

45-1

淡江大學 106 學年度日間部轉學生招生考試試題 3-45

系別：化學學系三年級

科目：有機化學

P1

考試日期：7月21日(星期五) 第2節

本試題共 7 大題， 6 頁

I. Multiple choices (40 pt, 2pt each)

1. Which condensed formula contains an aldehyde functional group?

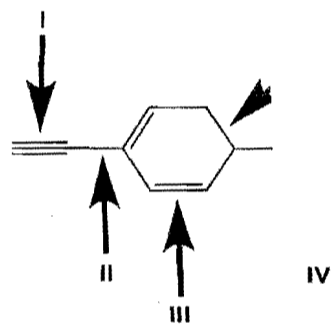
- | | |
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| a. CH_3COCH_3 | d. $\text{CH}_3\text{CH}_2\text{OH}$ |
| b. $\text{CH}_3\text{CO}_2\text{CH}_2\text{CH}_3$ | e. CH_3COH |
| c. $\text{CH}_3\text{CH}_2\text{CH}_2\text{COOH}$ | |

2. Which functional group will engage in dipole-dipole interactions, but will not serve as a hydrogen-bond acceptor?

- | | |
|------------------|--------------------|
| a. Nitrile | d. Carboxylic acid |
| b. Ketone | e. Amine |
| c. Alkyl bromide | |

3. Rank the highlighted σ

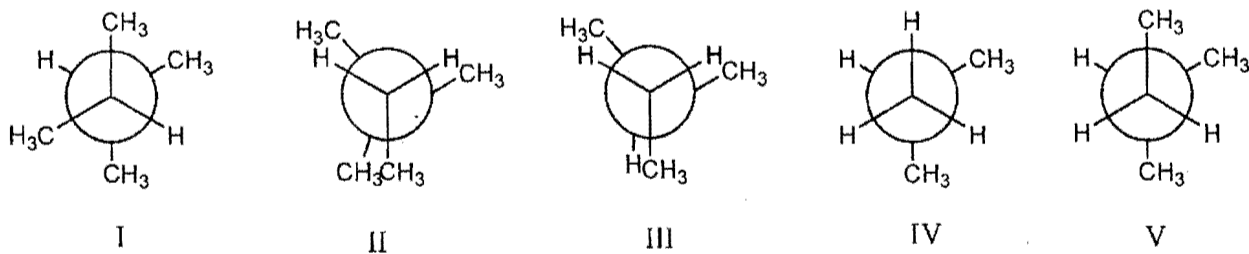
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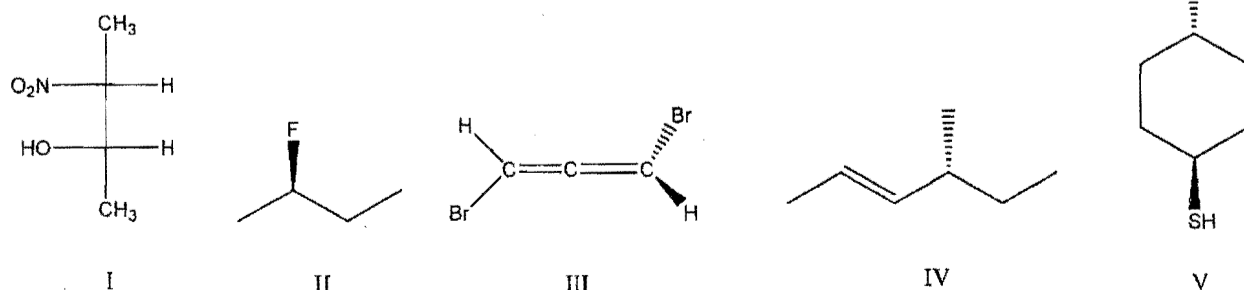
- | | |
|---|---|
| a. $\text{I} > \text{II} > \text{III} > \text{IV} > \text{V}$ | d. $\text{V} > \text{II} > \text{III} > \text{IV} > \text{I}$ |
| b. $\text{V} > \text{III} > \text{II} > \text{I} > \text{IV}$ | e. $\text{II} > \text{V} > \text{III} > \text{IV} > \text{I}$ |
| c. $\text{V} > \text{II} > \text{III} > \text{I} > \text{IV}$ | |

4. Which conformer is highest in energy?



- a. I b. II c. III d. IV e. V

5. Which of the following molecules is achiral?



- a. I b. II c. III d. IV e. V

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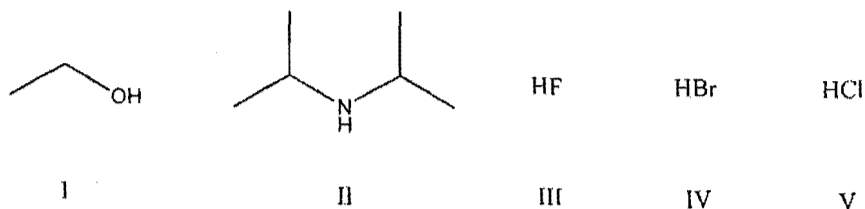
科目：有機化學

p2

考試日期：7月21日(星期五) 第2節

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6. Which of the following compounds is most acidic?

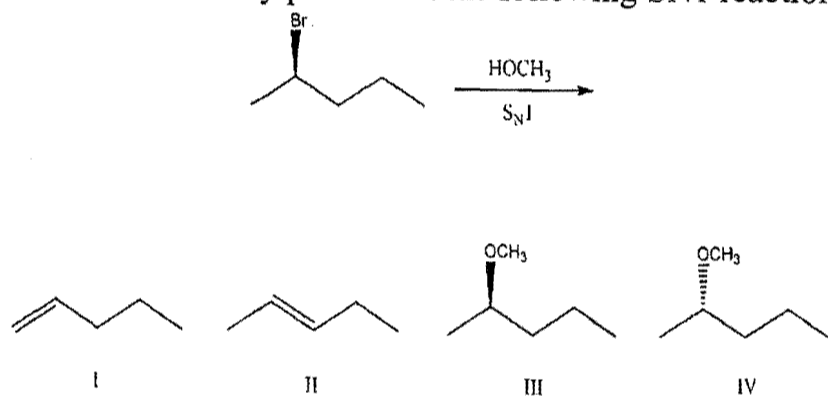


a. I b. II c. III d. IV e. V

7. Which of the following can behave as an electrophile?

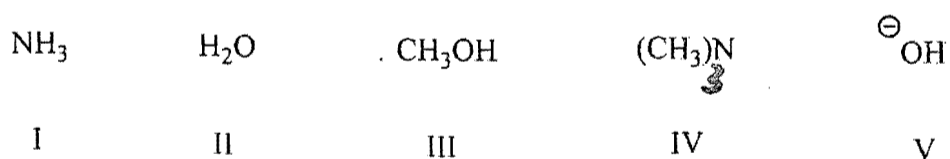
- a. CH_3O^- d. $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$
 b. Cl^- e. None of the above
 c. HBr

8. What is the most likely product of the following $\text{S}_{\text{N}}1$ reaction?



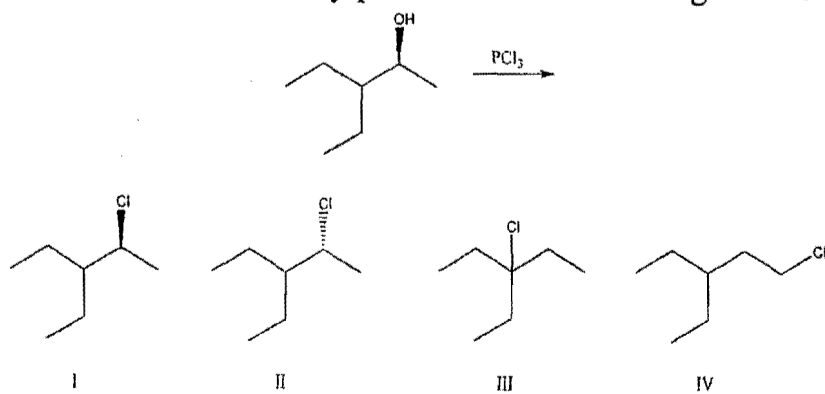
a. I b. II c. III d. IV e. A mixture of III and IV

9. Which is the best (strongest) nucleophile for an $\text{S}_{\text{N}}2$ reaction?



a. I b. II c. III d. IV e. V

10. What is the most likely product of the following reaction?



a. I b. II c. III d. IV e. A mixture of I and II

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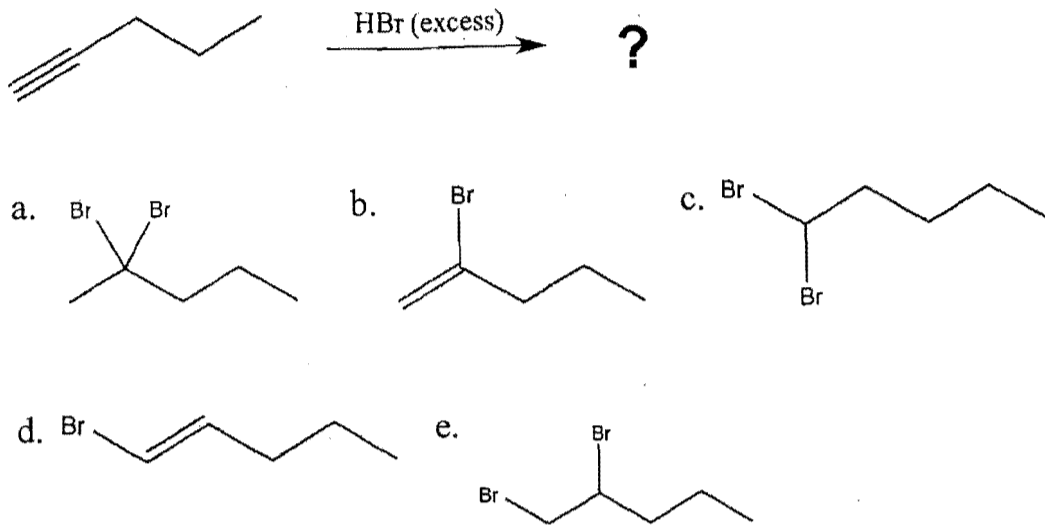
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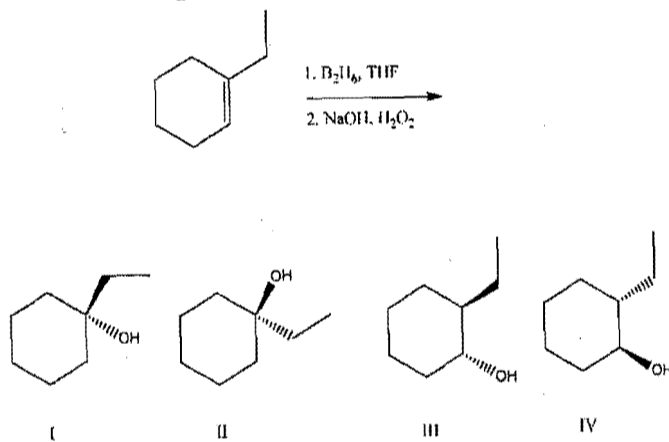
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11. Predict the major product of the following reaction.

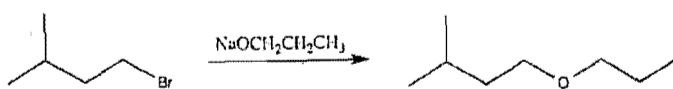


12. What is the product of the following reaction?

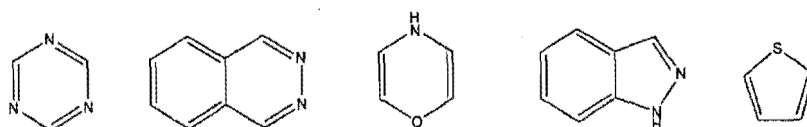


a. I b. II c. III d. IV e. A mixture of III and IV

13. Which of the following solvents would not be a good choice to use when carrying out the reaction below?

a. DMSO b. CH₃CH₂CH₂OH c. CH₃OH d. DMF e. EtOAc

14. How many of the following compounds are aromatic?



a. One b. Two c. Three d. Four e. Five

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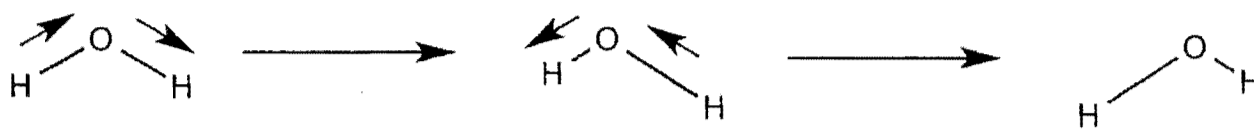
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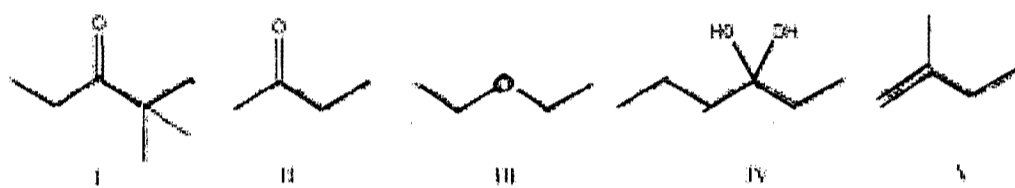
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15. Identify the following vibrational mode.



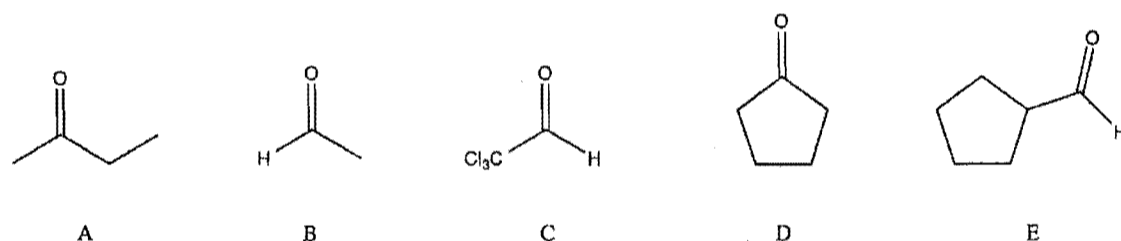
- a. Symmetric stretch b. Asymmetric stretch c. Out-of-phase bend
d. In-phase bend e. More than one of the above

16. Which of the following molecules would have a quartet at 3.5 ppm?



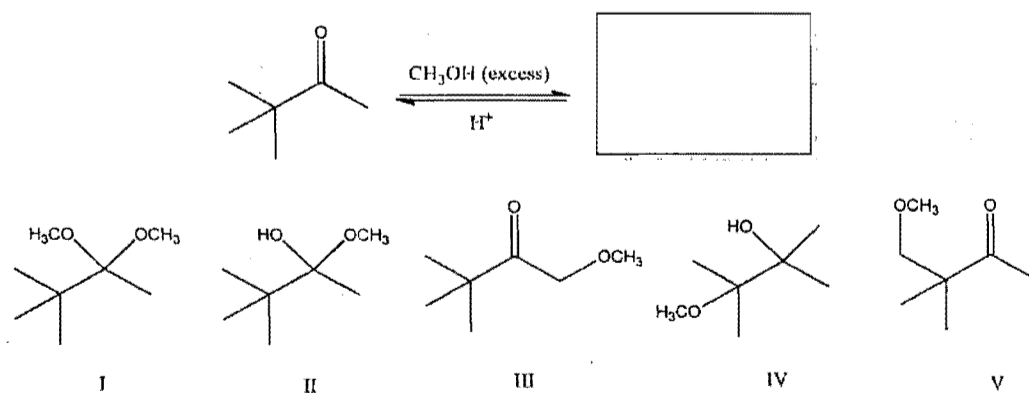
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17. Which of the following compounds would you expect to have the highest percent hydration at equilibrium?



- a. A b. B c. C d. D e. E

18. What is the most likely product of the following reaction?



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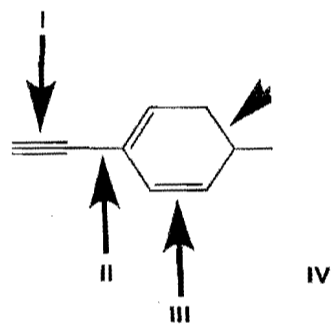
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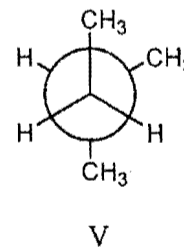
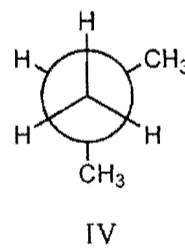
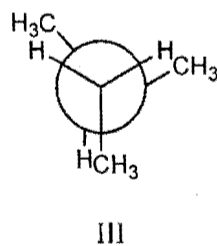
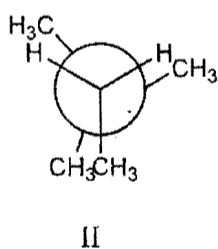
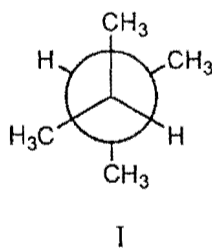
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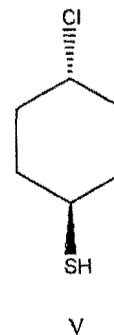
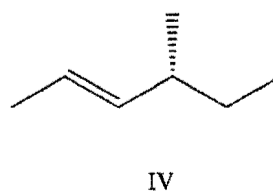
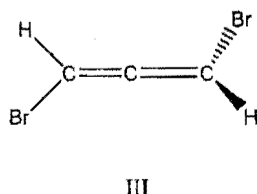
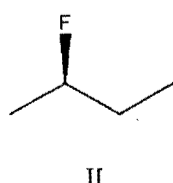
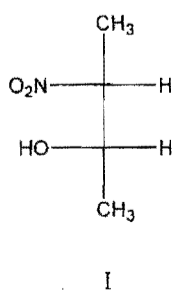
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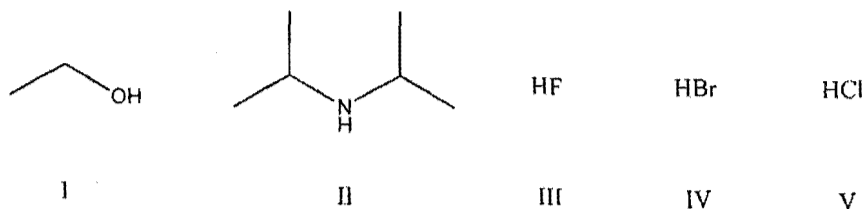
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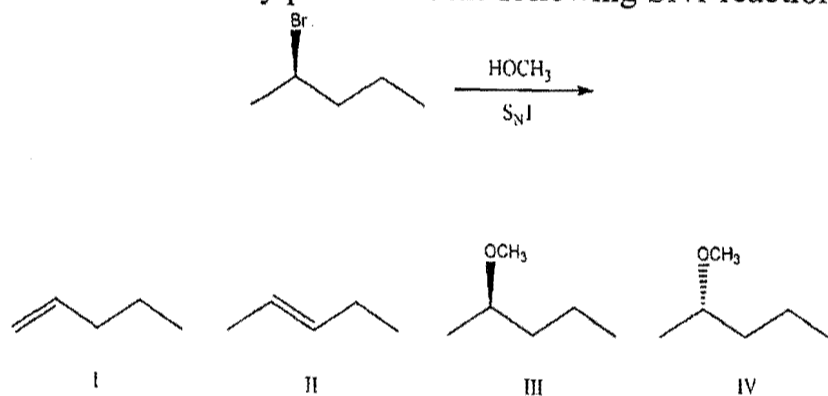


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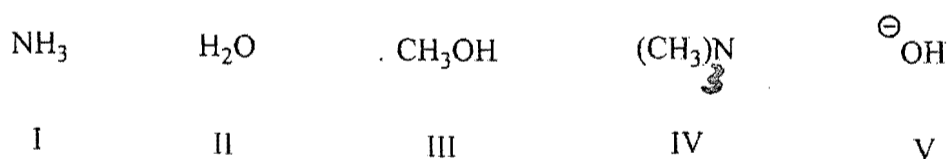
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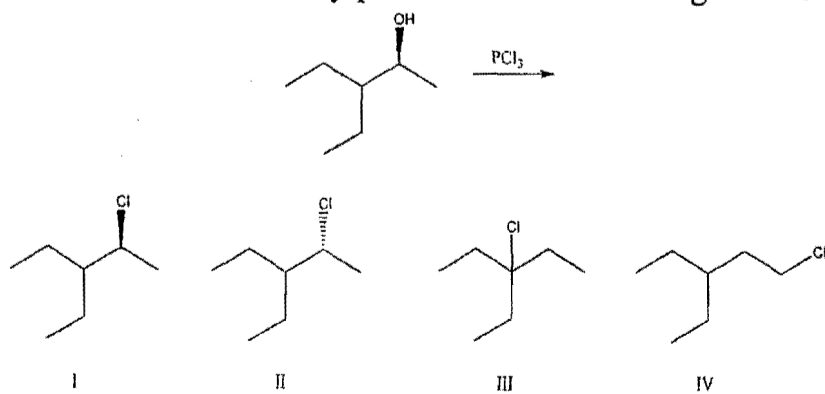
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a. I b. II c. III d. IV e. A mixture of I and II