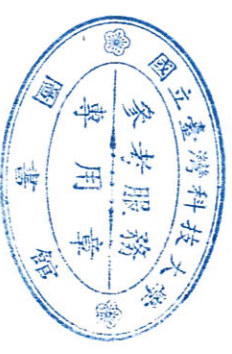
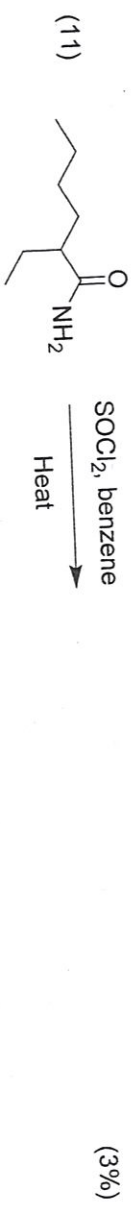
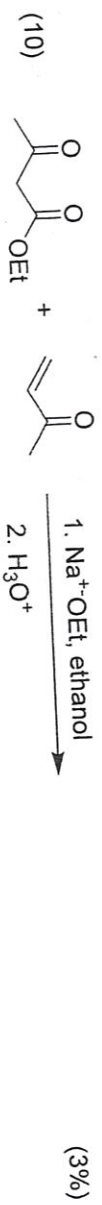
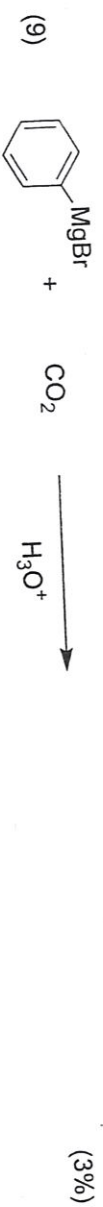
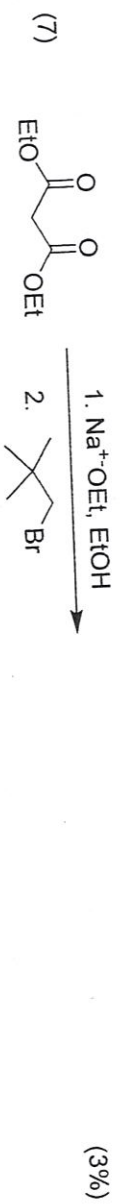
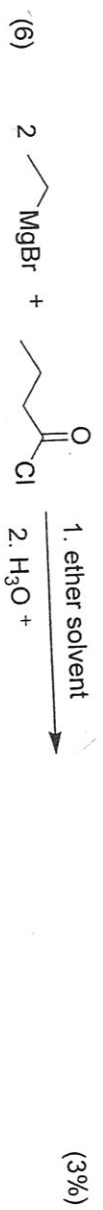


國立臺灣科技大學103學年度碩士班招生試題

系所組別： 材料科學與工程系碩士班甲組
 科目： 有機化學

(總分為100分)

1. Predict the products of the following reactions. (35%)



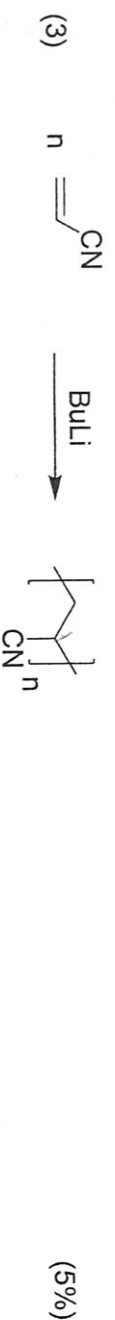
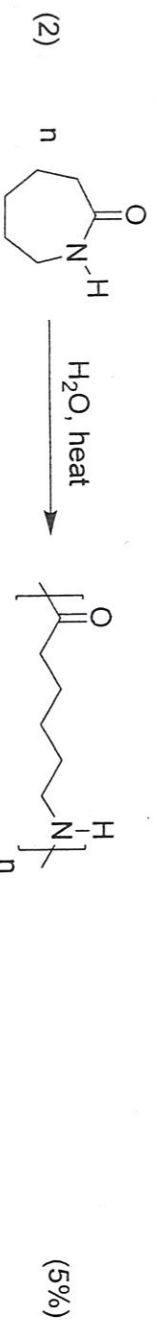
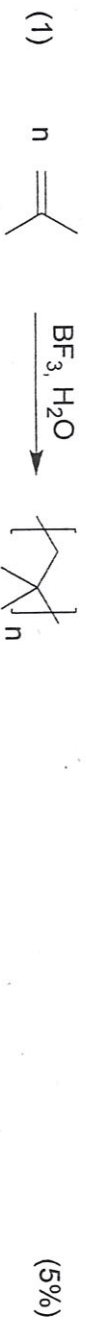
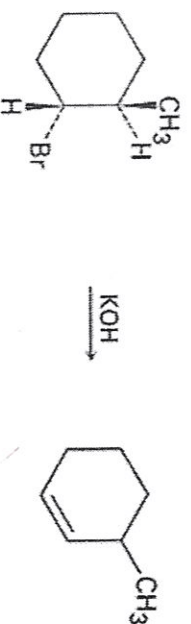
國立臺灣科技大學103學年度碩士班招生試題

系所組別：材料科學與工程系碩士班甲組

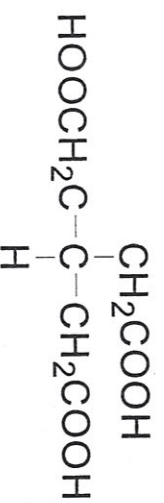
科目：有機化學

(總分為100分)

2. Propose the mechanism of the follow polymerizations. (15%)

3. How can you explain the fact that *trans*-1-bromo-2-methylcyclohexane yields the non-Zaitsev elimination product, 3-methylcyclohexene on treatment with base? (3%)

4. Hydrocarbon **A** has the formula C_9H_{12} and absorbs 3 equivalents of H_2 to yield **B**, C_9H_{18} , when hydrogenated over a Pd/C catalyst. On treatment of **A** with aqueous H_2SO_4 in the presence of mercury(II), two isomeric ketones, **C** and **D**, are produced. Oxidation of **A** with KMnO_4 gives a mixture of acetic acid (CH_3COOH) and the tricarboxylic acid **E**. Propose structures for compounds **A**~**D**, and write the reactions. (12%)

**E**

5. How might you use a Suzuki-Miyaura coupling to prepare the following biaryl compound? Show the two potential reaction partners. (4%)

