

國立成功大學

114學年度碩士班招生考試試題

編 號： 59

系 所： 化學工程學系

科 目： 有機化學

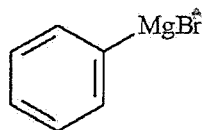
日 期： 0210

節 次： 第 1 節

注 意： 1.不可使用計算機
2.請於答案卷(卡)作答，於
試題上作答，不予計分。

I. Selective questions (4 points each, total 20 points)

[1] The following shows an intermediate used in a Grignard synthesis. Which atom will inductively donate electrons in this species?

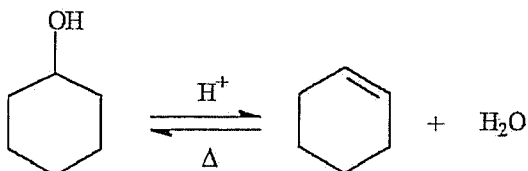


- (a) C ; (b) Br ; (c) Mg ; (d) H

[2] How many constitutional isomers are there with the molecular formula C_6H_{14} ?

- (a) 3 ; (b) 4 ; (c) 5 ; (d) 6

[3] The forward and reverse reactions are classified, respectively, as:

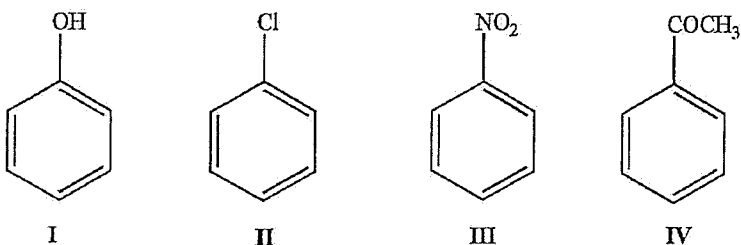


- (a) addition, elimination ; (b) elimination, substitution ; (c) elimination, addition ;
(d) elimination, rearrangement ; (e) substitution, addition

[4] What type of reactive intermediate is formed in the reaction of an alkene with aqueous acid to give an alcohol?

- (a) carbocation ; (b) carbanion ; (c) radical ; (d) carbene

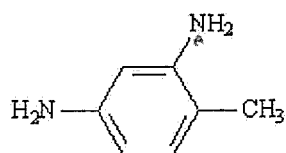
[5] Place the following in order of reactivity towards electrophilic aromatic substitution.



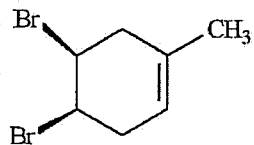
- (a) I > II > III > IV ; (b) I > II > IV > III ; (c) II > I > III > IV ;
(d) II > I > IV > III ; (e) III > IV > II > I

II. Provide the proper IUPAC name for the compound below. (5 points each, total 30 points)

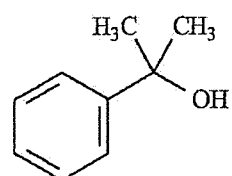
[1]



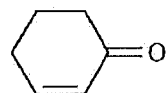
[2]



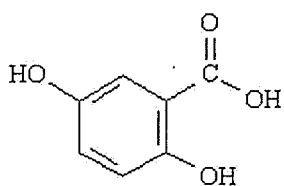
[3]



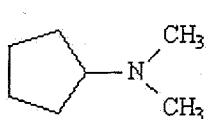
[4]



[5]

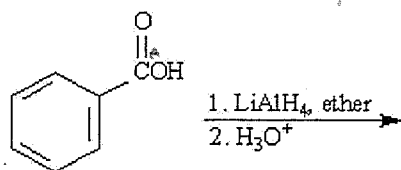


[6]

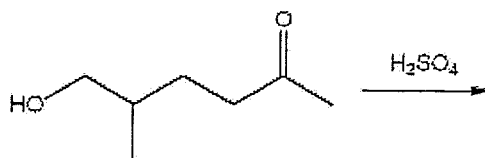


III. Draw the structure(s) (5 points each, total 40 points)

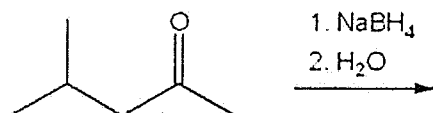
[1] Draw the structure of the major product in the following reaction:



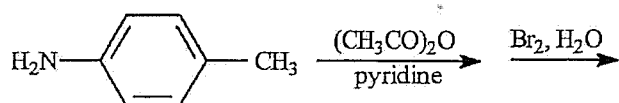
[2] Draw the structure of the major product in the following reaction:



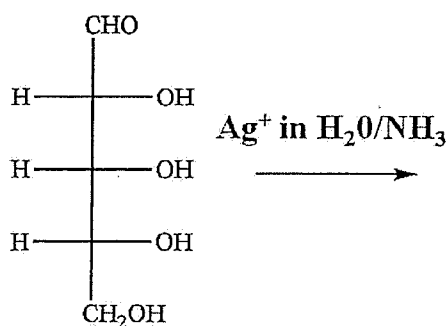
[3] What is the major organic product obtained from the following reaction?



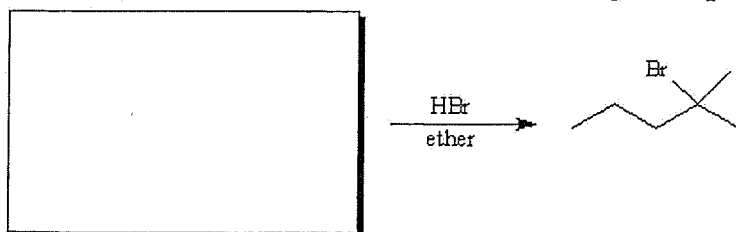
[4] What is the major organic product obtained from the following reaction?



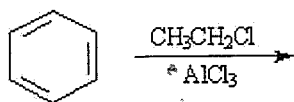
[5] What is the major organic product obtained from the following reaction?



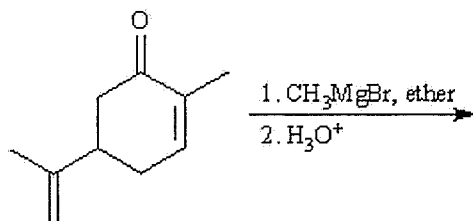
[6] Complete the following reaction by filling in all possible starting compounds.



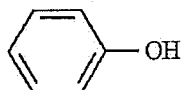
[7] What is the major organic product obtained from the following reaction?



[8] What is the major organic product obtained from the following reaction?



IV. Consider the compound below. At what approximate positions might the compound show IR absorptions? (5 points)



V. What is (define) the isoelectric point. (5 points)