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THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF BASIC SCIENCES
ACADEMIC YEAR 2024/2025 – SEMESTER I
BACHELOR OF PHARMACY HONOURS
BSU4340-PHARMACEUTICAL CHEMISTRY III-LEVEL 4
FINAL EXAMINATION
DURATION: 3 HOURS

DATE: 24th APRIL 2025

TIME: 1.30 pm – 4.30 pm

IMPORTANT INSTRUCTIONS / INFORMATION TO CANDIDATES

- This question paper consists of **05** pages containing **05** questions
- Write answers for **ALL** questions in booklets provided.
- Clearly state your **Index Number** in your answer script
- Having any unauthorized materials, mobile phones in your possession is a punishable offence

BACHELOR OF PHARMACY HONOURS - LEVEL 04 - 2024/25
BSU4340- PHARMACEUTICAL CHEMISTRY III
FINAL EXAMINATION

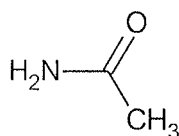
Answer all questions

1.

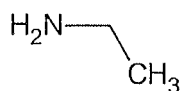
- Benzene easily undergoes electrophilic substitution reactions but rarely nucleophilic substitution reactions. Explain. (05 marks)
- Hydrogens of methyl groups attached to C-4 of pyridine ring exhibit acidity. They can take part in base catalyzed reactions similar to methylketones Explain this by drawing suitable resonance structures. (05 marks)
- Explain why Pyrrole is more reactive than benzene towards electrophilic substitution reactions. (05 marks)
- Explain how you would separate a cyclohexanol/phenol mixture which is dissolved in CH_2Cl_2 . (05 marks)

2.

- Which one of the following compounds is most basic? Explain your answer. (05 marks)

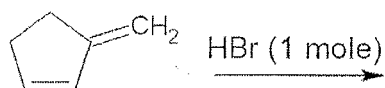


Acetamide

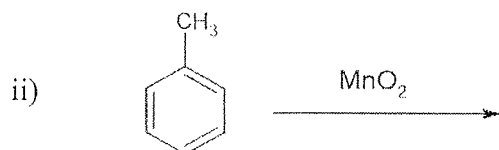
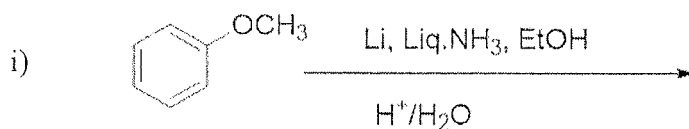


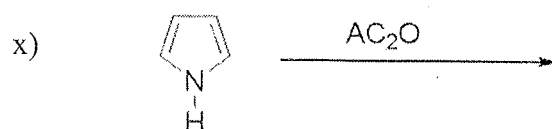
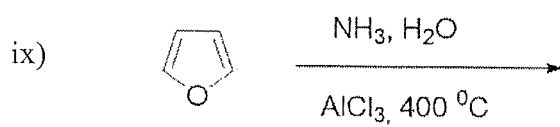
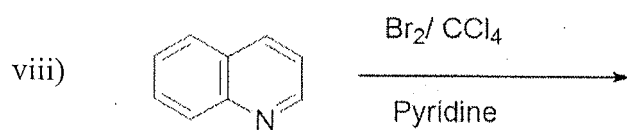
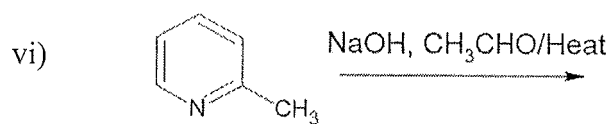
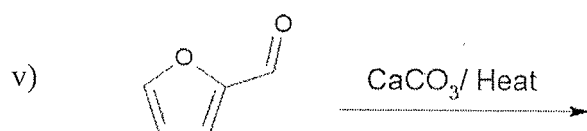
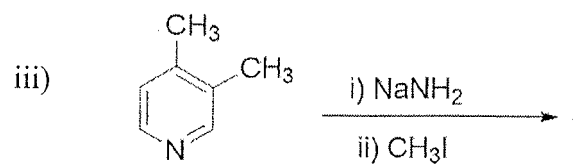
Ethyl amine

- Draw the mechanism for the formation of the products of the following reaction. (05 marks)

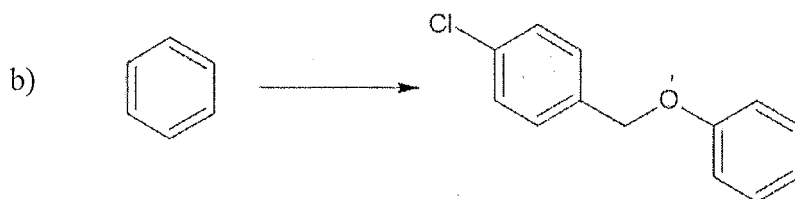
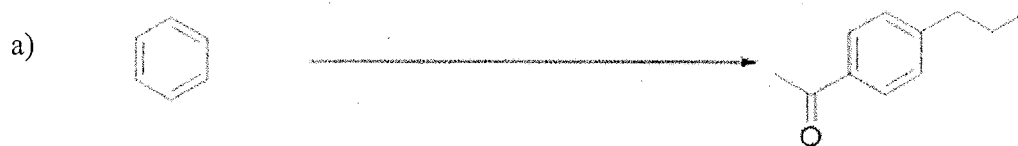


- Give the structures of the major product/s of the following reactions. (10 marks)

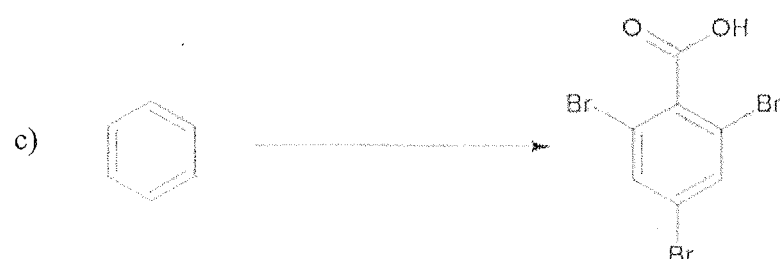
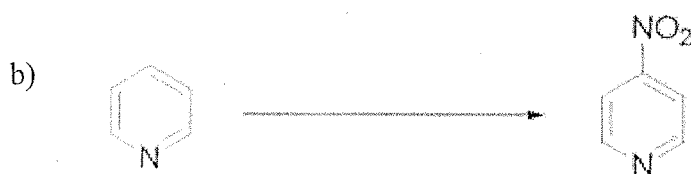
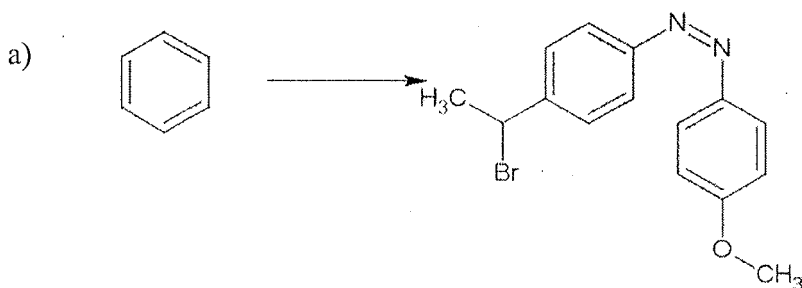




3. Giving necessary reagents and conditions, show how you would carry out the following multistep transformations. (20 marks)

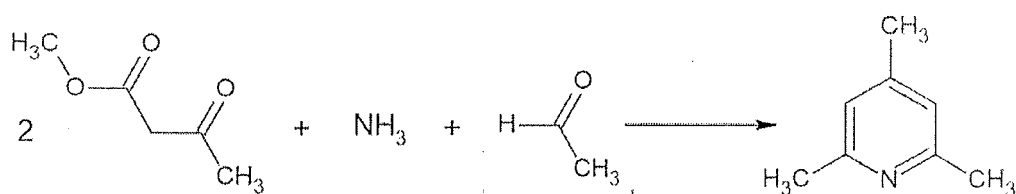


4. Complete following conversions giving necessary reagents and conditions. (20 marks)



5.

a) The most general technique for constructing a pyridine derivative is the Hantzsch pyridine synthesis. This method consists of the condensation of a β -ketoester (2-molecules) with an aldehyde and ammonia. Write down a suitable mechanism for the formation of pyridine derivative given below. (12 marks)



b) Giving necessary reagents and conditions, show how you would carry out the following reaction to synthesis Aspirin. (08 marks)

