

考生姓名：_____

准考證號碼：_____

注意事項	請先確實填寫姓名及准考證號碼。
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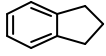
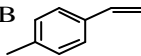
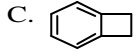
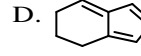
嘉南藥理科技大學九十四學年度碩士班考試入學招生

有機化學試題(藥物科技研究所碩士班甲組、乙組) 本試題共 1 張 2 面

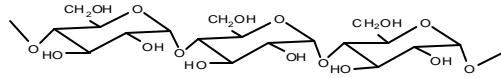
一、選擇題 (45%) 選擇答案欄

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
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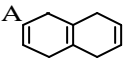
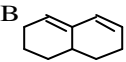
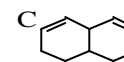
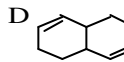
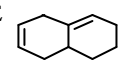
1. A compound of formula C_9H_{10} has the 1H NMR spectrum indicated below. What is the structure of the compound? δ 7.13, 4H singlet, δ 2.89, 4H triplet, δ 2.04, 2H multiplet

- A.  B.  C.  D.  E. none of the above

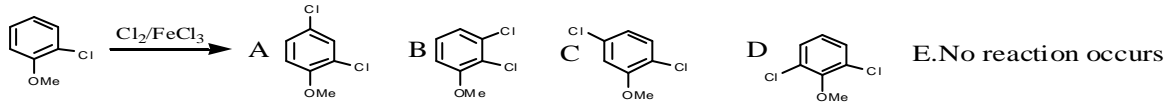
2. Which is this polysaccharide below? A. amylose B. amylopectin C. cellulose d. glycogen



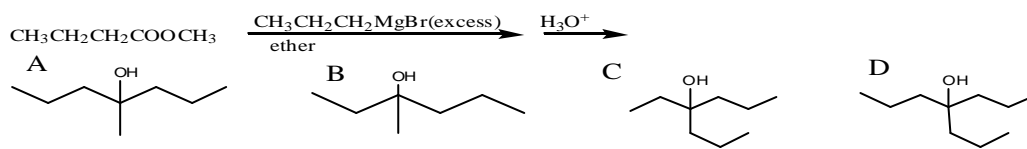
3. Which compound will absorb ultraviolet radiation at the longest wavelength?

- A.  B.  C.  D.  E. 

4. Predict the major product of the following reaction:

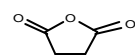


5. What is the major organic product from this series of reactions:

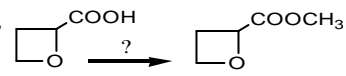


6. Phenobarbital ($C_{12}H_{12}N_2O_3$), a widely prescribed sedative in the 1950's and 1960's, can be prepared by the reaction of urea with diethyl 2-ethyl-2-phenyl propanoate. Which is phenobarbital?

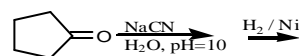
- A.  B.  C.  D. 

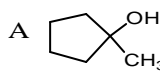
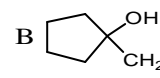
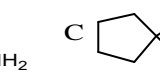
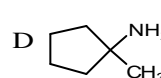
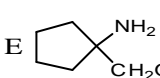
7. What is the name of this compound? 

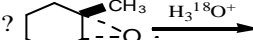
- A. cyclopentane anhydride B. succinic anhydride C. malonic anhydride D. maleic anhydride

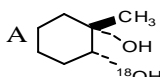
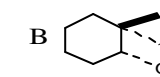
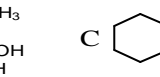
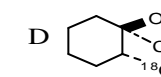
8. Which reagent should give the highest percent yield for this reaction? 

A. CH_3OH, H^+ B. $SOCl_2$, then CH_3OH C. CH_2N_2 , ether D. $NaOCH_3$

9. What is the major organic product from this series of reactions? 

- A.  B.  C.  D.  E. 

10. What is the major organic product from the following reactions? 


- A.  B.  C.  D. 

11. Which of the following would be appropriate solvents for preparing an organolithium reagent?

- I. $CH_3CH_2CH_2CH_2CH_2OH$ II. $CH_3CH_2OCH_2CH_2CH_3$ III. $CH_3CH(OH)CH_2CH_2OH$ IV. $CH_3OCH_2CH_2OCH_3$
 A. I, II B. I, III C. I, IV D. II, III E. II, IV F. III, IV

12. Which has the highest boiling point?

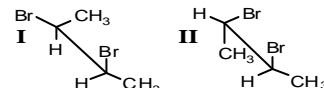
- A. $CH_3CH_2CH_2CH_3$ B. $CH_3CH_2CH_2OH$ C. $HOCH_2CH_2OH$ D. $CH_3CH_2OCH_3$ E. $CH_3CH_2CH_2F$

13. What is the name of this compound? 

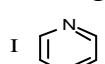
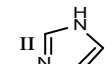
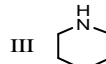
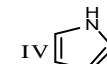
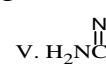
- A. 3(E)-penten-2(R)-ol B. 3(Z)-penten-2(R)-ol C. 3(E)-penten-2(S)-ol D. 3(Z)-penten-2(S)-ol

14. What is the relationship between I and II?

- A. diastereomers B. enantiomers C. constitutional isomers D. different conformations of same molecule E. diastereomers



15. Starting with the weakest base, arrange the following in order of increasing basicity.

- I.  II.  III.  IV.  V. 

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

< 背面尚有題目 >

二、問答題 : (55%)

1. Rank the following compounds in each set in order of increasing acid strength: (9 %)

(1) benzoic acid, p-methylbenzoic acid, m-methylbenzoic acid, p-nitrobenzoic acid, m-nitrobenzoic acid

(2) phenol, p-methylphenol, m-methylphenol, p-chlorophenol, m-chlorophenol

(3) ethanoic acid, chloroethanoic acid, dichloroethanoic acid, trichloroethanoic acid

2. Draw a structural formulas that corresponds to each of the following names: (8 %)

(1) Pyrimidine

(2) Pyridine

(3) Pyrrole

(4) Anisole

3. Outline all steps in the synthesis of the following compounds from benzene, using any reagents. (20 %)

(1) 3, 5-Dibromo-2-methylaniline

(2) 5-Amino-3-chloroacetophenone

(3) 2- Amino-4- bromo-5-chlorobenzoic acid

(4) *p*-Chlorostyrene

4. Explain the meaning for each of the following terms: (6 %)

(1) Bimolecular nucleophilic substitution (S_N1)

(2) Crossed Claisen condensation

(3) Aldol Condensation

5. Arrange the following alkanes in each set in order of increasing boiling point: (4 %)

(1) pentane, hexane, octane, decane, heptane

(2) hexane, 2-methylpentane, 2, 2-dimethylbutane, 2, 3-dimethylbutane

6. Give typical infrared (IR) absorption bands for each function group: (8 %)

(1) $C-H$

(2) $C \equiv N$

(3) $C-O$

(4) $Ar-H$