

國立臺北科技大學 108 學年度碩士班招生考試

系所組別：3520 化學工程與生物科技系化學工程碩士班乙組

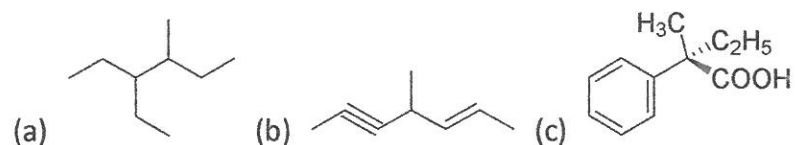
第二節 有機化學 試題

第一頁 共一頁

注意事項：

1. 本試題共七題，共 100 分。
2. 不必抄題，作答時請將試題題號及答案依照順序寫在答案卷上。
3. 全部答案均須在答案卷之答案欄內作答，否則不予計分。

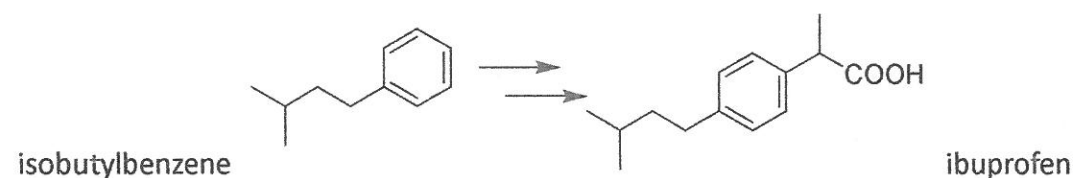
1. Give the IUPAC names of the following compounds or draw the structures of the following names, including stereochemistry if it has. (20 pts, 4pts each)



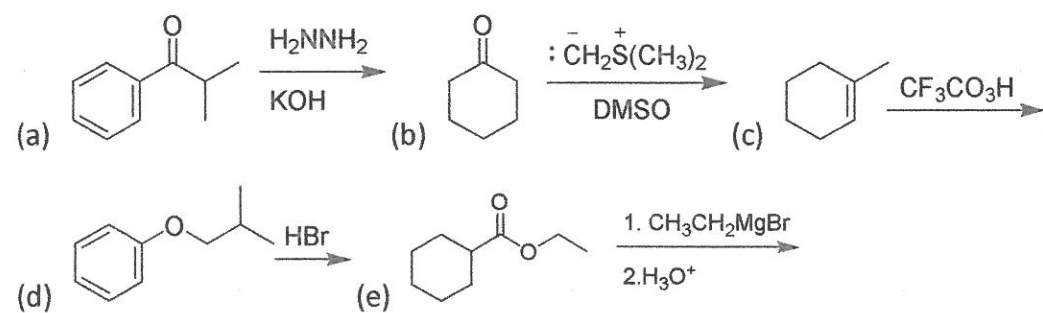
(d) 2-methylcyclohex-2-en-1-one (e) (S)-2-(4-isopentylphenyl)propanoic acid

2. (a) Show how to prepare the anti-inflammatory agent ibuprofen starting from isobutylbenzene in 5 steps (including reagents). Hint: acylation, reduction, substitution and hydrolysis. (25pts, 5 pts each step)

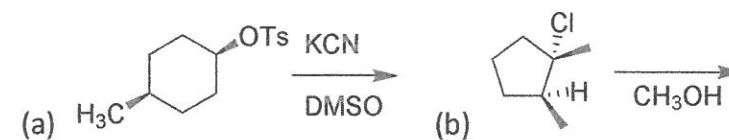
(b) Ibuprofen has a chiral center, is it R form or S form compound or racemate for your synthetic route? (5 pts)



3. Predict the major products (show the isomers as well, if possible) of the following reactions. (20 pts, 4pts each)

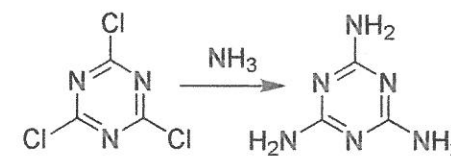


4. Predict the major product(s) of each reaction below. Identify those reactions where you would expect the product mixture to rotate plan-polarized light. Note: No reasons, no points. (10 pts, 5pts each)



5. Give a syntheses route (including reaction conditions) for preparing 4-chloro-2-ethylbenzenesulfonic acid from benzene. (10 pts)

6. Melamine can be prepared from s-trichlorotriazine through a series of S_NAr reactions with ammonia. The first substitution takes place rapidly at room temperature. The second substitution takes place near 100°C, and the third substitution requires even higher temperature and pressure. Provide an explanation for this reactivity. (5 pts)



7. Draw Fischer projection of a meso compound with the formula C₈H₁₈. (5 pts)