淡江大學九十四學年度碩士班招生考試試題 95-1

系別：化學工程與材料工程學系 科目：有 機 化 學

准帶項目請打「V」	
	簡單型計算機

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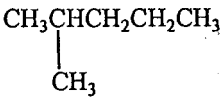
1. Draw the structure formula for each of the following compounds. (30%)
   For example: isohexane,



   1. 2,3-Dichlorobutane
   2. Diethyl ether
   3. Acetonitile
   4. 2-Propen-1-ol
   5. 3-Ethoxy-1-butene
   6. trans-1,2-Cyclopentanediol
   7. m-Chloronitrobenzene
   8. Terephthalic acid
   9. Pyrrole
   10. Lysine

2. To each of the following reaction give an example or a specified reaction equation. Also give brief explanation including possible reaction mechanism and catalytic conditions and heat requirement. (30%)
   1. Michael addition
   2. 1,2-elimination of H_2O from n-Butyl alcohol
   3. S_N2 reaction of methyl bromide with sodium hydroxide to yield methanol

3. Describe exactly how you would go about separating a mixture of the three water-insoluble liquids, aniline (b.p. 184°C), n-butylbenzene (b.p. 183°C), and n-valeric acid (b.p. 187°C), recovering each compound pure in essentially quantitative yield. (10%)

4. (a) Give the names of different types of secondary bonding. (b) Describe the feature for each type. (10%)

5. Given the NMR spectrum of toluene as follows, try to elucidate the structure of molecule of which the NMR spectrum and the integration of each peak are shown in the next figure. Give also your explanation in detail for your proposed molecular structure. Finally, give the name of this molecule of interest. (10%)

淡江大學九十四學年度碩士班招生考試試題 91-2

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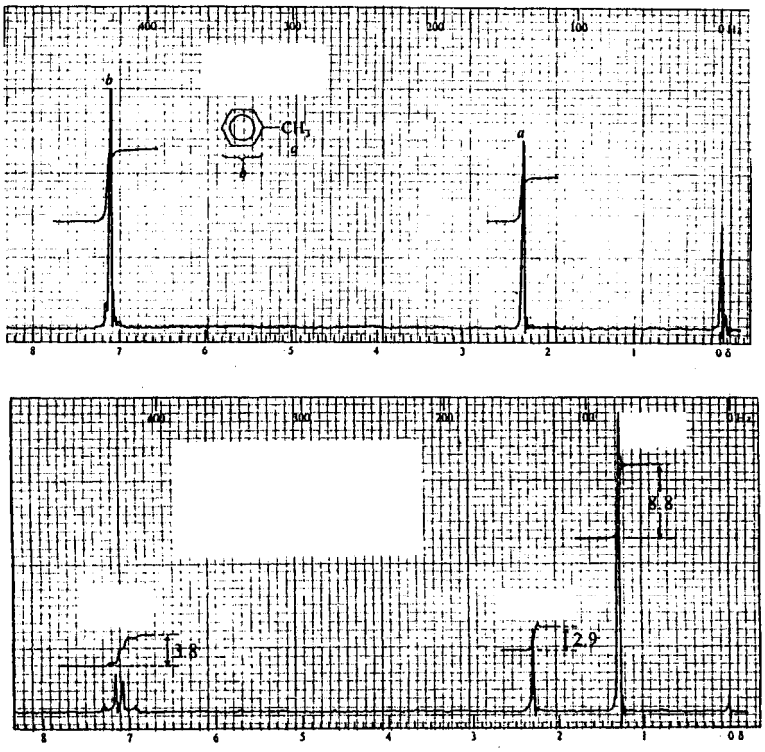

6. Give a structure or structures for the compound whose infrared spectrum is shown below. Explain your analysis that leads to your result. (10%)