QL-5243

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M. Sc. (Sem - III) Examination, December - 2023

CHEMISTRY

Paper - 3.4 CHEM-634

Heterocyclic Chemistry

(Organic Chemistry Specilization)

Time Allowed : **Three Hours**

Maximum Marks : **70**
Min. Pass Marks : **28**

Note : *This question paper is divided into three sections as under :*

Section-A ***Max. Marks-10***

*Will carry **10** marks with **01** compulsory question comprising **10** short answer type questions (maximum **20** words answer) taking two questions from each unit. Each question shall be of one mark.*

Section-B ***Max. Marks-25***

*Will carry **25** marks with equally divided into five long answer type questions (answer about in **250** words). Students are instructed to attempt five questions by selecting one question from each unit.*

Section-C ***Max. Marks-35***

*Will carry 35 marks with five long answer type questions comprising one compulsory question of **15** marks and four questions of 10 marks each. Students are instructed to attempt total three questions with one compulsory questions (answer about in 500 words) and any two more questions (answer about in **400** words) out of remaining four questions.*

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SECTION - A

1 (i) What is Aromaticity in heterocycles?

(ii) Define bond angle strain in Non-aromatic heterocycles.

(iii) Write the structure of one Thiirenes.

(iv) Write two chemical reactions of Oxetanones.

(v) Explain the stability of Furan.

(vi) What is the basicity of Pyrrole?

(vii) Write any one chemical synthesis of Quinoxaline.

(viii) Draw the structure of diazine.

(ix) What is Pyrylium salt?

(x) What is the medical importance of Benzodiazepines?

SECTION - B

UNIT - I

2 Write a short note on fused and bridged heterocycles.

OR

Explain stereo - electronic effects in saturated Six membered heterocycles.

UNIT - II

3 Give the synthesis of oxiranes and oxirenes.

OR

Give the synthesis of thiaziridines and diazirines.

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UNIT - III

4 Explain the medicinal importance of Furan and thiophene.

OR

Give the synthesis of Imidazoles and Oxazoles.

UNIT - IV

5 Explain the synthesis of Pyradizine and Pyrazines.

OR

Write the medicinal importance of acridine.

UNIT - V

6 Explain the synthesis and reaction of Pyrones.

OR

Write a note on medicinal importance of Azepines and Thiepines.

SECTION - C

7 Describe the structural type classification of Aromatic heterocycles. 15

8 Explain the synthesis and reaction of Four membered heterocycles with one Sulphur hetero atom. 10

9 Write a note on the structure, stability, basicity and reactivity of Five membered heterocycles with one heteroatom. 10

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10 Write a note on medicinal importance of quinoline and isoquinoline. **10**

11 Write a note on synthesis, reaction and medicinal importance of coumarins and chromones. **10**

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