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Total No. of Pages : 02

Total No. of Questions : 11

**B.Sc- Honours (Chemistry) (Sem.-5)**  
**ORGANIC CHEMISTRY-III(HETROCYCLIC CHEMISTRY)**

Subject Code : BHCL302-19

M.Code : 90738

Date of Examination:14-12-2022

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of EIGHT questions carrying TWO marks each.
2. SECTION-B contains EIGHT questions carrying FOUR marks each and students have to attempt any SIX questions.
3. SECTION-C will comprise of two compulsory questions with internal choice in both these questions. Each question carries TEN marks.

**SECTION-A**

1. Write briefly:
  - a) How Furan is prepared?
  - b) Why thiophene is aromatic in nature?
  - c) Write method of preparation of Diazines.
  - d) What is 1,3 diaxial interaction?
  - e) Write method of preparation of Oxetane.
  - f) Write the reactions of Aziridines.
  - g) How benzopyrroles are synthesized?
  - h) Write reaction of 1,3-oxazolium-4-olates.

**SECTION-B**

2. Describe Fischer indole synthesis in detail.
3. Explain the synthesis and reactions of Coumarins.

4. Discuss the electrophilic reactions of purines.
5. Explain the following: a) Oxadiazoles b) Torsional strain in heterocycles
6. Give two reactions for synthesis of azetidine and give their reactions?
7. How benzofurans are synthesized? Give their cycloaddition reactions.
8. Discuss heterocyclic synthesis involving cyclization.
9. Explain the applications of 1,3-Oxazolium-5-olates and 1,2-Diazolium-4-aminides.

### SECTION-C

10. Discuss the following :

- a) Paal-Knorr synthesis
- b) Hantzsch synthesis
- c) Chromones

**OR**

- a) Discuss the synthetic route for preparation of triazines or thiadiazoles.
  - b) How one can differentiate between stereoelectronic effect and anomeric effect Explain.
11. Describe the synthesis and chemical reactions of Oxirane and thietane in detail.

**OR**

What are benzothiophenes? Discuss the nucleophilic and cycloaddition reactions of benzothiophenes.

**NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.**