

[This question paper contains 4 printed pages.]

Sr.No. of Question Paper : 806 E Your Roll No.....

Unique Paper Code : 217403

Name of the Course : B.Sc. (Hons.) CHEMISTRY

Name of the Paper : ORGANIC CHEMISTRY – III (CHHT-409)

Semester : IV

Duration : 3 Hours

Maximum Marks : 75

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt six questions in all.
3. Question number 1 is compulsory and carries 15 marks.
4. All other questions are of 12 marks each.

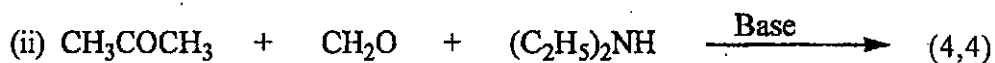
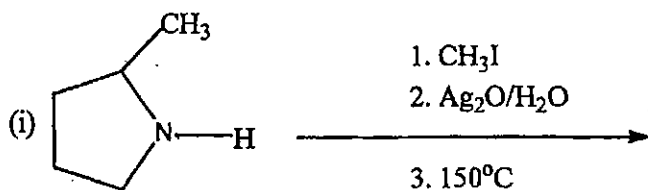
1. (a) Amine A,  $C_7H_9N$  reacts with benzoyl chloride in presence of sodium hydroxide to give compound B,  $C_{14}H_{13}NO$ . A reacts with benzenesulphonyl chloride in potassium hydroxide solution to give water insoluble precipitate of compound C. Identify compound A and give equation for its conversion into compound B and compound C. Name the reaction involved in the conversion of 'A' to 'B'. (6)

(b) Give reason :

- (i) Oxidation of 1-nitronaphthalene forms 3-nitrophthalic acid whereas oxidation of  $\alpha$ -naphthylamine forms phthalic acid.
- (ii) Acylation of aniline deactivates it towards electrophilic aromatic substitution.
- (iii) Furan on hydrogenation loses its aromatic character ? (3,3,3)

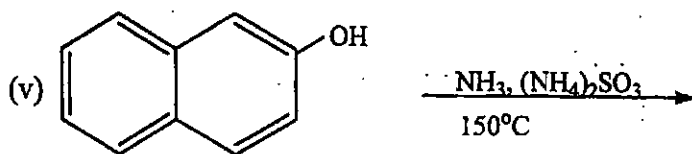
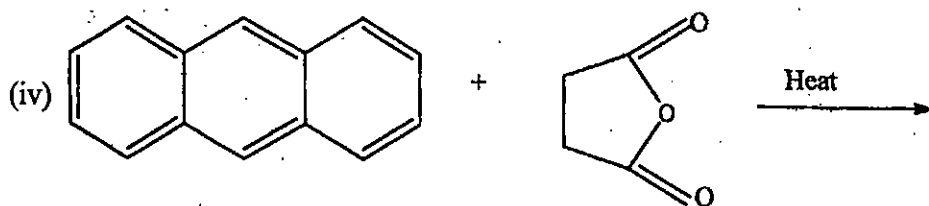
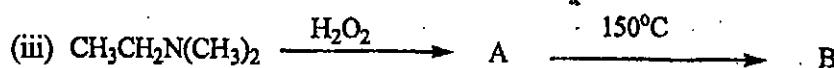
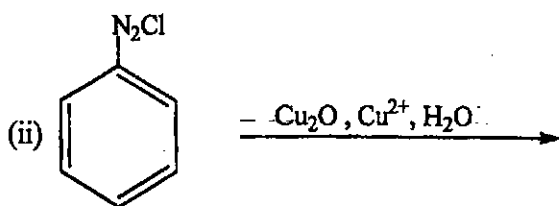
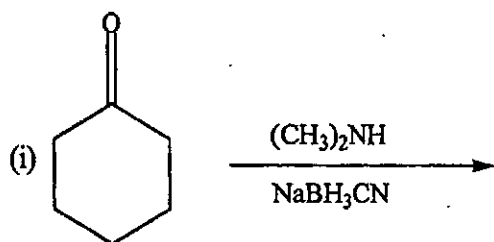
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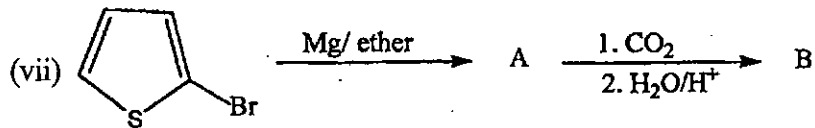
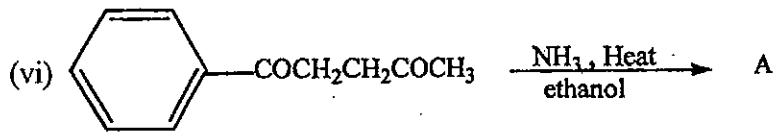
2. (a) Complete and suggest mechanism for the following reactions :



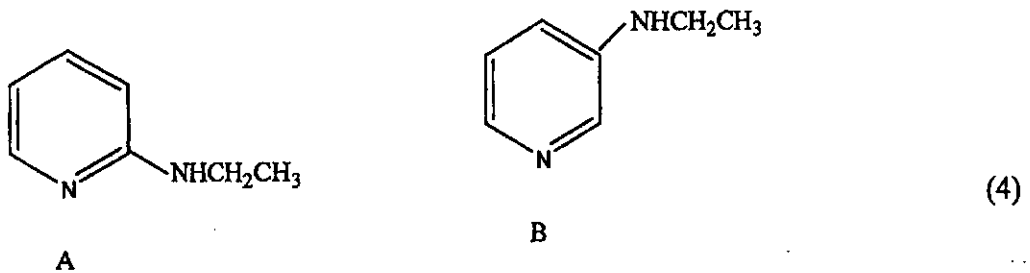
(b) Write stepwise synthesis of naphthalene by Haworth method. (4)

3. (a) Complete the following reactions : (8)

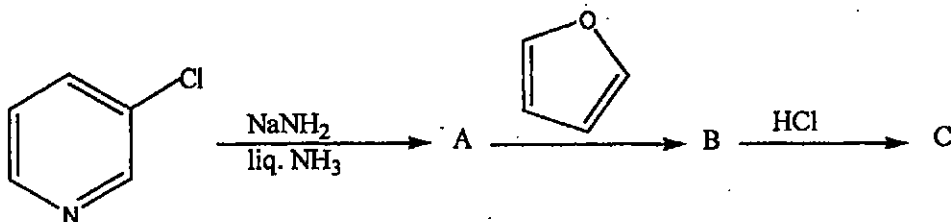




- (b) Write the products obtained on electrophilic substitution of compounds 'A' and 'B'.



4. (a) Carry out any two of the following conversions using necessary reagents.
- p-toluidine to m-bromotoluene
  - p-nitroaniline to 1,2,3-tribromobenzene
  - 2-acetylfuran to 2-methylpyridine
- (4,4)
- (b) How is the presence of pyridine and N-methylpyrrolidine established in nicotine? (4)
5. (a) Complete the following reactions. Give the name of the reaction involved in the formation of 'B'.



- (b) How will you synthesise 2-methylindole by Fischer-Indole synthesis? Give mechanism involved.

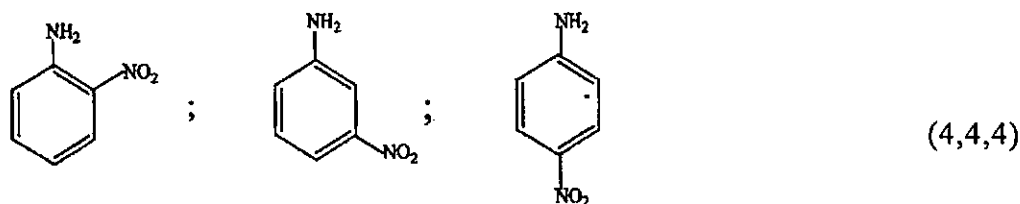
(c) How will you obtain 1-naphthol from naphthalene ? (4,4,4)

6. (a) What reactants are required in Skraup synthesis of 6-chloro-3,4-dimethylquinoline ? Outline the steps involved in the above reaction.

(b) (i) Write the products of ozonolysis of isoquinoline.

(ii) Why pyrrole is a weaker base than pyridine ?

(c) Arrange the following nitroanilines in the order of decreasing basicity. Give reason to your answer.



7. (a) Why coupling of phenyldiazonium chloride does not occur in strong alkaline and strong acidic conditions ? (4)

(b) (i) Why phenanthrene undergoes electrophilic substitution preferentially at C-9 ?

(ii) Why electrophilic substitution in furan occurs at position -2 ?

(iii) With the help of reaction, justify that Quinoline is a tertiary base.

(iv) Give two medicinal uses of quinine. (2,2,2,2)

8. Write short notes on any three of the following :

(i) Gabriel phthalimide synthesis

(ii) Bishler-Napieralski synthesis for isoquinoline.

(iii) Knorr-Pyrrole synthesis

(iv) Hofmann bromamide degradation (4,4,4)