

M.Sc.(Chem.) Semester - 4 (CBCS) Examination
March/April - 2025 (As Per Syllabus Year June-2019)
Heterocyclic Chemistry (Core)

Time: 2:30 Hours

Marks: 70

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que-1(A) Generate the correct Structure from followings IUPAC names. (04)**
- 1) pyrrolo[2,1-*b*]quinazoline
 - 2) imidazo[2,1-*b*]thiazole
 - 3) 7-oxa-3-thia-10-azabicyclo[4.2.2]dec-4-ene
 - 4) 6-oxa-1-thia-3-azaspiro[4.4]nonane
- Que-1(B) Answer any Two question out of three. (10)**
- 1) Discuss rules for selection of base component in multiple fused heterocyclic ring systems with examples.
 - 2) Give Two synthesis of followings:
 - 1) 1,2-Dioxetane.
 - 2) 1,2-Diazetidene.
 - 3) Discuss chemical reactivity and Two synthesis of Oxirane.
- Que-2(A) Why electrophilic reaction occur at position-3 in Indole? Explain with examples. (04)**
- Que-2(B) Answer any Two question out of three. (10)**
- 1) Describe physical properties and Two synthesis of benzo[*b*]furan.
 - 2) Discuss any Two synthesis of followings:
 - 1) Indolizine.
 - 2) Thiophene.
 - 3) Elaborate Electrophilic reaction and any Two synthesis of Pyrrole.
- Que-3(A) Provide any Two synthesis of: (04)**
- 1) Quinazoline
 - 2) Pyrimidine.
- Que-3(B) Answer any Two question out of three. (10)**
- 1) Discuss any Three synthesis of Pyridine.
 - 2) Explain any Two synthesis of followings:
 - 1) Pyrazine.
 - 2) Phenothiazine.
 - 3) Explain any Two synthesis of followings:
 - 1) Phthalazine.
 - 2) Morpholine.
- Que-4(A) Discuss the electrophilic reactions and Two synthesis of Isoquinoline. (04)**
- Que-4(B) Answer any Two question out of three. (10)**
- 1) Discuss the Nucleophilic reactions and Two synthesis of Quinoline.
 - 2) Write any two synthesis of followings:
 - 1) Benzopyran.
 - 2) Benzopyran-4-one.
 - 3) Provide any Four preparation of Acridine.
- Que-5(A) Explain Nucleophilic reactions and Two synthesis of Thiazole. (04)**
- Que-5(B) Answer any Two question out of three. (10)**
- 1) Describe any Three synthesis of Thiadiazole.
 - 2) Give Two synthesis of followings:
 - 1) Triazole.
 - 2) Imidazole.
 - 3) Describe Physical properties and Two preparation of Pyrazole.
