

**M.Sc.(Chem.) Semester - 3 (CBCS) Examination**  
**Oct/Nov. -2019– [OLD COURSE]**  
**HETEROCYCLIC CHEMISTRY (CORE)**

Time: 2:30 Hours

Marks: 70

**Instructions:**

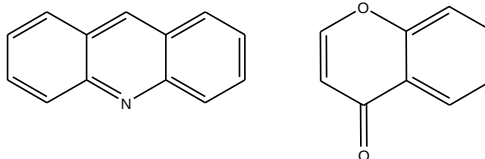
1. All questions are compulsory.
  2. Figures to the right indicate marks.
- 

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

- (i) Mention applications of heterocyclic compounds. Which prefix is used for Antimony?
- (ii) Give appropriate example to determine base component for rings of equal size with different number of hetero atoms.
- (iii) Draw structures for the following:
  - A four membered nitrogen containing saturated heterocycle.
  - Explain nucleophilic ring opening reaction of thiirane.
- (iv) Name the following structures:



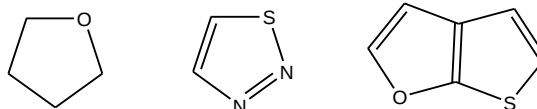
- (v) How will you prepare oxazole?
- (vi) Draw structures for indolizine and thianaphthalene.
- (vii) Write any one reaction showing synthesis of pyridine.
- (viii) Name the following structures.



- (ix) Draw structure of a seven membered heterocycle having two nitrogen atoms.
- (x) Write any one method of synthesis of thiepine.

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

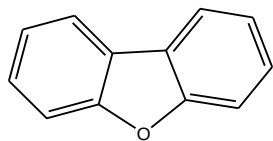
- (i) Explain the rule to name a bridged heterocycle with an appropriate example. Name and draw structures of any three heterocycles following trivial system.
- (ii) Explain synthesis of azepine. Draw structure of isobenzofuran.
- (iii) Name the following structures and mention the rule used to name them:

**Q.3 Answer the following questions:**

- (i) How will you number a fused heterocycle? Which stem is used for three and four (04) membered unsaturated heterocycle?
- (ii) Write a note on preparation and properties of pyrazole. (05)
- (iii) Write a note on major method of synthesis of quinolone. Draw structure of cinnoline. (05)

**Q.4 (a) Attempt any two of the following questions: 10**

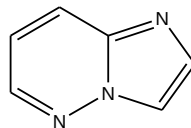
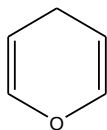
(i) (a) Write methods to synthesize the following heterocycles:



(b) Draw structure of pyrazine.

(ii) How will you synthesize 1,4-dioxocin? Draw structure of carbazole.

(iii) Explain the rule to name the following heterocycles:



**(b) Attempt any one of the following questions: 04**

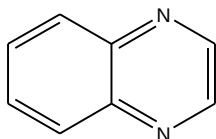
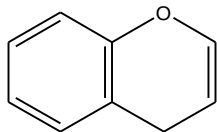
(i) Explain the preparation of benzopyran. Draw structure of triazole.

(ii) Explain two chemical properties each of imidazole and oxazole.

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

(i) Explain the preparation of 2-pyrones. Draw structure of 1,4-dithicine.

(ii) (a) Name the following structures:



(b) Mention any one chemical property of diazine.

(iii) Compare chemical properties of thiazole and isothiazole.

(iv) Explain synthesis of azocine. Which are the different properties of isoquinoline?

\*\*\*\*\*