

4 SEM TDC CHMH (CBCS) C 9

2025

(May/June)

CHEMISTRY

(Core)

Paper : C-9



(Organic Chemistry)

Full Marks : 53

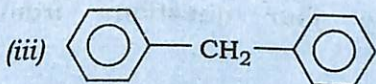
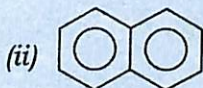
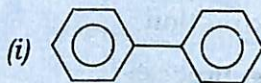
Pass Marks : 21

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) α -position
 - (iii) β -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 :
- 2×4=8
- (a) Aniline is a weaker base than ethylamine. Explain.

P25/1251

(Continued)

(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 β -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 : 3×3=9

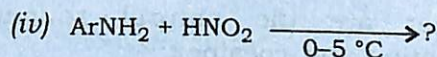
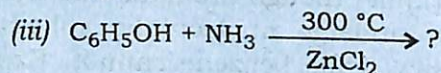
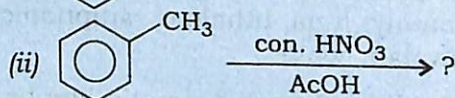
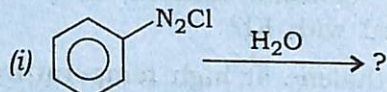
- (a) How would you distinguish among 1°, 2° and 3° amines with the help of nitrous acid test?
- (b) Write short notes on any two of the following : 1½×2=3
- (i) Hofmann elimination
 - (ii) Schotten-Baumann reaction
 - (iii) Gabriel phthalimide synthesis
- (c) Discuss the synthesis of the following : 1½×2=3
- (i) Aniline from chlorobenzene
 - (ii) p-Benzoquinone from aniline

P25/1251

(Turn Over)

(4)

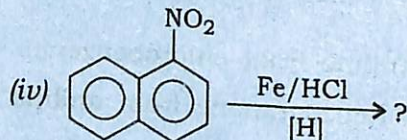
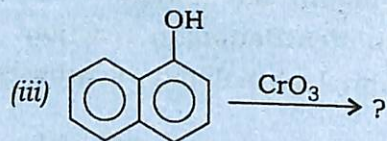
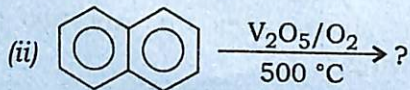
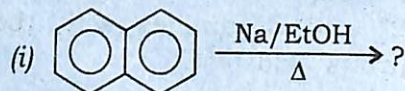
- (d) Complete the following reactions (any three) : $1 \times 3 = 3$



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 α -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 α -naphthol is oxidised by alk. KMnO_4 ? How will you convert α -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

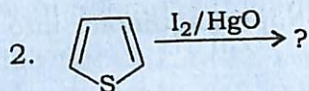
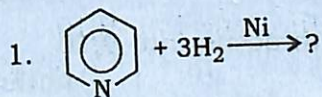
(6)

(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. HNO_3 and conc. H_2SO_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 α -terpineol? $1+1+3=5$

