

大同大學105 學年度(寒)轉學入學考試試題

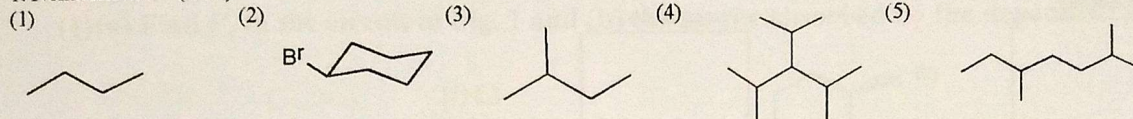
考試科目:有機化學

所別:化學工程學系

第1/2頁

註:本次考試 不可以參考自己的書籍及筆記; 不可以使用字典; 不可以使用計

1. Nomenclature (15%)



2. Draw the following molecular structures. (15%)

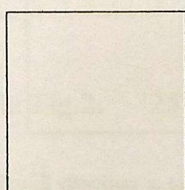
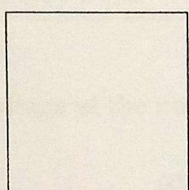
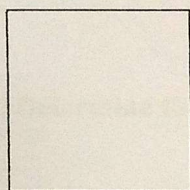
- (1) 4-isopropyloctane (2) diethyl ether (3) hexane (4) 3-methylpentane (5) 3,3-dibromo-1-chloroheptane

3. For rotation about the C-3 —C-4 bond of 2,2-dimethylhexane, please draw a **Newman projection** of its **the most stable** and **the least stable** conformers. (2+3+3 %)

Molecular structure

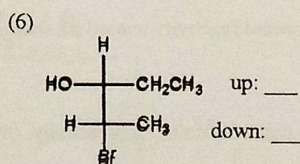
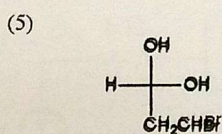
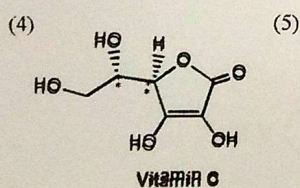
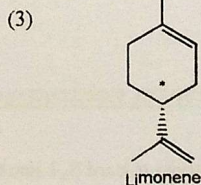
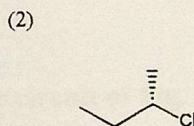
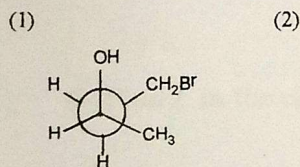
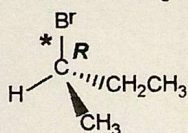
the most stable

the least stable



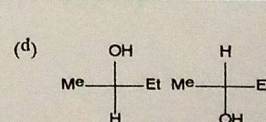
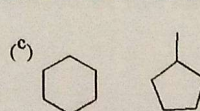
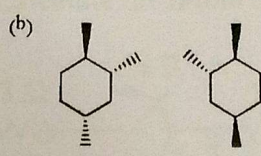
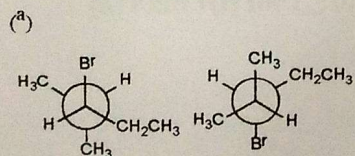
4. Indicate whether each of the following structures has the *R* or the *S* configuration: (16%)

For example :



Left: _____ Right: _____

5. For each pair of compounds below, determine whether they are **identical compounds**, **constitutional isomers**, **enantiomers** or **diastereomers**: (12%)



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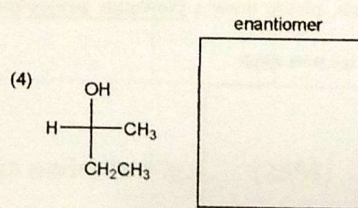
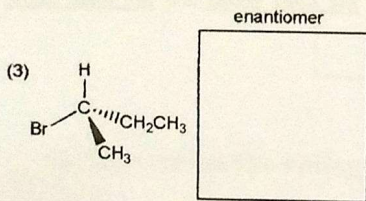
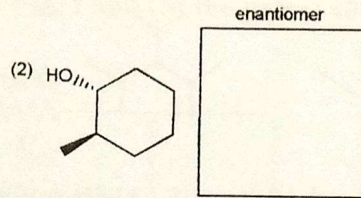
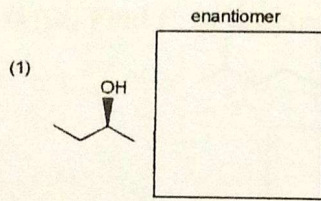
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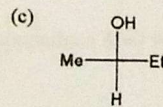
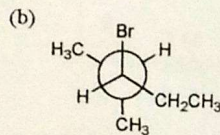
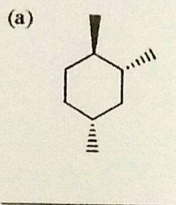
第2/2頁

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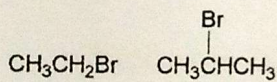
6. Draw the enantiomer of each of the following compounds: (8%)



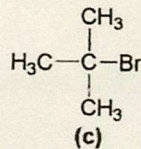
7. Determine whether each of the following compounds is **optically active** or **optically inactive**. (6%)



8.



(a) (b)



(c)

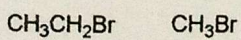
(1) Rank the above compounds in order of their expected reactivity toward $\text{S}_{\text{N}}1$ reaction: (6%)

Ans: _____ > _____ > _____

(2) Rank the above compounds in order of their expected reactivity toward $\text{E}2$ reaction: (6%)

Ans: _____ > _____ > _____

(3) Order each of the following sets of compounds with respect to $\text{S}_{\text{N}}2$ reactivity: (8%)



(a)

(b)



(c)



(d)

Ans: _____ > _____ > _____ > _____