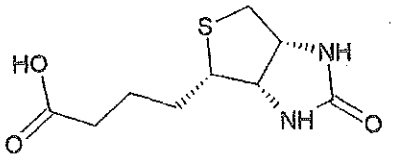
BACHELOR OF PHARMACY HONOURS - LEVEL 3 - 2020/21
BSU3341- PHARMACEUTICAL CHEMISTRY II
FINAL EXAMINATION

INDEX NO: .....

Part B –Answer all questions

(80 marks)

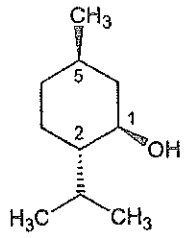
1. **Vitamin B7** structure is given below. How many stereocenters are there in this molecule? Assign configuration (as R or S) to each stereocenter and draw the structure of the enantimore of **Vitamin7**. (12 marks)



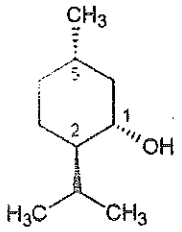
2.

a) Draw the (Newman Projections) most stable staggered and the least stable eclipsed conformations of 2-bromobutane when the C2-C3 bond is rotated through 360^0. (06 marks)

b) Menthol is a natural product belongs to terpene family. Naturally, it exists in two forms as shown in structures given below. Draw chair conformations of both forms and indicate which chair conformation is the most stable in each cases (provide reasons). (10 marks)



Menthol 1R, 2S, 5R



Menthol 1S, 2R, 5S

3.

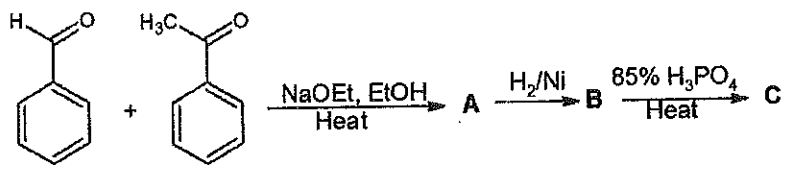
a) Why does ethanol have a higher boiling point than dimethyl ether? (04 marks)

b) Compound **M** (molecular formula $C_5H_{12}O$) does not undergo oxidation upon mixing with chromic acid. However, it reacts instantly with the Lucas reagent ($ZnCl_2$/ HCl) to give a turbid solution. Providing reasons, suggest a structure for the compound **M**. (06 marks)

4.

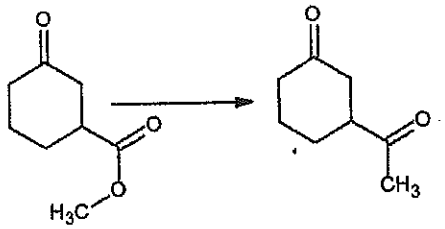
a) Provide the structures of appropriate starting materials to synthesize 5-methylhex-4-en-3-one via an aldol condensation. Could it give a high yield? Briefly explain your answer. (06 marks)

b) Provide structures for compounds **A-C** in the following reaction scheme. (06 marks)

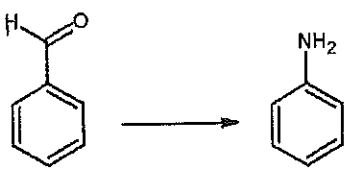


5. Giving necessary reagents and conditions, show how you would carry out the following multistep transformations. (15 marks)

a)

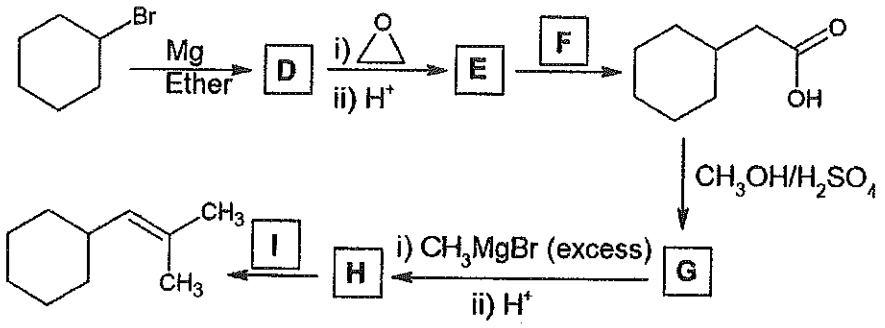


b)



6.

a) Complete the following reaction sequence giving structures of missing products, reagents, and conditions (**D-I**). (10 marks)



b) How would you carry out the following transformation? (05 marks)

END