

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

BPF-2204

M.Sc. (Final) Examination, 2022

CHEMISTRY

Paper - VIII (B)

(Group-B)

CH-506

(Heterocyclics and Natural Products)

Time : 3 Hours]

[Maximum Marks : 75

Section-A

(Marks : 2 × 10 = 20)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section-B

(Marks : 5 × 5 = 25)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

Section-C

(Marks : 10 × 3 = 30)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

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Section–A

1. (i) Give the structure of the following heterocyclic compounds :
 - (a) 5-ethylthiophene-2-carboxylic acid
 - (b) 2, 6-dimethylpyrone
- (ii) What is Dewar Resonance Energy ?
- (iii) Give the structure of azocine and thiozepines.
- (iv) Write the uses of Indole.
- (v) Give reason. Although pyrrole is basic in nature it does not form salt with strong acid.
- (vi) Thiophene are more reactive than benzene to electrophilic attack. Why ?
- (vii) Draw the structure of ephedrine.
- (viii) Give the *three* main class of alkaloids based on the biogenesis.
- (ix) Where is quercetin used ?
- (x) Draw the structure of myricetin.

Section–B

2. Discuss the reactivity of non-aromatic heterocyclic and effect of bond strain on reactivity.

Or

Write a note on Ring current and chemical shift in H-NMR spectra.

3. How will you synthesize thiazepines ?

Or

Write the method of synthesis of benzofurane.

4. How are terpenes isolated from plants ?

Or

Write the synthesis and biological importance of thiazole.

5. What are the biological effects of Nicotine and Atropine ?

Or

Explain how Hoffman exhaustion methylation is useful in structural determination of alkaloids.

6. Describe the method of determination of quercetin.

Or

Discuss the synthesis of estrosterone and draw its structure.

Section-C

7. Explain the systematic nomenclature of Heterocyclic compounds based on Hantzsch-Widman system.

8. Give synthesis methods and medical applications of benzothiophenes.

9. Compare the reactivity of benzene, thiophene, furan and pyrrole in electrophilic substitution.

10. Write notes on the following :

(i) Role of alkaloids in plants

(ii) Synthesis of Haemoglobin

11. Write a note on structural determination and synthesis of cholesterol.