

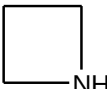
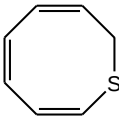
M.Sc.(Chem.) Semester - 3 (CBCS) Examination
Oct/Nov-2021 (OLD COURSE)
HETEROCYCLIC CHEMISTRY (CORE)

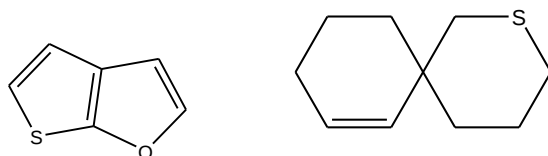
Time: 2:30 Hours**Marks: 70****Instructions:**

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

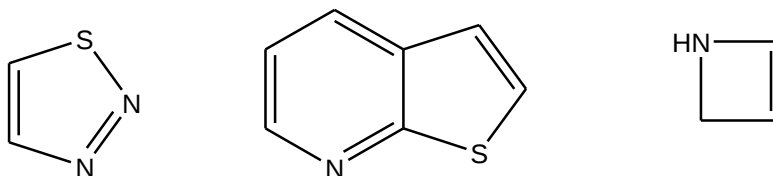
Q.1 Answer any seven of the following questions:**14**

- i) Name the prefixes used for the hetero atoms: Nitrogen, Germanium, Tin and Oxygen.
- ii) Draw structures for the following:
 - A four membered nitrogen containing saturated heterocycle
 - Oxygen and nitrogen containing & sulphur and nitrogen containing unsaturated heterocycle.
- iii) Name the following structures:


- iv) Explain the preparation of aziridine.
- v) What are the different physical properties of pyrazole?
- vi) Draw the structures for indolizine and benzo-4-pyrone.
- vii) How will you prepare carbazole?
- viii) Give appropriate example to determine base component for rings of equal size with different number of hetero atoms.
- ix) How will you synthesize azepine?
- x) Name the following structures:

**Q.2 Answer any two of the following questions:****14**

- i) Name the following structures and mention the rule used to name them:



- ii) Explain the synthesis of tetrazole. Draw the structure of pyridazine.
- iii) Name and draw structures of any two fused heterocycles following trivial system. Which stem is used to name a five membered unsaturated heterocycle containing nitrogen?

- Q.3 Answer the following questions:** **14**
- How will you number a fused benzoheterocycle? Which atom out of Sb and Hg has higher priority while naming a heterocycle? 05
 - Write and note on preparation and properties of indole. 05
 - Mention chemical reactions of isoquinoline. 04

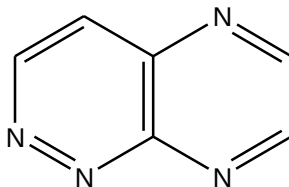
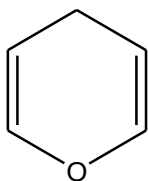
OR

Answer the following questions: **14**

- Explain the preparation methods of oxetane and properties of oxazole.
 - Explain with example naming of a bridged heterocycle.
- Q.4 a) Answer any two out of the following questions:** **10**
- Write methods to prepare the following heterocycle:



- Explain the rule to name the following heterocycles:



- How will you synthesize phenanthridine and diazine?

b) Answer any one of the following questions: **04**

- Explain preparation of 2-pyrones.
- What are the different chemical properties of quinoxaline?

Q.5 Answer any two of the following questions: **14**

- Explain the preparation and properties of pyridine. Draw the structure of oxaziridine.
- How will you synthesize isobenzofuran? Draw the structure of 1,4-dithiane.
- What are the different properties of thietane? Name the following structure:

