

臺北醫學大學九十學年度研究所碩士班招生考試題目卷

科目：有機化學(藥研)
生藥

九十學年度研究所碩士班招生筆試

所別：生藥

考科：有機化學

題目試卷共 4 張，本試卷為第 1 張

九十學年度研究所碩士班招生筆試

所別：藥研

考科：有機化學

I. Matching (Match the proper term with the statement which defines or explains it.) (10%)

- (a) Stereoisomers
- (b) Plane-polarized
- (c) Polarimeter
- (d) Asymmetric
- (e) Enantiomers
- (f) Racemic mixture
- (g) Diastereomers
- (h) Meso
- (i) Resolution
- (j) Chirality

- (1) _____ Structural feature of optically active compounds that makes possible their optical activity.
- (2) _____ Stereoisomers which are mirror images.
- (3) _____ Optically inactive mixture of equal amounts of enantiomers.
- (4) _____ Instrument used to measure the optical activity of a compounds.
- (5) _____ Carbon atom with four unlike groups attached.
- (6) _____ Optically active stereoisomers that are not enantiomers.
- (7) _____ Light of one wavelength vibrating in a single plane.
- (8) _____ Isomers that differ in the manner in which their atoms are arranged in space.
- (9) _____ Compound with two similar asymmetric carbon atoms which is optically inactive by reason of differ in the compensation.
- (10) _____ Separation of a racemic mixture into its optically active forms.

II. Draw structural formulars for the following compounds. (10%)

- (1) Indole
- (2) Purine
- (3) (Z)-2-Butene
- (4) Bicyclo[2.2.2]octane
- (5) Naphthalene

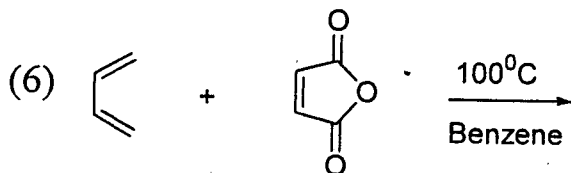
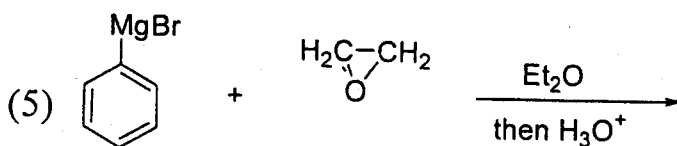
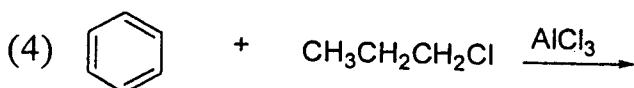
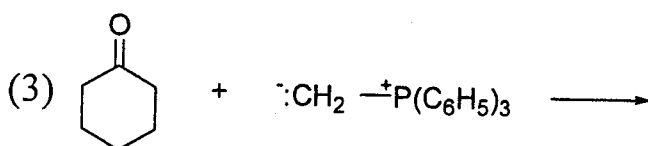
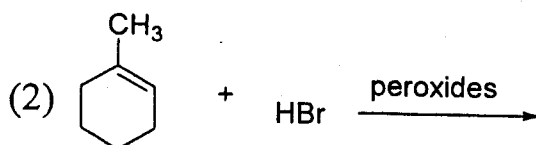
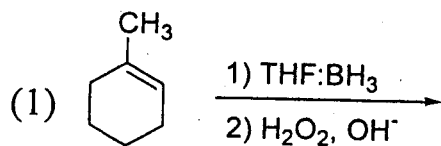
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題目試卷共 4 張，本試卷為第 2 張

III. Predict the major organic products: (21%)



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- IV. A compound (N) with the molecular formula $C_9H_{10}O$ gives a positive test with cold dilute aqueous potassium permanganate. The 1H NMR spectrum of N is shown in Fig. 1 and the IR spectrum of N is shown in Fig. 2. Propose a structure for N. (9%)

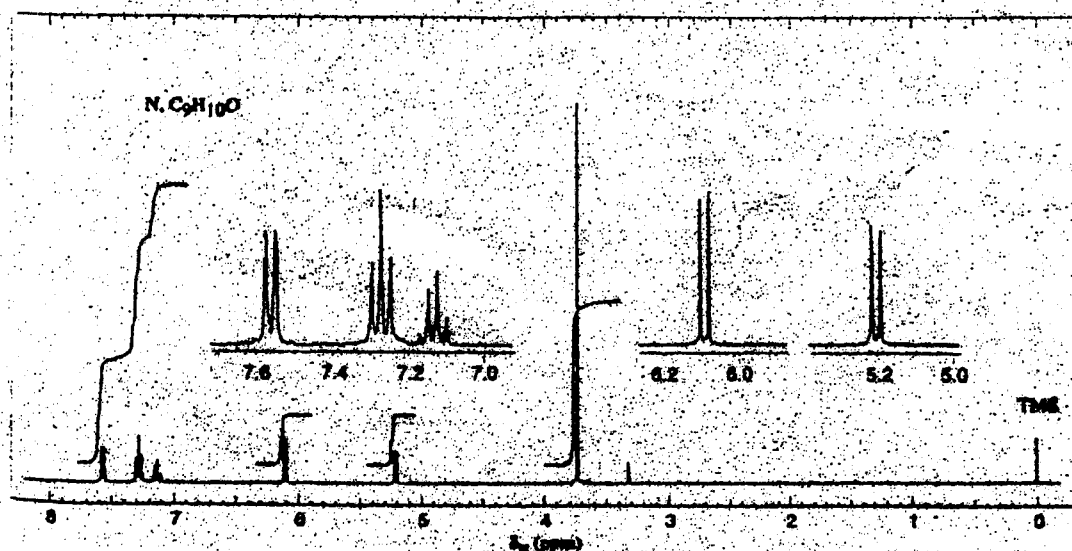


Figure 1 The 300 MHz 1H NMR spectrum of compound N. Expansion of the signals are shown in the offset plots.

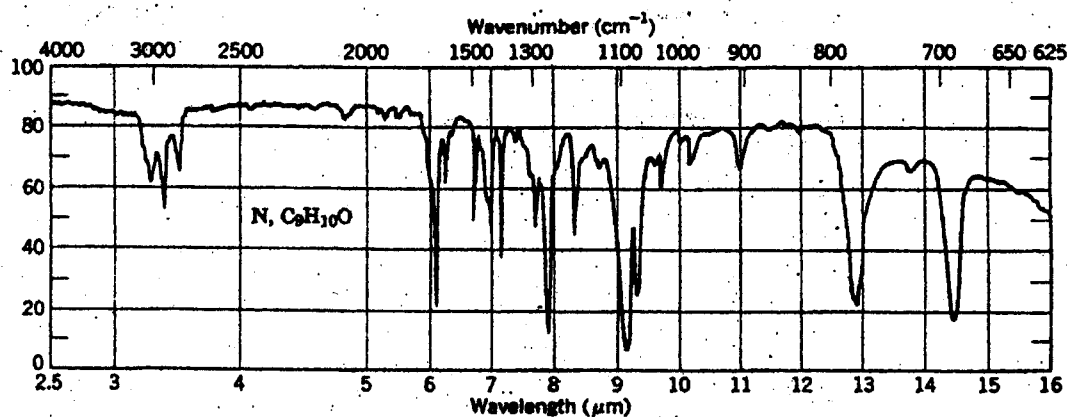


Figure 2 The IR spectrum of compound N.

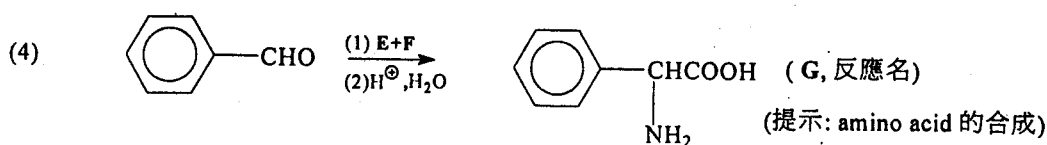
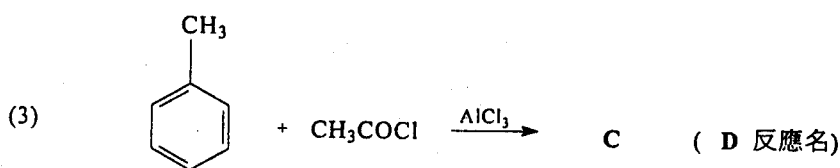
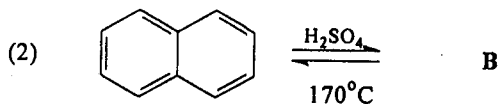
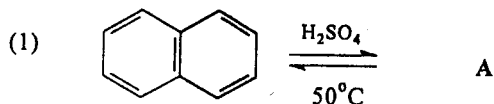
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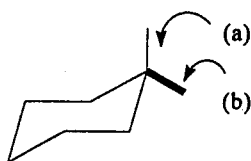
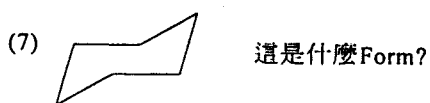
題目試卷共 4 張，本試卷為第 4 張

V. 寫出下列生成物：(30%)



(5) 解釋名詞：(a) SN_1 reaction (b) Claisen condensation (c) E_1 reaction

(6) 畫出下列結構式 (a) toluene (b) 聯苯 (c) anthracene (d) pyridine (e) THF



立体位置(a)(b)為何稱呼?

VI. 寫出化合物結構測定4種基本分析儀器並簡單描述之。(10%)

VII 寫出在苯環上的供電子及拉電子的基團(electron donating and withdrawing groups)各 3 種。(10%)