

報名編號(准考證號碼)： _____

※注意事項 請先確實填寫報名編號(即准考證號碼)

嘉南藥理科技大學九十六學年度碩士班暨碩士在職專班考試入學招生

有機化學試題(藥物科技研究所碩士班一般生乙組)

本試題共 2 張 3 面

一、選擇題(以下共有 20 題選擇題，每題 2 分，共 40 分。每題只有一個正確答案，請將正確答案填入答案欄內，否者不予計分。答錯者該提以零分記，不倒扣分數。)

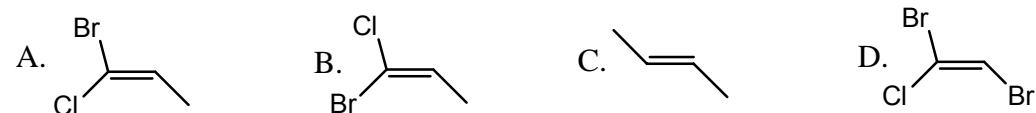
答案欄

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

1. Which of the followings is an optical active compound?

- A. *cis*-1,2-dimethylcyclohexane B. *cis*-1,3-dimethylcyclohexane C. *cis*-1,4-dimethylcyclohexane
D. *trans*-1,4-dimethylcyclohexane

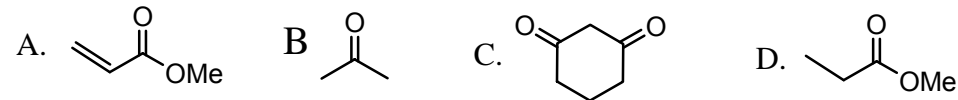
2. Choose the Z- configuration of the followings.



3. Which compound has the smallest pK_a ? A. CH_3COOH B. CF_3COOH C. NH_3 D. NMe_3

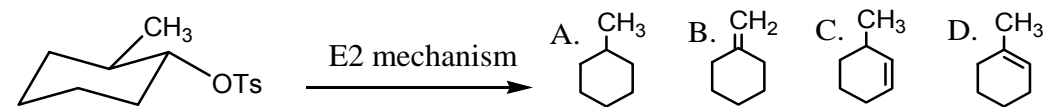
4. Which one is not a heterocyclic compound? A. Furan B. pyridine C. pyrrole D. phenol

5. Which compound has the most acidic α -hydrogen?



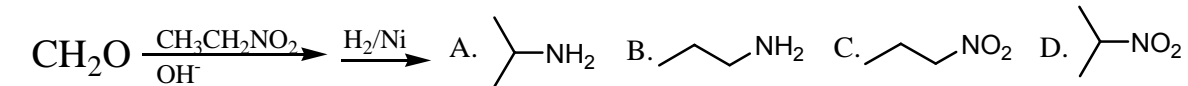
6. Which of the following compounds is an aprotic solvent? A. tetrahydrofuran B. acetic acid
C. CH_3OH D. H_2O

7. What is the major product for the following reaction?

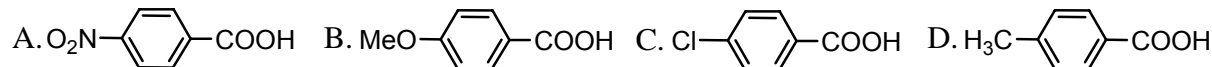


8. What is the decarboxylation product of ? A. acetone B. acetic acid C. ethanol D. H_2O

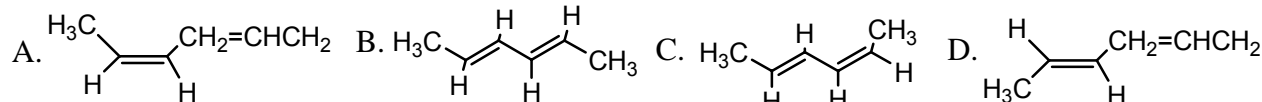
9. What is the final product of this reaction sequence?



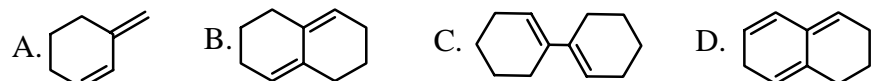
10. Which compound has the most acidity?



11. Which alkene would you expect to be most stable?

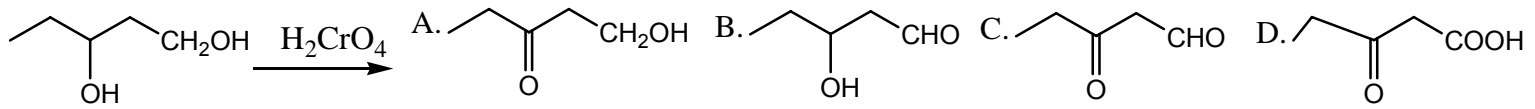


12. Which of these conjugated dienes can undergo a Diels-Alder reaction?

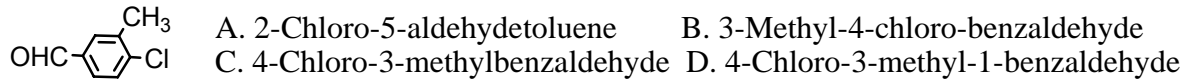


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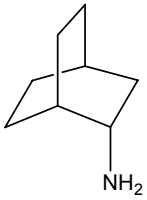
13. What would be the major product of the following reaction?



14. Which is the proper name for the structure shown?

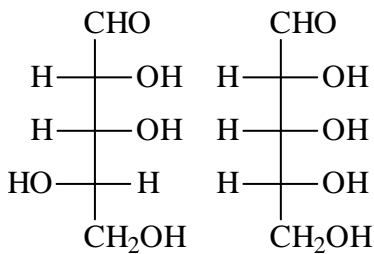


15. 下述雙環結構的 IUPAC 正統名稱爲下列那一個?



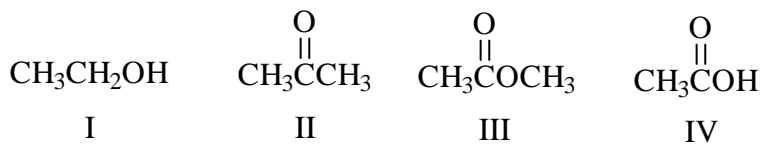
- A. 2-Aminobicyclo[2.2.2]octane
 B. 4-Aminobicyclo[2.2.2]octane
 C. 2-Aminobicyclo[6.4.4]octane
 D. 1-Aminobicyclo[2.2.2]octane

16. 下列兩個化合物的關係爲何?



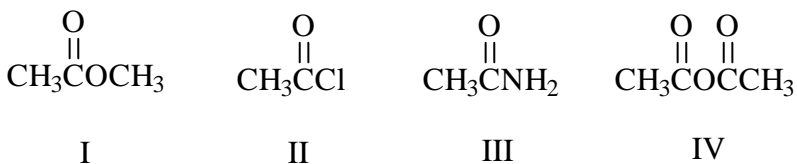
- A. enantiomers B. anomers C. meso compounds D. diastereomers

17. 下列化合物的酸性由低至高的順序爲何?



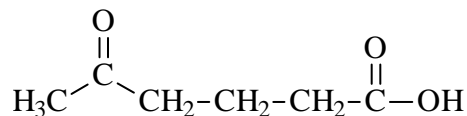
- A. IV, III, II, I B. IV, II, III, I C. II, III, I, IV D. III, II, I, IV

18. 下列化合物在進行親核性取代反應 nucleophilic acyl substitution 的反應速度由高而低的順序爲何?



- A. II, IV, I, III B. III, IV, I, II C. IV, I, II, III D. I, II, III, IV

19. 下列化合物的 IUPAC 正統名爲何?



- A. 2-Oxohexanoic acid B. 5-Oxohexanoic acid C. Methyl butyroxone ketone D. 4-Ketopentanoic acid

20. 不飽和脂肪酸(unsaturated fatty acids)構成的三酸甘油酯(triacylglycerides)融點爲何低於飽和脂肪酸所構成的三酸甘油酯?

- A. Dispersion forces B. Hydrophilic interactions C. *cis*-carbon-carbon double bond steric interactions
 D. Hydrogen bonding

<後面尚有題目>

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有機化學試題(藥物科技研究所碩士班一般生乙組)

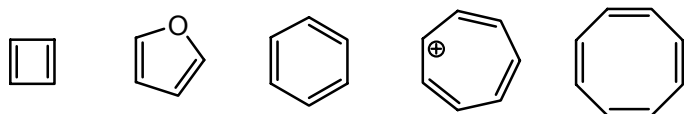
本試題共 2 張 3 面

二、問答題(共 5 題，共 60 分，請依題意提出重點回答。)

1. 某一個具光學活性的化合物其純的 S 形態之標準旋光度 specific rotation, $[\alpha]$ 為 $+80^\circ$ ，而目前你拿到一個該化合物之 R 及 S 兩種形態的混合物，你用 20 公分長的旋光機之石英管，配上 0.2 g/mL 的濃度，測出旋光度為 $+16^\circ$ ，請計算出該光學混合物中 R isomer 與 S isomer 的比例?(請寫出計算過程，過程正確仍有部分分數)

2. 請解釋 Enantiomers 及 Diastereomers。

3. 下列化合物何者屬芳香性化合物?



4. 請依下列 A 及 B 各化合物之分子式及其 $^1\text{H-NMR}$ 資料，劃出 A 及 B 化合物的構造式。

A. $\text{C}_4\text{H}_8\text{O}$ δ 1.0(t, 3H), 2.1(s, 3H), and 2.4(q, 2H)

B. $\text{C}_8\text{H}_9\text{Br}$ δ 1.8(d, 3H), 5.0(q, 1H), and 7.3(s, 5H)

5. 假設你有一個下列三種化合物之混合物，請利用它們之間的相對酸性或鹼性，設計一個化學方法，將此三種化合物分離開。

