

國立中央大學八十四學年度碩士班研究生入學試題卷

所別: 環境工程研究所 丁組 科目: 有機化學

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1. Why the dissociation energy of the central C-H bond in 1,4-pentadiene is only 71 Kcal mol⁻¹? (10%)
2. Give products and the ratio in which they are expected to form for the monochlorination of methylcyclohexane at 25 °C (10%)
3. Show how you would prepare 1-deuteriocyclohexane from cyclohexane. (10%)
4. Give the product of the reaction of 5-bromo-3,3-dimethyl-1-pentanol with hydroxide and suggest its mechanism. (10%)
5. Why does alkenyl hydrogens appear at low field in the ¹H NMR experiment? (10%)
6. Show how you would prepare 1,3-dibromo-2-nitrobenzene from benzene. (15%)
7. Show how you would prepare 2-methyl-2-propanol from methane as the only organic starting materials. (15%)
8. Write the structure of the products you expect from the reaction of 1-methylcyclohexanol with (a) concentrated HCl and (b) concentrated H₂SO₄. Compare and contrast the mechanisms of the two processes. (20%)