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Model Question Paper: Final Semester Examination
M.Sc. Semester-IV, Elective Course – EC-4 (Chemistry of Natural Products)
Section- IV Six- Membered Heterocycles with two or more heteroatoms

MCQ (2- Marks)

- Pyridazine, Pyrimidine and Pyrazine has Pka values respectively:
 a) 3.3, 2.3 and 1.65 b) 4.3, 3.3 and 2.65 c) 2.3, 1.3 and 0.65 d) None
- 2. Most important ring system to study Nucleic acid is:
 a) Pyridazine ring b) Pyrimidine ring c) Pyrazine ring d) all
- 3. Six- membered rings which contain two or more hetero-atoms and at least one of which is nitrogen is called:
 - a) Pyridines b) Azines c) Imidazole d) None
- 4. Many pyridine derivatives have been prepared via the:a) Katritzky procedure b) Pinner procedure c) Gilchrist procedure d) All
- 5. Importance of amidine derivatives first disclosed by:

a) Katritzky b) Pinner c) Gilchrist d) all

Short Answer type Questions (5- Marks)

- **Q-1**. Write the following information's about Azines:
 - a) General description and ring skeleton
 - b) Validity of Huckel's Rule.
- **Q-2**. Explore the chemistry of Amidinium ion.
- **Q-3**. Explore the chemistry of synthesis of Pyrazine ring
- Q-4. Discus electrophilic addition/substitution to nitrogen of Diazene with:
 - **a.** Alkyl halides
 - **b.** Peracids
 - **c.** Bromine

Long answer type questions (12.5)

- **Q-1**. Depicts the structure and physical properties of Pyridazine. Propose the Emil Fischer method of synthesis of pyridazine ring
- **Q-2**. Depicts the structure of sodium formyl acetone. Propose the synthetic route for the synthesis of 2-Amino-4-methyl Pyrimidine.
- **Q-3**. Depicts the general structure imines. Propose the scheme and mechanism of Katritzky et.al synthesis of Pyrimidine.