長庚大學103學年度研究所碩士班(含碩士在職專班)招生考試試題

系所: 中醫學系天然藥物碩士班　　考試科目: 有機化學

注意:請詳細閱讀下列試題，並請標明題號依試題順序將答案書寫於答案卷上。　　本試題共 2 頁：第 1 頁

一、請畫出下列化合物的結構。(20 %)

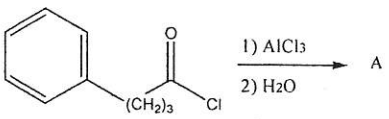
A. benzoyl chloride　　B. *m*-nitroacetophenone

C. *trans*-2-methyl-1-cyclohexanol　　D. 6-bromo-1-chloro-3-methyl-1-cyclohexene

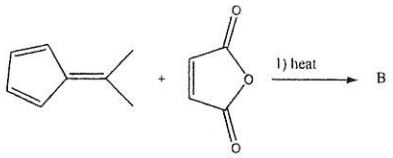
二、請問(-)-3-methyl-1-pentene 進行氫化反應後，其產物是否具有光學活性？請解釋。(10 %)

三、請完成下列反應。(20 %)

A.



B.



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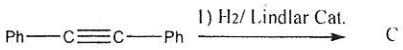
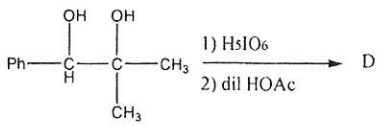
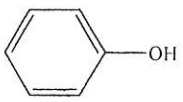


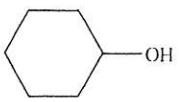
D.



四、請解釋為何下列兩類似之化合物 pKa 差距如此大？請解釋。(10 %)



pKa ~10



~17

五、化合物 $C_5H_{11}Cl$ 與 $C_5H_{11}Br$，請問兩個化合物的 EI-MS 光譜分子離子峰各有何特徵？(10 %)

六、化合物 X 分子量為 348，欲將 6.96 mg 的化合物 X 配製成 10 mM 的 DMSO 溶液標準溶液，需多少 DMSO？實驗所需為 25 μM 溶液 1 ml，請問需取多少標準溶液稀釋成 1 ml？(10 %)

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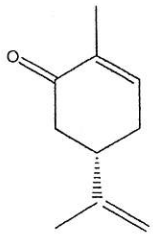
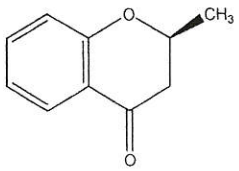
七、請標出下列化合物之不對稱中心，並判斷其為 *R* 或 *S* 組態。(10 %)

A.



B.



八、英譯中(10 %)

Flavonoids are phenolic substances isolated from a wide range of vascular plants, with over 8000 individual compounds known. Most interest has been devoted to the antioxidant activity of flavonoids, which is due to their ability to reduce free radical formation and to scavenge free radicals. The antioxidant efficacy of flavonoids *in vivo* is less documented, presumably because of the limited knowledge on their uptake in humans. Most ingested flavonoids are extensively degraded to various phenolic acids, some of which still possess a radical scavenging ability. Both the absorbed flavonoids and their metabolites may display an *in vivo* antioxidant activity, which is evidenced experimentally by the increase of the plasma antioxidant status, the sparing effect on vitamin E of erythrocyte membranes and low-density lipoproteins, and the preservation of erythrocyte membrane polyunsaturated fatty acids.