私立臺北醫學院 89 學年度第 2 學期 ~~期中~~ 期末 考試 (命試) 題紙

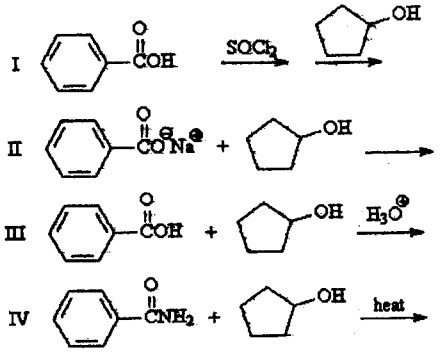
系級	科目	授課教師	考試日期	學號	姓名
化一	有機化學	梁[illegible]	90年6月21日第 節		

※①請注意本試題共 8 張。如發現頁數不足及空白頁或缺印，應當場請求補齊，否則缺少部份概以零分計。
②每張試題卷務必填寫(學號)、(姓名)。

I. Multiple choice:

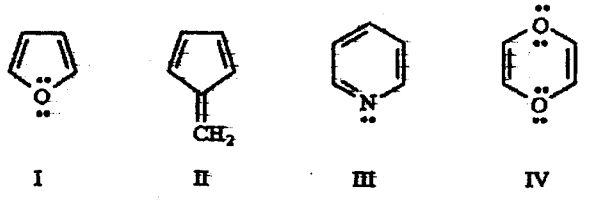
1. Which reactions below can be used to prepare an ester?

a) II, IV
b) I, III
c) I, II
d) III, IV



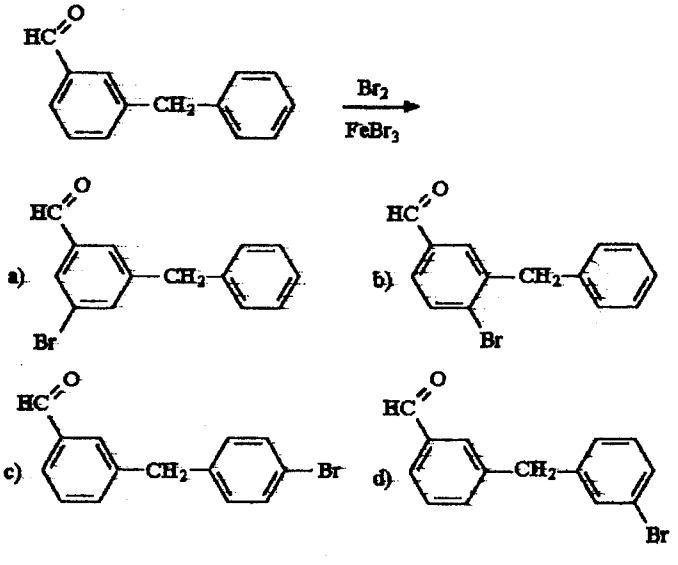
2. Which structures below are aromatic?

a) II, III
b) III, IV
c) I, III
d) II, IV



I II III IV

3. Which is the major product of the following reaction?



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2一下	有機化學	林	90年6月21日第 節		

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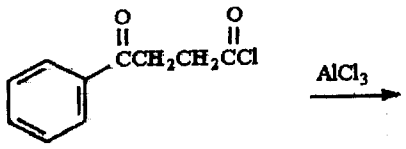
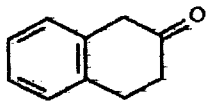
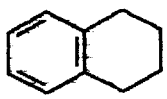
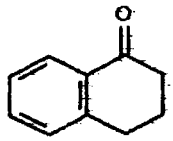
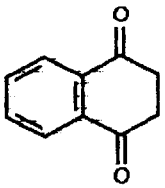
4. Which is the major product of the following reaction?



a) 

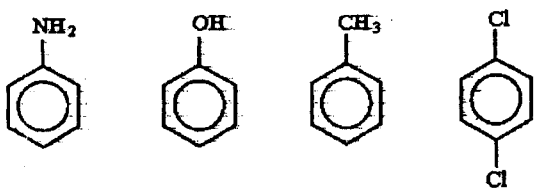
b) 

c) 

d) 

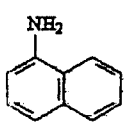
5. The following mixture was extracted with 1 M HCl, followed by 1 M NaOH, followed by ether. Which compound below is recovered from the acid solution?

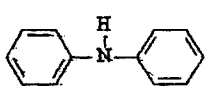
a) III
b) III, IV
c) II
d) I

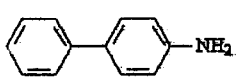


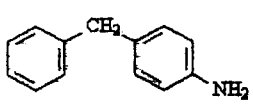
I II III IV

6. Which is the correct structure for diphenylamine?

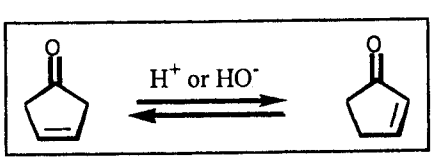
a) 

b) 

c) 

d) 

7. . Indicate to which side, if any, the following equilibrium lies:



A. to the right
B. to the left
C. equally to right and left
D. cannot be predicted
E. major product is an enol or enolate ion, respectively

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1乙一	有機化學	王	____年____月____日第____節		

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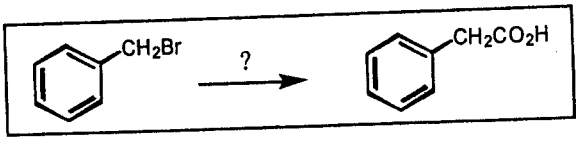
8. Which of the following sets of reagents would convert benzyl bromide to phenylethanoic acid?



A. H_2CrO_4 / H_2O

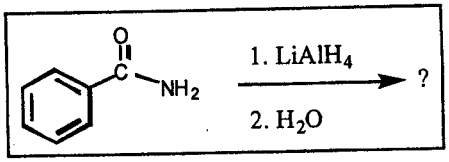
B. 1. Mg, ether; 2. CO_2; 3. H_3O^+

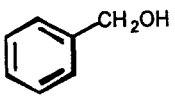
C. $HCO_2^- K^+$

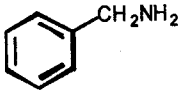
D. 1. NaCN; 2. H^+, H_2O, heat

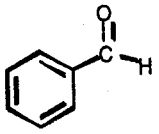
E. both B and D

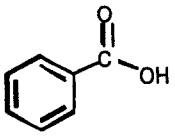
9. What would be the major organic product of the following reaction?

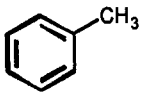


A. 

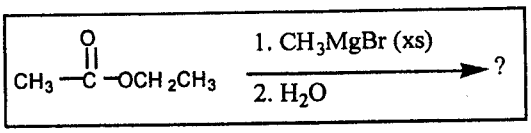
B. 

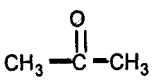
C. 

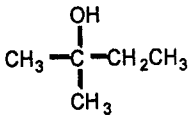
D. 

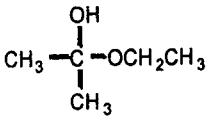
E. 

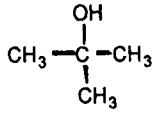
10. What would be the major organic product expected from the following reaction?

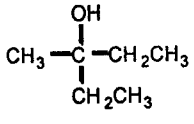


A. 

B. 

C. 

D. 

E. 

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一	有機化學	好	年 月 日第 節		

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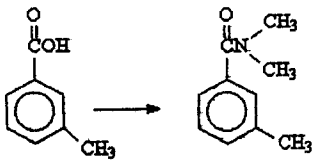
11. Which are the best conditions for the preparation below?



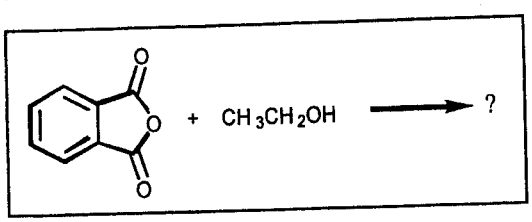
a) $SOCl_2$ → $(CH_3)_2NH$

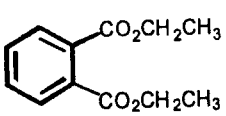
b) $NaOH$ → $(CH_3)_2NH$

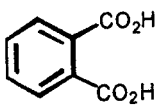
c) NH_3 → CH_3CH_2Br

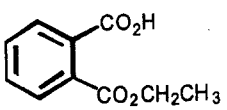
d) $(CH_3)_2NH$ → room temp

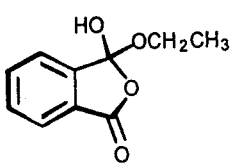
12. The product of the following reaction would be:

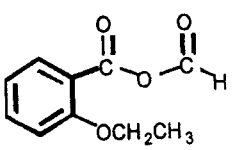


A. 

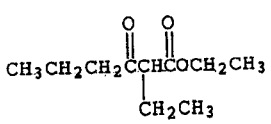
B. 

C. 

D. 

E. 

13. Which ester is likely to undergo a Claisen condensation to give this product?



a) ethyl 2-methylpropanoate
b) ethyl butanoate
c) butyl ethanoate
d) 2-methylpropyl ethanoate

系級	科目	授課教師	考試日期	學號	姓名
二-	Organic Chemistry	XX	___年___月___日第___節		

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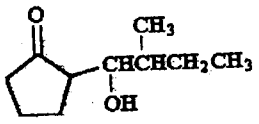
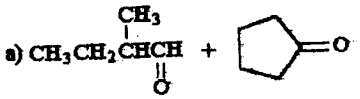
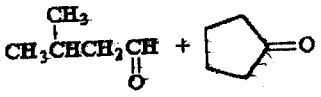
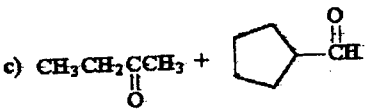
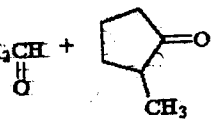
14. Which are the reactants for the aldol product shown?



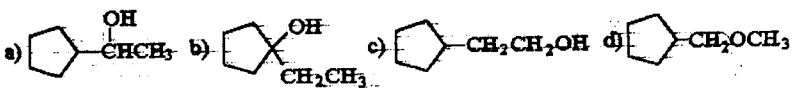
a) 

b) 

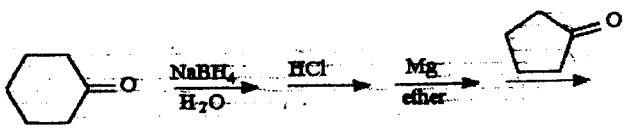
c) 

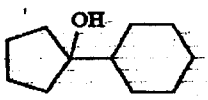
d) 

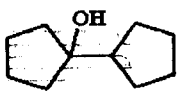
15. A Grignard reagent is prepared by reacting cyclopentanol with first thionyl chloride and then magnesium in ether. The Grignard reagent is then reacted with acetaldehyde (ethanal) and the reaction mixture acidified. What is the major final product of this series of reactions?

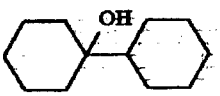


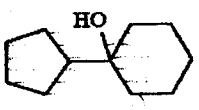
16. Which is the major product of the following reaction?



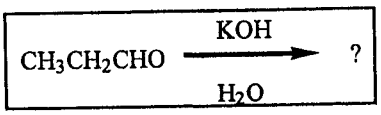
a) 

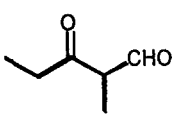
b) 

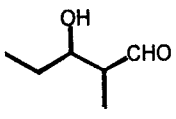
c) 

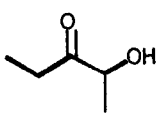
d) 

17. What product is formed in the aldol condensation of propanal?



A. 

B. 

C. 

系級	科目	授課教師	考試日期	學號	姓名
二一	有機化學	林	___年___月___日第___節		

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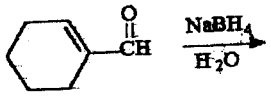
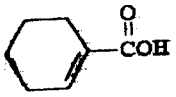
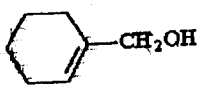
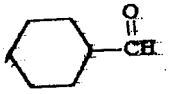
②每張試題卷務必填寫(學號)、(姓名)。

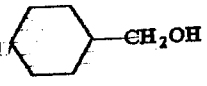
18. Which is the major product of the following reaction?



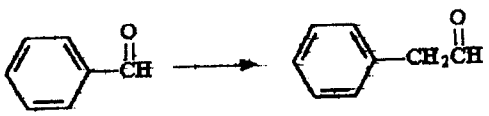
a) 

b) 

c) 

d) 

19. Which is the best procedure for the preparation below?



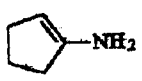
a) CH_3MgBr, H_2SO_4 → $K_2Cr_2O_7$, H_2SO_4

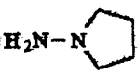
b) $Ag(NH_3)_2$, NH_3/H_2O → CH_3MgBr, H_2SO_4 → $NaBH_4$, H_2O

c) $NaBH_4$, H_2O → HCl → Mg, ether → H_2CO → PCC

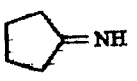
d) $LiAlH_4$, H_2O → HBr → Mg, ether → CO_2, H_3O^+

20. Which compound is a Schiff base?

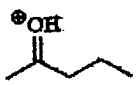
a) 

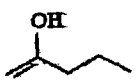
b) H_2N-N 

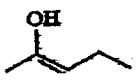
c) $CH_3CH_2\overset{\oplus}{N}H_3\overset{\ominus}{C}H_3$

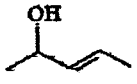
d) 

21. Which structure is the major tautomer of 2-pentanone in aqueous acid?

a) 

b) 

c) 

d) 

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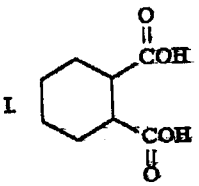
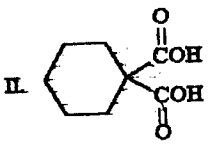
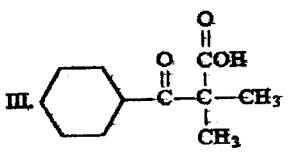
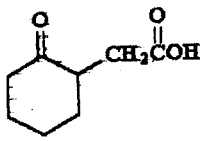
22. Which compounds below undergo thermal decarboxylation?

a) I, II
b) II, III
c) III, IV
d) II, IV

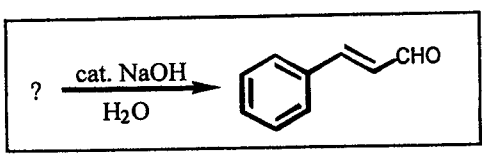
I. 

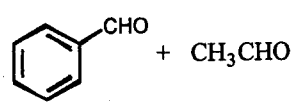
II. 

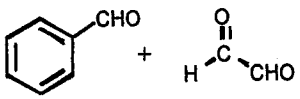
III. 

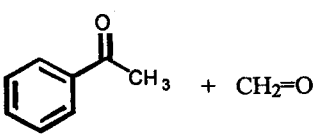
IV. 

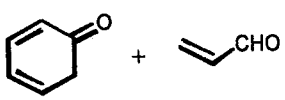
23. What reactants would be used to produce cinnamaldehyde?

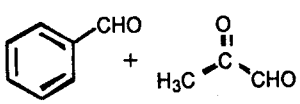


A. 

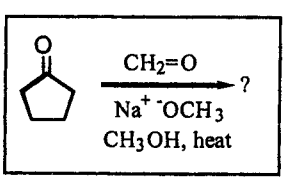
B. 

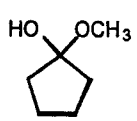
C. 

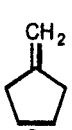
D. 

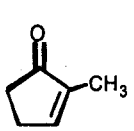
E. 

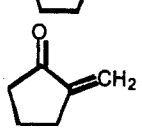
24. What **major** product would you expect from the following reaction?

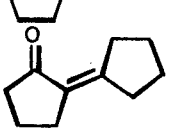


A. 

B. 

C. 

D. 

E. 

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化一	Org. Chemistry		___年___月___日第___節		

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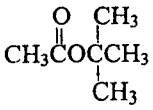
II. Each compound gives only one signal in its ^{1}H-NMR spectrum. Propose a structural formula for each. 6 %

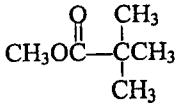
a) C_3H_6Cl

b) C_3H_6O

III. Following are two constitutional isomers of molecular formula $C_6H_{12}O_2$. 6 %



(1)



(2)

a) Predict the ratio of areas of the signals in each spectrum.

b) Show how to distinguish between these isomers on the basis of chemical shift.

IV. Predict the number of signals and the splitting pattern of each signal in the ^{1}H-NMR spectrum of each compound. 6 %

a) $CH_3CH_2\overset{\overset{O}{\|}}{C}CH_2CH_3$

b) $CH_3\overset{\overset{O}{\|}}{C}CH(CH_3)_2$

V. Calculate the index of hydrogen deficiency of the compound, $C_7H_{14}O_2$. 2 %

I. **Answers:**

1	6	11	16	21
2	7	12	17	22
3	8	13	18	23
4	9	14	19	24
5	10	15	20	25