國立彰化師範大學 102 學年度碩士班招生考試試題

系所:<u>化學系</u> ☆☆請在答案紙上作答☆☆ 科目:<u>有機化學</u> 共2頁,第1頁

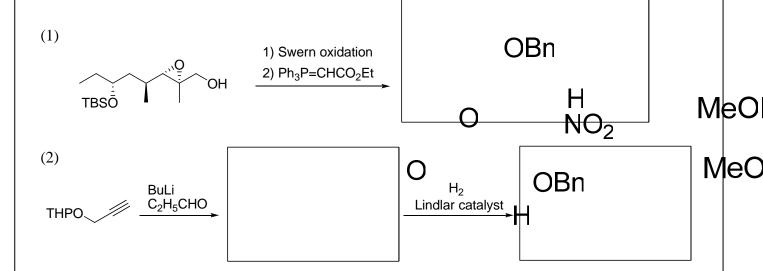
1. Draw structures corresponding to the names given. (12 %)

- (1) (R)-3,5-Dihydroxy-3-methylpentanoic acid
- (2) Aspirin
- (3) Benzoyl bromide

2.

(1) $R_1 = \underline{\hspace{1cm}}, R_2 = \underline{\hspace{1cm}}, R_3 = \underline{\hspace{1cm}}, R_4 = \underline{\hspace{1cm}}$ (8 %)

- (2) Draw the chemical structure of the product with proper stereochemistry. (8 %)
- 3. Draw the chemical structure of the product in the following reactions. (15 %)



4. Azulene, an isomer of naphthalene, has a remarkably large dipole moment for a hydrocarbon ($\mu = 1.0$ D). Explain, using resonance structures. (7 %)

國立彰化師範大學 102 學年度碩士班招生考試試題

系所: <u>化學系</u> ☆☆請在答案紙上作答☆☆ 科目: 有機化學

共2頁,第2頁

5. Please predict the product(s) of the following reactions (21%)

(1) HBr

(5) $\begin{array}{c|c} & H \\ \hline & C - CH_2CI \\ \hline & OH \end{array} \xrightarrow{NaOH, H_2O}$

(2) O (1) PhLi (2) H₃O⁺ (6) MCPBA (1 equiv)

(3) CH₃O⁻, CH₃OH

CH₃OCH₂CH₂OCH₃ conc. HI excess

(4) $CH=CH_2 \xrightarrow{\text{(1) Hg(OAc)}_2, CH_3OH}$ (2)NaBH₄

6. Propose a mechanism for the following reaction? (10%)

$$H^{+}$$
 $H_{2}O$
 $CH_{2}OH$
 $CH_{2}OH$
 $CH_{3}OH$

7. Propose a mechanism for the following reaction? (9%)

$$-$$
OH + CH₃CH₂OH $-$ O $-$ O $-$

8. How would you synthesize the following compound from any starting materials or reagents containing no more than **four** carbon atoms? (10%)