BACHELOR OF PHARMACY HONOURS - LEVEL 4 - 2019/20
BSU4340- PHARMACEUTICAL CHEMISTRY III
FINAL EXAMINATION

INDEX NO: .....

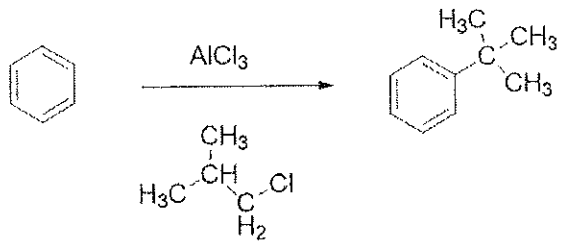
Part B –Answer all questions

(80 marks)

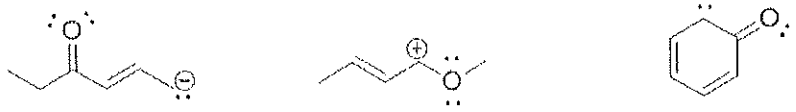
1.a) Why does an electrophilic substitution in pyrrole occur at 2nd position not at 3rd position? Explain your answer by providing the necessary resonance structures. (06 marks)

b) Aniline doesn't undergo Friedel-Craft acylation. Explain. (04 marks)

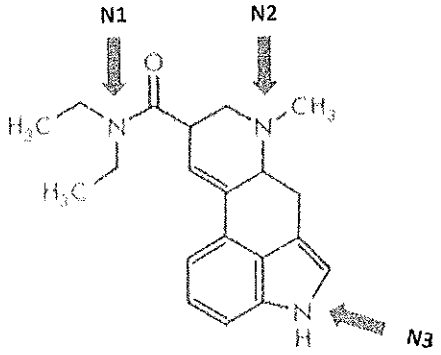
c) Provide a complete mechanism for the following reaction. (05 marks)



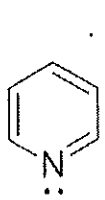
2. a) Draw all major resonance structures for the species given below. Use curved-arrows to indicate the movement of electrons from one resonance structure to the next. (10 marks)



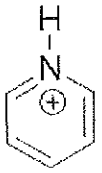
b) The structure of Lysergic acid diethylamide (LSD), a potent hallucinogen is given below. Rank the nitrogen atoms in LSD in the order of increasing basicity. Briefly explain your answer. (05 marks)



3. Deduce whether each of the following compounds is aromatic, anti-aromatic or non-aromatic by applying Huckel's rule. Provide reasons. (10 marks)

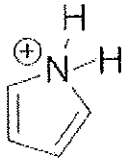


a)

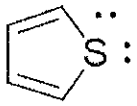


b)

c)



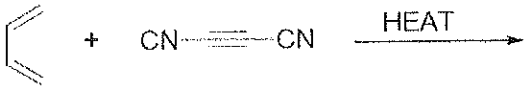
d)



e)

4. Give the structures of the major products of the following reactions. (10 marks)

a)



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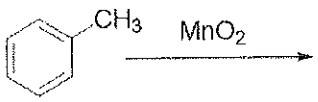

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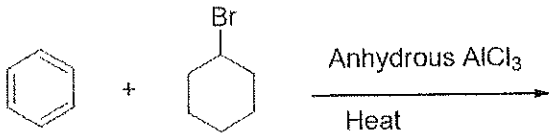

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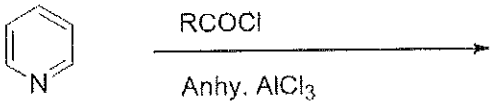
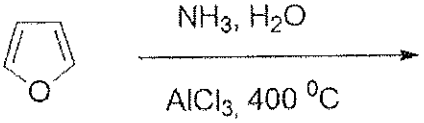


e)



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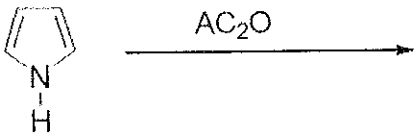
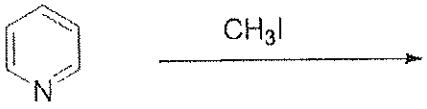
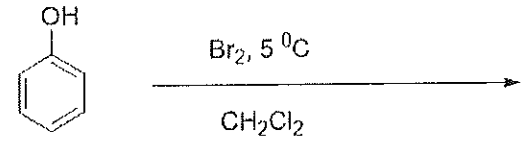
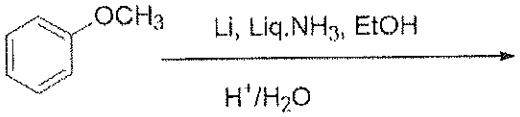
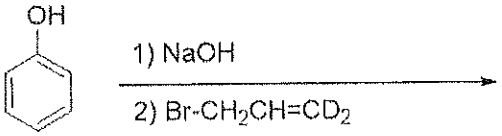


g)

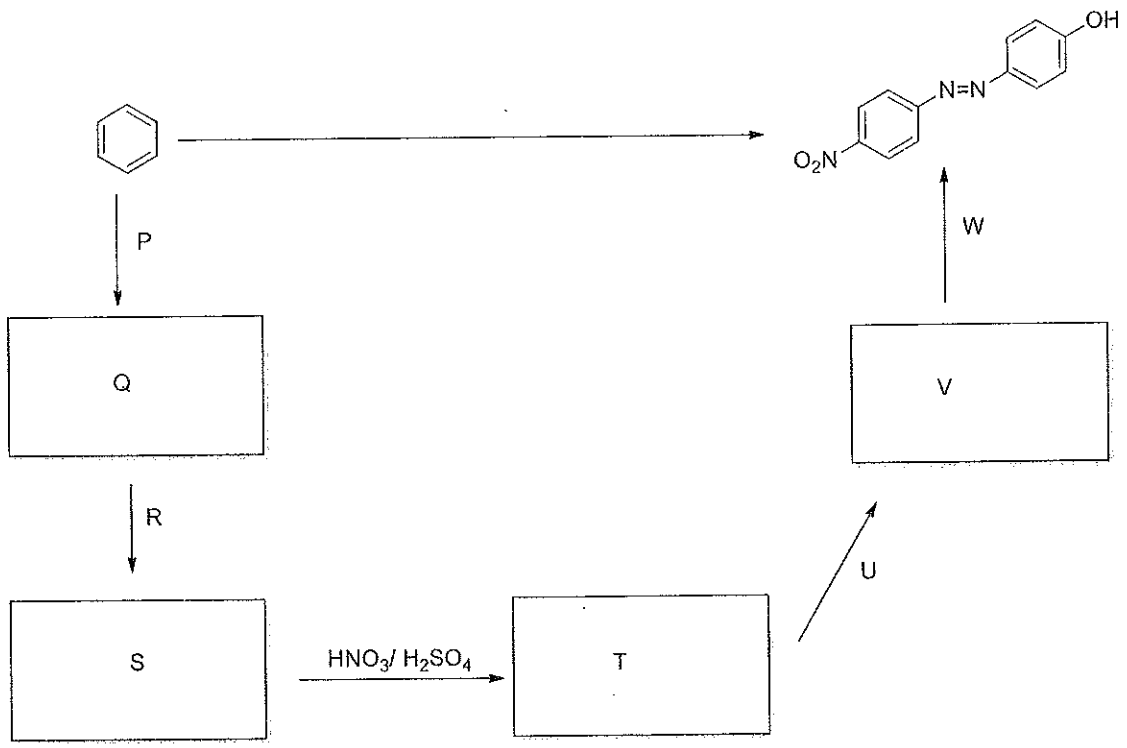


h) 

i) 

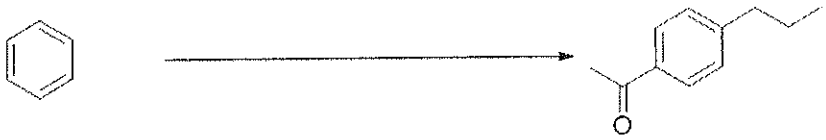
j) 

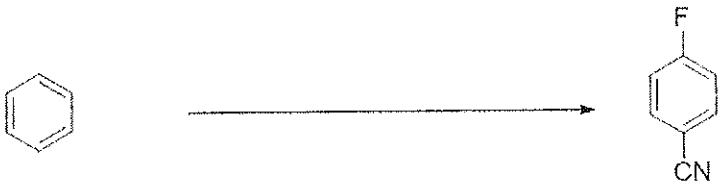
5. Complete the following reaction sequence giving structures of missing products, reagents, and conditions (P, Q, R, S, T, U, V, W). (08 marks)



6. Giving necessary reagents and conditions, show how you would carry out the following multistep transformations. (22 marks)

a) 

b) 

c) 

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