國立成功大學 109 學年度碩士班招生考試試題

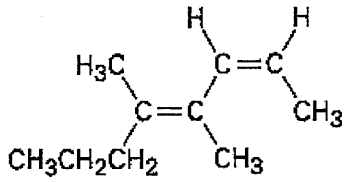
系　　所：臨床藥學與藥物科技研究所

考試科目：有機化學　　考試日期：0211，節次：1

※ 考生請注意：本試題不可使用計算機。請於答案卷(卡)作答，於本試題紙上作答者，不予計分。

1. Assign the IUPAC names for the following compounds. (each 2 %, totally 10 %)

(1)



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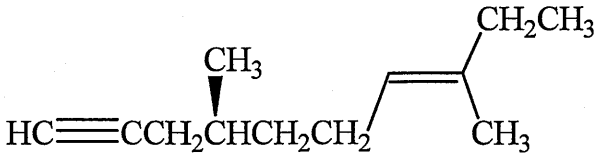

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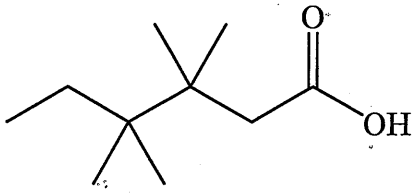

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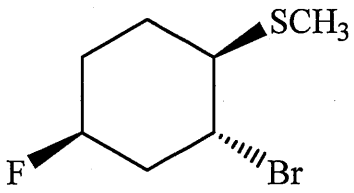
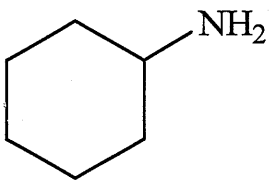
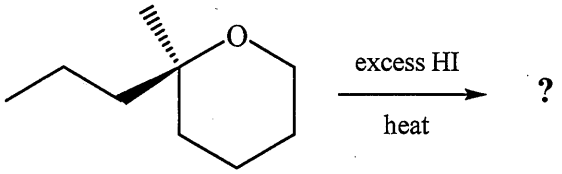


(5)



2. Complete the following reactions and indicate the correct stereochemistry. (each 2 %, totally 20 %)

(1)



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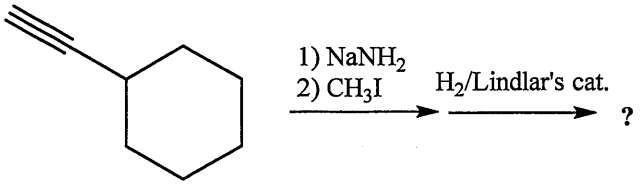

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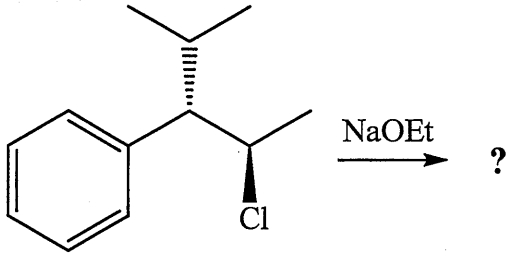

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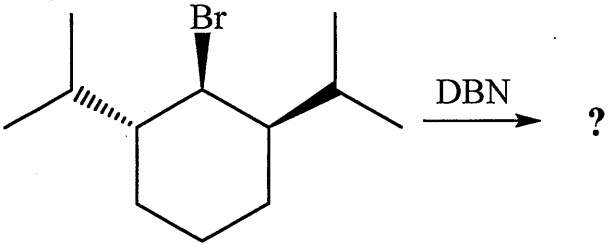

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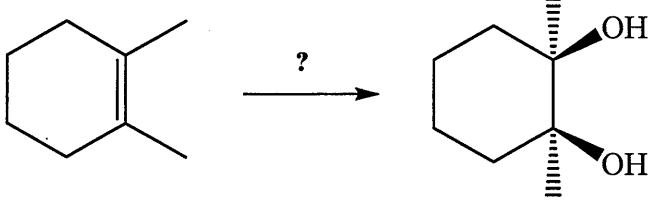

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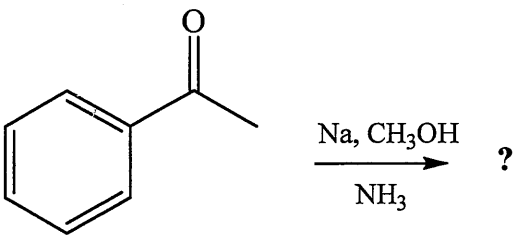

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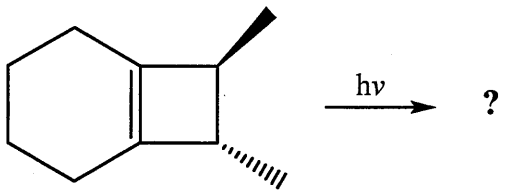

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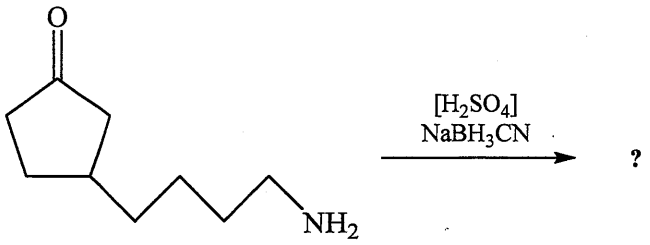

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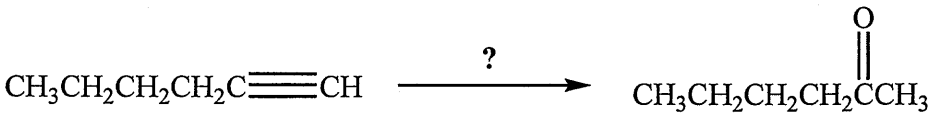

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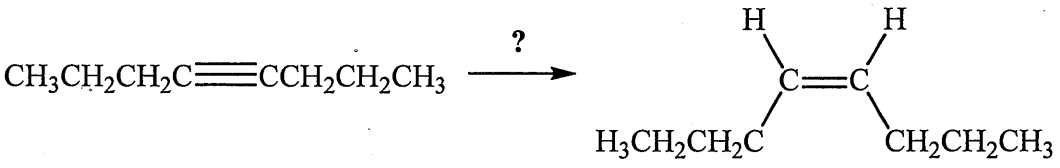
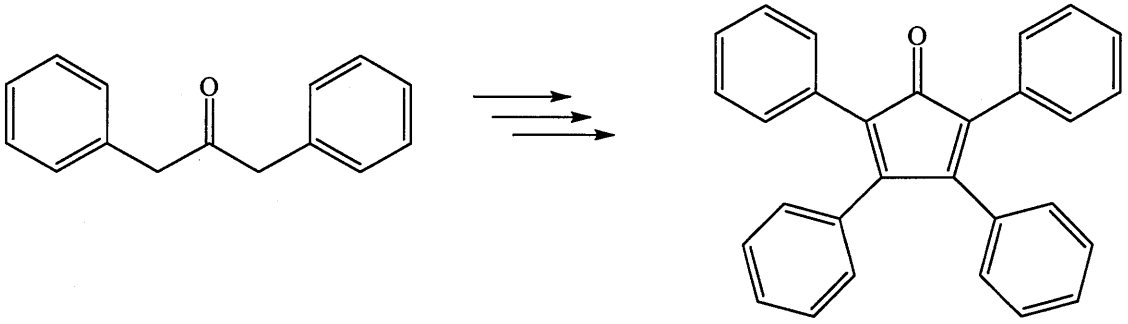
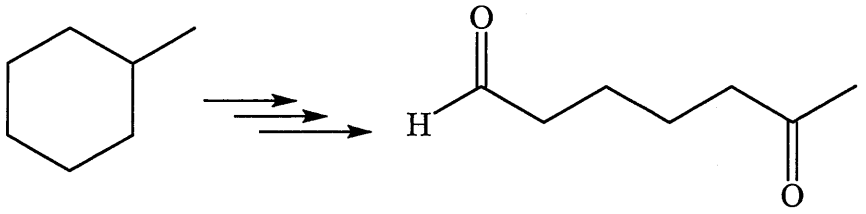


3. Complete the following transformation. (each 5 %, totally 20 %)

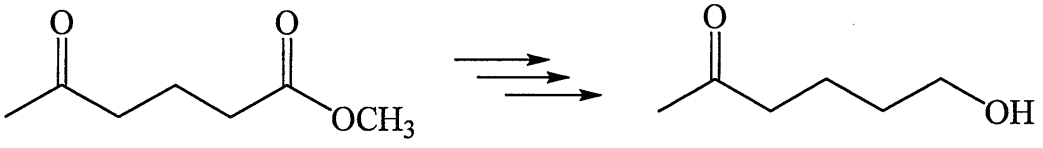
(1)



(2)



(3)



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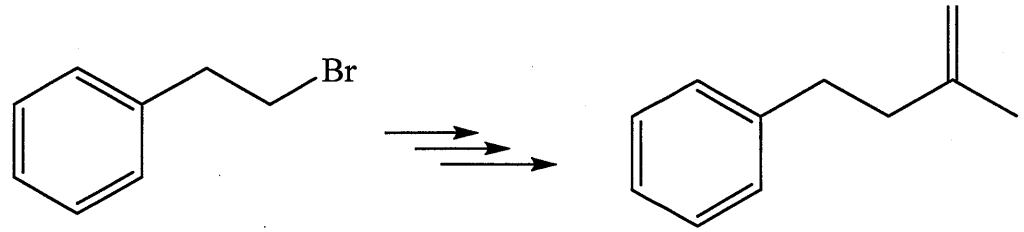
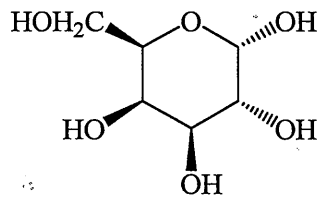
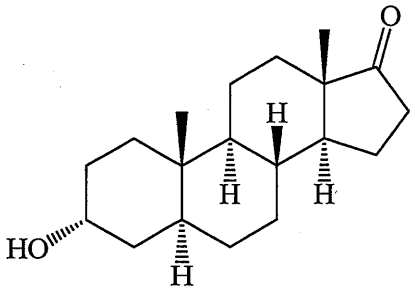


4. Draw the stable chair conformation of the following compounds. (each 5 %, totally 10 %)

(1)



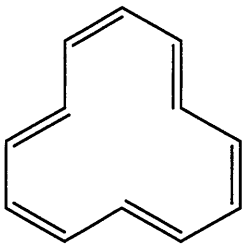
(2)



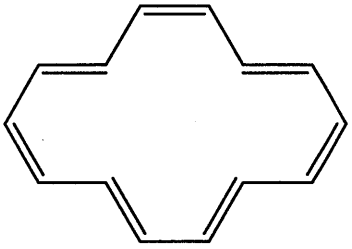
5. Propose a synthesis for the following dipeptide: Phe-Val. (5 %)

6. Predict whether each of the following compound should be aromatic and explain your choice. (5 %)

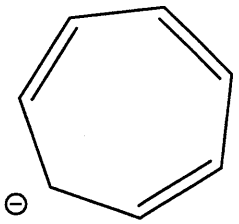
(1)



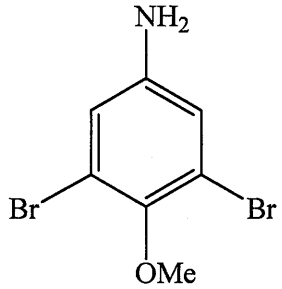
(2)



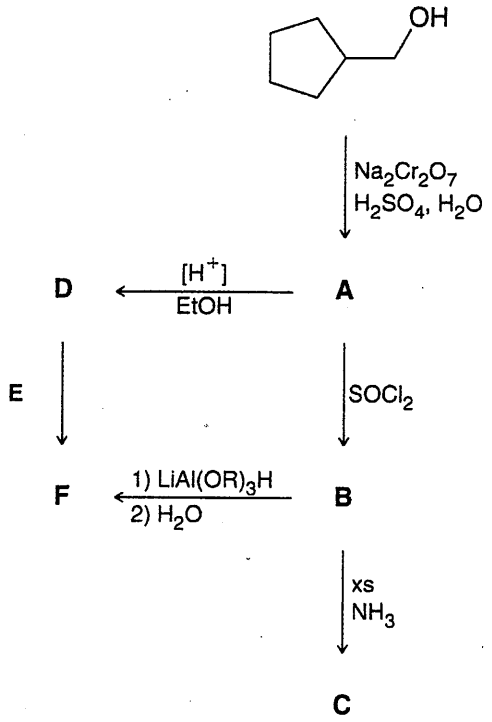
(3)



7. Starting from benzene and using any other reagents of your choice, design a synthesis for the following compound. (5 %).



8. Determine the structures of the following compounds A-F (10 %).



9. Draw the mechanism of the following reactions. (each 5 %, totally 10 %)

(1) 4-chloro-butane-1-thiol was reacted with NaH to form tetrahydrothiophene.

(2)

10. A compound with molecular formula $C_{13}H_{10}O$ produces a strong signal at 1660 cm^{-1} in its IR spectrum. The ^{13}C NMR spectrum of this compound exhibits signals at δ 128.3, 130.0, 132.4, 137.5, and 196.7 ppm. Deduce the structure of this compound. (5 %)