

6. (a) Sulfonation of naphthalene occurs at C-1 position at low temperature (60°C) while at C-2 position at high temperature (160°C). Explain. (5)
- (b) Pyrrole undergoes electrophilic substitution reactions at C-2 position. Explain. (5)
- (c) Why pyridine is less reactive towards electrophilic substitution reaction as compared to pyrrole, though both are aromatic heterocyclic compounds containing one nitrogen atom. (5)
7. (a) Discuss the medicinal importance of Quinine and Morphine. (5)
- (b) Discuss the structure elucidation of nicotine. (5)
- (c) Briefly explain the isoprene rule and its importance in structure elucidation of terpenes. (5)

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Total Pages : 4

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May 2023

**B.Sc. (Chemistry) IV SEMESTER
Organic Chemistry-III (BCH-402)**

Time : 3 Hours]

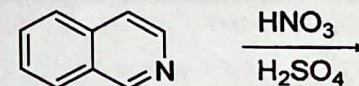
[Max. Marks : 75

Instructions :

1. It is compulsory to answer all the questions (1.5 marks each) of Part-A in short.
2. Answer any four questions from Part-B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART-A

1. (a) Draw the product of the following reaction : (1.5)

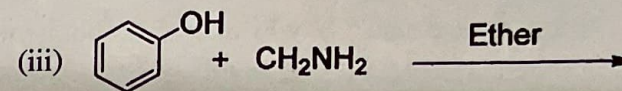
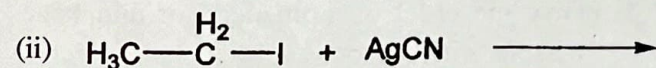


- (b) How will you synthesize 1-naphthoic acid from naphthalene? (1.5)
- (c) Draw the structure of the following heterocyclic compounds : (1.5)
- (i) 2-Propylpyridine,
 - (ii) 2,3-Dimethylfuran,
 - (iii) 4-Methylquinoline
- (d) Give the order of aromaticity of thiophene, furan and pyrrole with reason. (1.5)

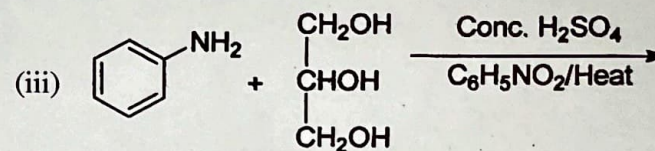
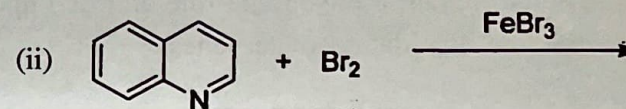
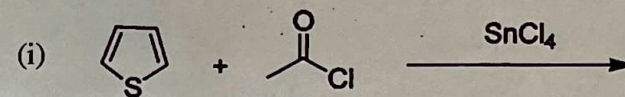
- (e) Sketch the carbylamine reaction giving a suitable example. (1.5)
- (f) Arrange the following in order of their reactivity towards electrophilic substitution reactions : (1.5)
Benzene, Naphthalene, Pyrrole, Quinoline, Indole.
- (g) Aliphatic diazonium salts are less stable as compared to aromatic diazonium salts. Explain. (1.5)
- (h) What is the general structural unit of terpenes? (1.5)
- (i) How will you differentiate between pyridine and aniline? (1.5)
- (j) What are alkaloids? Give any *two* examples of alkaloids. (1.5)

PART-B

2. (a) How will you achieve the following conversions : (9)
- Acetonitrile from acetic acid.
 - Propionic acid from acetic acid.
 - Acetone from acetonitrile.
- (b) How will you differentiate the following : (6)
- Primary, secondary and tertiary amines.
 - Nitriles and isonitriles.
3. (a) Complete the following reactions: (9)



- (b) Briefly explain the Hofmann Elimination reaction (3)
- (c) Give any *one* method of synthesis of isoquinoline. (3)
4. (a) Complete the following reactions giving suitable mechanism: (15)



5. (a) Write down the following name reactions with plausible mechanisms : (15)
- Gabriel phthalimide synthesis
 - Bischler-Napieralski reaction
 - Paal-Knorr synthesis of pyrroles