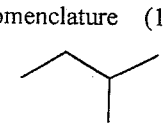
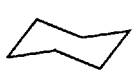
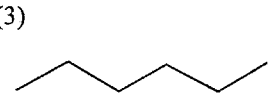
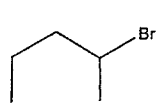
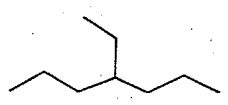
大同大學 106 學年度 (寒)轉學入學考試試題

考試科目:有機化學　　系別: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； 不可以使用計算器。

1. Nomenclature (15%)

(1) 
(2) 
(3) 
(4) 

(5) 

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

(1) 3-ethyl-2,4,6- trimethyloctane (2) 2,2,3,4-tetramethylpentane (3) propane (4) 1-butene (5) isopropylcyclopentane

3. For rotation about the C-2 —C-3 bond of 2,2,5,5-tetramethylhexane, please draw **the molecular structure** and **Newman projection** of its **the most stable** and **the least stable** conformers. (2+3+3 %)

Molecular structure

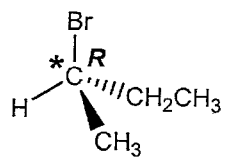
the most stable

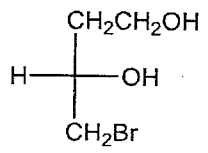
Newman projection

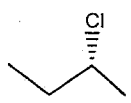
the least stable

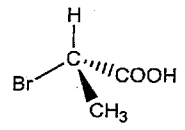
Newman projection

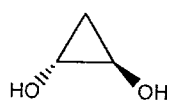
4. Indicate whether each of the following structures has the ***R*** or the ***S*** configuration: (16%)

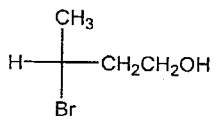
For example : 

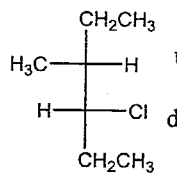
(1) 

(2) 

(3) 

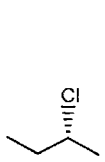
(4) 

(5) 

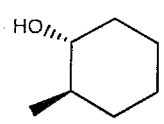
(6) 

Left:____ Right:____

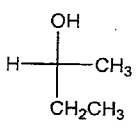
5. Draw the enantiomer of each of the following compounds: (8%)

(1) 

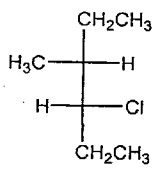
enantiomer

(2) 

enantiomer

(3) 

enantiomer

(4) 

enantiomer

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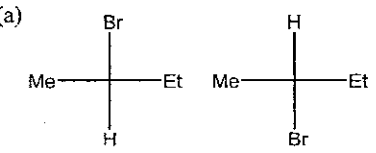
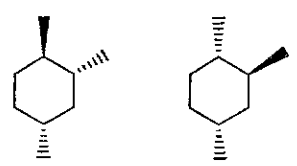
6. For each pair of compounds below, determine whether they are **identical compounds**, **constitutional isomers**, **enantiomers or diastereomers** : (12%)

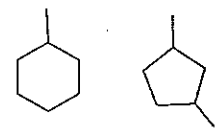
(a)



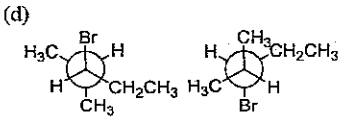
(b)



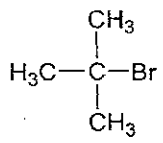
(c)



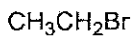
(d)



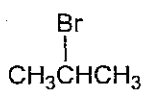
7.



(a)



(b)



(c)

(1)Rank the above compounds in order of their expected reactivity toward S_N2 reaction: (6%)

Ans: _____>_____>_____

(2)Rank the above compounds in order of their expected reactivity toward S_N1 reaction: (6%)

Ans: _____>_____>_____

(3) Order each of the following sets of compounds with respect to E2 reactivity: (8%)

(a)

(b)

(c)

(d)

Ans: _____>_____>_____>_____

(4) Rank the following cabocations in order of decreasing stability. (6%)

(a)

(b)

(c)

Ans: _____>_____>_____