

**M.Sc. III Semester Degree Examination, April/May - 2024****CHEMISTRY****Chemistry of Heterocyclic compounds****(NEP)**

Time : 3 Hours

Maximum Marks : 70

Note : Answer *any five* of the following questions.

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| | 5x14=70 |
| 1. (a) Explain any two methods of preparation of pyrrole. | 5+5+4=14 |
| (b) Discuss the comparative basicity of pyridine and pyrrole. | |
| (c) Explain the nomenclature of heterocyclic ring system containing single hetero atom and give examples. | |
| 2. (a) What are mesoionic compounds ? Discuss its classification with examples. | |
| (b) Outline the Fischer indole synthesis. Discuss its mechanism. | 5+5+4=14 |
| (c) Discuss the electrophilic substitution reaction of quinoline. | |
| 3. (a) What are the steps involved in the structural elucidation of Citrol ? | 5+5+4=14 |
| (b) Outline the synthesis of papaverine. | |
| (c) Define alkaloids and classify them. | |
| 4. (a) How do you determine ring size of fructose and sucrose by Hirst method ? | |
| (b) Give a brief account on primary and secondary structures of proteins. | 5+5+4=14 |
| (c) Discuss the various steps involved in structure elucidation of Glucose. | |
| 5. (a) Establish the structure of PGE 1 molecule. | 5+5+4=14 |
| (b) Discuss the biosynthesis of flavonoids by acetate pathway. | |
| (c) Sketch the synthesis of Quercetin-3-Glucoside. | |
| 6. (a) Outline the synthesis of penicillin-G. | 5+5+4=14 |
| (b) Elucidate the structure of Cholesterol. | |
| (c) Discuss the synthesis and uses of Midazolam. | |
| 7. (a) Explain the importance of blocking reagents in peptide synthesis. | 5+5+4=14 |
| (b) Discuss the steps involved in structural elucidation of PGF 2. | |
| (c) Discuss the double helix structure of DNA. | |
| 8. (a) Outline the synthesis of Santonin. | 5+5+4=14 |
| (b) Explain the synthesis of peptide A-G-A using modified Resin. | |
| (c) Explain the functions of various types of RNA. | |

