

Total No. of Printed Pages—7

**4 SEM TDC CHMH (CBCS) C 9**

**2025**

( May/June )

**CHEMISTRY**

( Core )

Paper : C-9

( **Organic Chemistry** )

Full Marks : 53

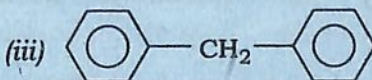
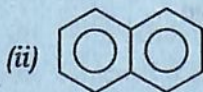
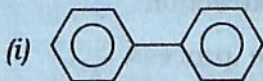
Pass Marks : 21

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

1. Choose the correct answer from the following : 1×4=4

(a) Which one of the following is a condensed polynuclear hydrocarbon?



(iv) All of the above



( 2 )

(b) Nucleophilic substitution in pyridine occurs at

(i) N-atom

(ii)  $\alpha$ -position

(iii)  $\beta$ -position

(iv) Does not occur

(c) Which one is used as a local anaesthetic?

(i) Quinoline

(ii) Cocaine

(iii) Morphine

(iv) Reserpine

(d) Which of the following methods is used for isolation of terpenoids?

(i) Steam distillation

(ii) Solvent extraction

(iii) Enfleurage process

(iv) All of the above

2. Answer any four questions from the following :  $2 \times 4 = 8$

(a) Aniline is a weaker base than ethylamine. Explain.

( 3 )

(b) How will you prepare benzene diazonium chloride? What happens when benzene diazonium chloride is treated with KI?  $1+1=2$

(c) Naphthalene at high temperature gives mainly  $\beta$ -naphthalene sulphonic acid. Explain why?

(d) Pyridine, though aromatic like benzene, can undergo nucleophilic substitution easily, while benzene cannot. Explain.

(e) What are the natural sources of nicotine and cocaine?  $1+1=2$

### UNIT—I

3. Answer any three questions :  $3 \times 3 = 9$

(a) How would you distinguish among  $1^\circ$ ,  $2^\circ$  and  $3^\circ$  amines with the help of nitrous acid test?

(b) Write short notes on any two of the following :  $1\frac{1}{2} \times 2 = 3$

(i) Hofmann elimination

(ii) Schotten-Baumann reaction

(iii) Gabriel phthalimide synthesis

(c) Discuss the synthesis of the following :  $1\frac{1}{2} \times 2 = 3$

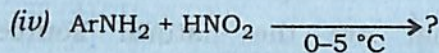
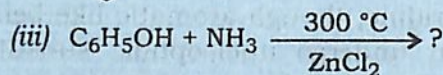
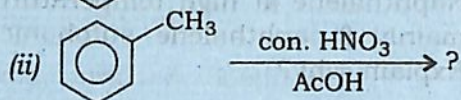
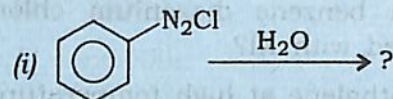
(i) Aniline from chlorobenzene

(ii) p-Benzoquinone from aniline



( 4 )

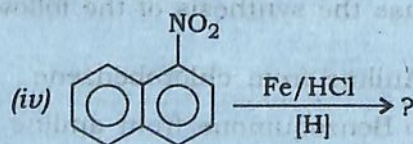
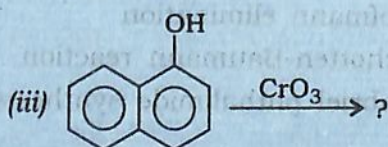
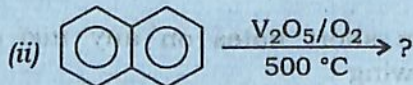
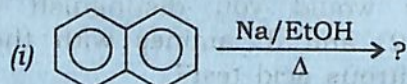
- (d) Complete the following reactions  
(any three) :  $1 \times 3 = 3$



### UNIT—II

4. Answer any three questions :  $3 \times 3 = 9$

- (a) Complete the following reactions (any three) :  $1 \times 3 = 3$



( 5 )

- (b) Electrophilic substitution of naphthalene takes place mainly at  $\alpha$ -position (C-1). Explain.

- (c) How will you convert any two of the following?  $1\frac{1}{2} \times 2 = 3$

(i) Naphthalene into phthalic-anhydride

(ii) Anthracene into 9,10-anthraquinone

(iii) 1,4-Naphthaquinone into anthracene

- (d) What happens when  $\alpha$ -naphthol is oxidised by alk.  $\text{KMnO}_4$ ? How will you convert  $\alpha$ -naphthol into 1,4-naphthaquinone?  $1 + 2 = 3$

### UNIT—III

5. (a) Out of pyrrole and furan, which is more aromatic? Explain. 2

- (b) Starting with furan, how will you get the following?  $1 + 1 = 2$

(i) 2-Nitrofuran

(ii) Furan-2-sulfonic acid

- (c) Explain why pyridine is less basic than tert aliphatic amines. 2

- (d) Out of pyrrole and furan, which is more aromatic? 1



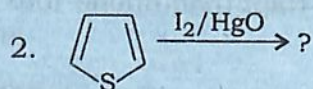
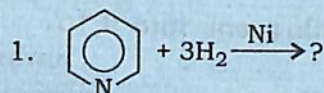
( 6 )

(e) Answer any three questions :  $2 \times 3 = 6$

(i) Give Friedlander's synthesis of quinoline.

(ii) What happens when quinoline is treated with conc.  $\text{HNO}_3$  and conc.  $\text{H}_2\text{SO}_4$ ?

(iii) Complete the following reactions :  $1+1=2$



(iv) Convert the following :  $1+1=2$

1. 2-Formyl pyrrole from pyrrole
2. Furan from furfural

#### UNIT—IV

6. (a) What is Hofmann exhaustive methylation? Explain with suitable example.  $2$

Or

Give the medicinal use of nicotine and hygrine.  $1+1=2$

(b) What are physiological actions of alkaloid? Discuss in detail.  $3$

Or

Give one method of synthesis of hygrine.

( 7 )

#### UNIT—V

7. What is isoprene rule? Explain with suitable example. Outline the synthesis of neral.  $1+1+3=5$

Or

Establish the structure of citral. How does it differ from neral? How will you convert it into neral and  $\alpha$ -terpineol?  $1+1+3=5$

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