

# 大同大學 105 學年度 研究所碩士班入學考試試題

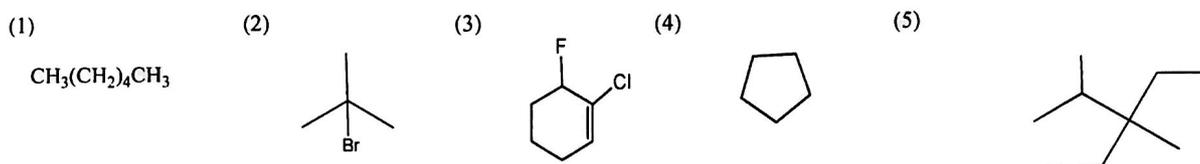
考試科目：有機化學

所別：化學工程研究所(乙組)

第 1/2 頁

註：本次考試 不可以參考自己的書籍及筆記； 不可以使用字典； 不可以使用計算器。

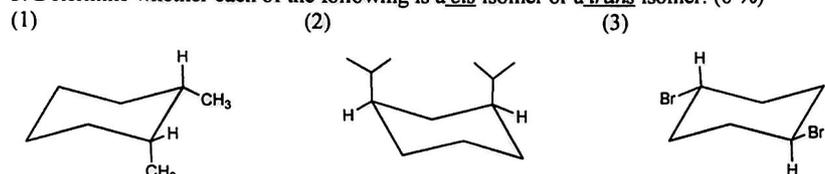
## 1. Nomenclature (10%)



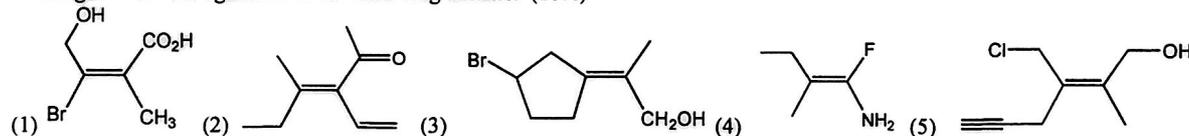
## 2. Draw the following molecular structures. (10%)

(1) isopropyl alcohol    (2) aniline    (3) benzoic acid    (4) styrene    (5) (S)-2-octanol

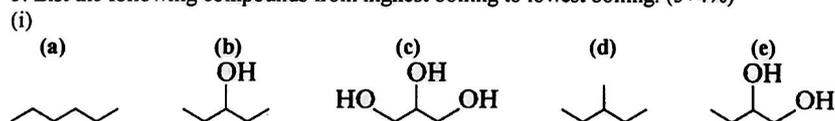
## 3. Determine whether each of the following is a *cis* isomer or a *trans* isomer: (6 %)



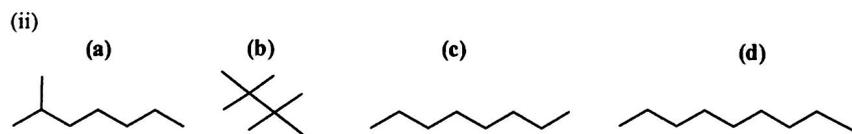
## 4. Assign E or Z configuration to the following alkenes. (10%)



## 5. List the following compounds from highest boiling to lowest boiling. (5+4%)

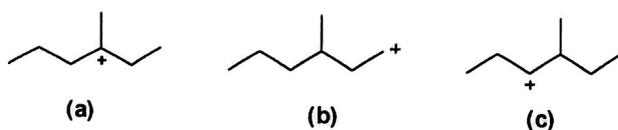


Ans: \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_



Ans: \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_

## 6. Rank the following carbocations in order of decreasing stability. (3%)

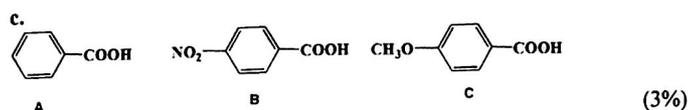


Ans: \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_

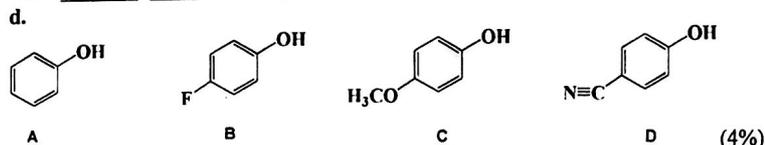
## 7. Which of the compounds in each of the following pairs is more acidic?

a.  $\text{CH}_3\text{COOH}$  or  $\text{CCl}_3\text{COOH}$  (2%) Ans: \_\_\_\_\_

b.  $\text{FCH}_2\text{COOH}$  or  $\text{FCH}_2\text{CH}_2\text{COOH}$  (2%) Ans: \_\_\_\_\_



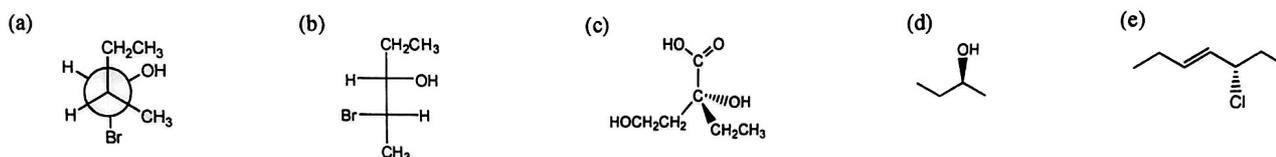
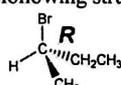
Ans: \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_



Ans: \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_ > \_\_\_\_\_

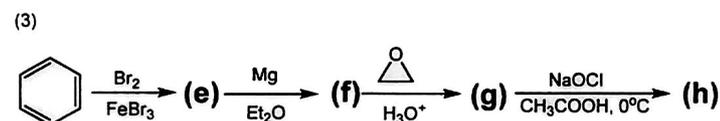
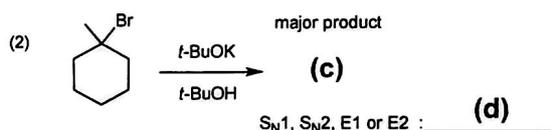
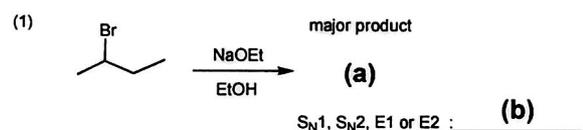
8. Indicate whether each of the following structures has the *R* or the *S* configuration: (14%)

For example :



(Please draw these molecular structures again in your answers)

9. Please finish the following reactions: (16%)



10. Please translation and explain the following essay. (11%)

### Is Chocolate a Health Food?

We have long been told that our diets should include lots of fruits and vegetables because they are good sources of antioxidants. Antioxidants protect against cardiovascular disease, cancer, and cataracts, and they are thought to slow the effects of aging. Chocolate is made up of hundreds of organic compounds, including high levels of antioxidants called catechins. (Catechins are also phenols.)

On a weight basis, the concentration of antioxidants in chocolate is higher than in red wine or green tea, and 20 times higher than in tomatoes. Another piece of good news for chocolate lovers is that stearic acid, the main fatty acid in chocolate, does not appear to raise blood cholesterol levels the way other saturated fatty acids do. Dark chocolate contains more than twice the level of antioxidants found in milk chocolate. Unfortunately, white chocolate contains no antioxidants.

