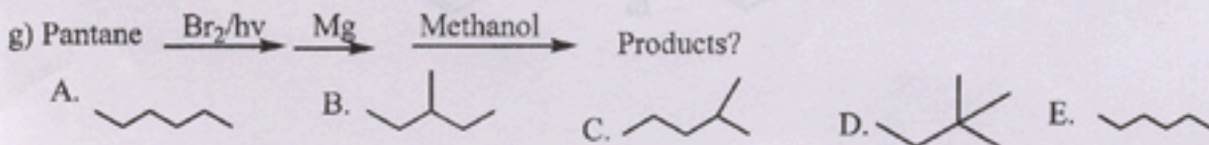
5. I) What are the full names of the followings? a) THF b)DMF c) ATP d) NBS. II) What is the structures of the following compounds? e)3-Methyl-1-butanol f) 3,5-Dimethylcyclohexene g) 3,4-Dichlorophenol (10%)

Ans.





f) Which compound will show the fastest electrophilic substitution? A. m-Xylene B. o-Xylene
 C. p-Chlorotoluene D. Toluene



Ans:

