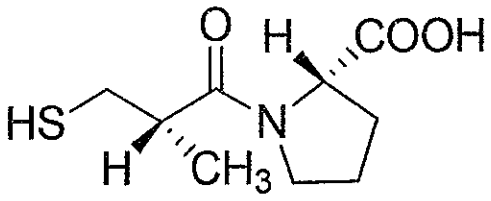
BACHELOR OF PHARMACY HONOURS - LEVEL 03 - 2019/20
BSU3341- PHARMACEUTICAL CHEMISTRY II
FINAL EXAMINATION

INDEX NO: .....

Part B –Answer all questions

(80 marks)

1. Captopril (**A**) is a L-proline derivative, which is used to treat high blood pressure and congestive heart failure.



(A)

a) How many stereocenters are there in this molecule? **(02 marks)**
b) Assign configuration (as R or S) to each stereocenter. **(10 marks)**
c) Draw the structure of enantimore of **A.** **(04 marks)**
d) Draw structures of diastereoisomers of **A.** **(04 marks)**

2. **A)** Consider 1-bromopropane, $CH_3CH_2CH_2Br$.
a) Draw a Newman projection for the conformation in which CH_3 and Br are anti to each other (dihedral angle 180°). **(04 marks)**

b) Draw Newman projections for the conformations in which CH_3 and Br are gauche to each other (dihedral angles 60° and 300°). **(04 marks)**

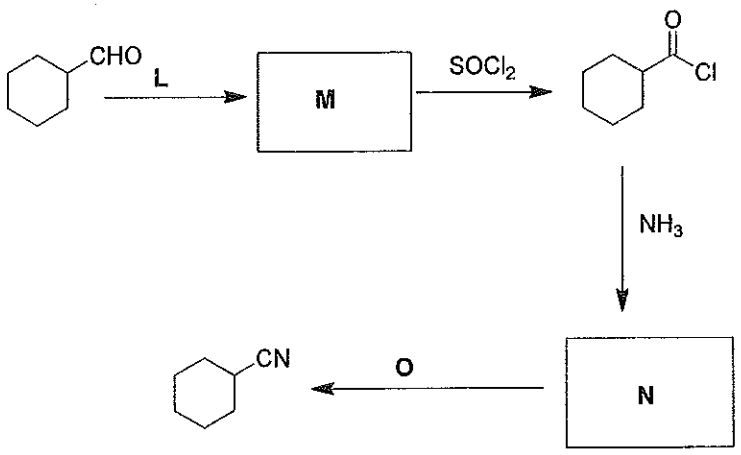
c) Which of these is the lowest energy conformation? **(02 marks)**

B)
a) Draw the alternative chair conformations for the *cis* and *trans* isomers of 1,4-dimethylcyclohexane. **(08 marks)**
b) Indicate the most stable chair conformation in each case. **(02 marks)**

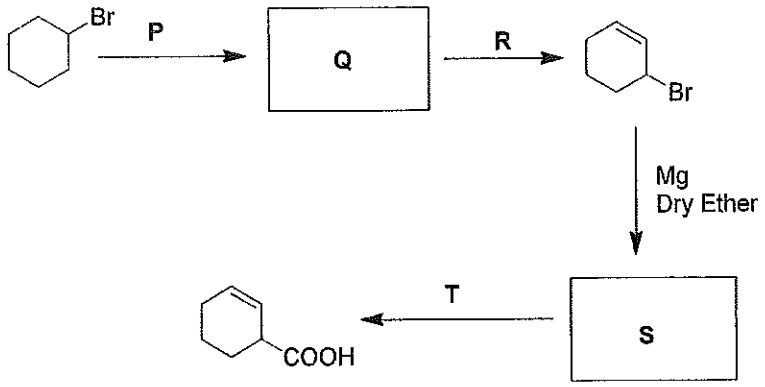
3. Hydrolysis of 3-bromo-2,2-dimethylbutane yields 2,3-dimethyl-2-butanol as the major product. Explain this observation by providing a suitable mechanism. (**15 marks**)

4. **A)** Complete the following reaction sequences giving structures of missing products, reagents and conditions (L, M, N, O, P, Q, R, S, T). (**16 marks**)

a)

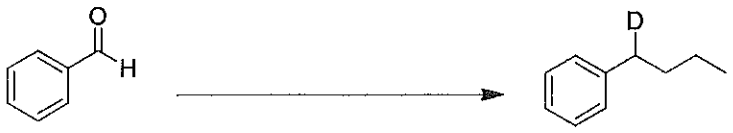


b)



B) How would you carry out the following transformation? (**09 marks**)

(Hint: use $CH_3CH_2CH_2MgBr$ as one of the reagents/reactants)



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