



Sessional II (Even) Semester Examination, May 2025

Roll no.....

Name of the Course and semester: B. Pharmacy (4th Semester)

Name of the Paper: Pharmaceutical Organic Chemistry-III

Paper Code: BP401T

Time: 1.5-hours

Maximum Marks: 30

Note:

- (i) This question paper contains three sections.
- (ii) All the questions are compulsory.

Section-A

Q1. Multiple Choice Questions – Attempt all questions

(10 X 1 = 10 Marks)

a. Which of the following is a six-membered heterocyclic compound containing one nitrogen atom? CO3

- (i). Pyridine
- (ii). Furan
- (iii). Thiophene
- (iv). Oxirane

b. Identify the saturated heterocyclic compound among the following: CO3

- (i). Pyrrole
- (ii). Piperidine
- (iii). Quinoline
- (iv). Pyridine

c. Which of the following is a three-membered heterocycle with nitrogen? CO3

- (i). Aziridine
- (ii). Thiolane
- (iii). Furan
- (iv). Thiane

d. What is the heteroatom present in thiolane? CO3

- (i). Nitrogen
- (ii). Oxygen
- (iii). Sulfur
- (iv). Phosphorus

e. Which fused heterocyclic system contains nitrogen atoms in both rings? CO3

- (i). Quinoline
- (ii). Isoquinoline
- (iii). Purine
- (iv). Coumarin

f. Which of the following is a heterocycle with both nitrogen and oxygen as heteroatoms? CO4

- (i). Oxazole
- (ii). Thiophene
- (iii). Furan
- (iv). Pyridine

g. According to Hantzsch-Widman nomenclature, a saturated five-membered heterocycle with one sulfur atom is called:

CO4

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|-----------------|-----------------|
| (i). Thiolane | (ii). Thiophene |
| (iii). Thiazole | (iv). Thiane |

h. Which of the following heterocycles is a five-membered ring containing both nitrogen and sulfur?

CO4

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|----------------|----------------|
| (i). Imidazole | (ii). Thiazole |
| (iii). Oxazole | (iv). Pyridine |

i. The Bischler-Napieralski synthesis is used to prepare:

CO4

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|------------------|--------------------|
| (i). Quinoline | (ii). Isoquinoline |
| (iii). Imidazole | (iv). Pyrimidine |

j. Which of the following is NOT a fused heterocyclic compound?

CO4

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|-----------------|-----------------|
| (i). Indole | (ii). Quinoline |
| (iii). Thiazole | (iv). Purine |

Section B

Q. 2 Short Questions: Attempt any two questions

(2X 5 = 10 Marks)

- a. Write a note on the nomenclature of heterocyclic compounds. CO3
- b. Compare the relative aromaticity and reactivity of pyrrole, furan, and thiophene. CO3
- c. Describe the basicity of pyridine with respect to pyrroles and aliphatic amines. CO4

Section C

Q. 3 Long questions: Attempt any one question

(1X10 = 10 Marks)

- a. Explain the resonance, preparation methods, chemical reactions, and uses of pyrrole. CO3
- b. Describe the synthetic methods and chemical reactions for imidazole and quinoline. CO4