A-1004

Total Pages : 3 **Roll No. .....**

CHE-553

Natural Product, Heterocyclic and Spectroscopy

M.Sc. Chemistry (MSCCH)

Examination 2026 (Feb.)

Time: 02:00 hrs **Max. Marks: 70**

Note : This paper is of Seventy (70) marks divided in to two (02) Section A and B. Attempt the questions contained in these sections according to the detailed instructions given therein. ***Candidates should limit their answers to the questions on the given answer sheet. No additional (B) answer sheet will be issued.***

Section-"A"

(Long Answer - type Questions)

Note:- Section 'A' contains Five (05) long-answer-type questions of Nineteen (19) marks each. Learners are required to answer any two (02) questions only.

(2x19=38)

P.T.O

1. Discuss the synthesis of reserpine. And give application of reserpine.
2. Describe any three in brief of the following:
   (a) Synthesis of pyrimidine.
   (b) Vitamin A_1 and A_2
   (c) Optical rotatory dispersion.
   (d) Chemical shift scale in 19F NMR.
3. (a) Draw the structures of Haemoglobin and Myoglobins. Explain their difference and functions.
   (b) Pyrrole is much more acidic than s-allylamine. Why?
4 Explain with Biosynthesis, structures and physiological role of Prostaglandines.
5. Describe in brief:
   (a) Biosynthesis of Shikmic acis
   (b) Synthesis of Thymine

Section-"B"

(Short -answer - type questions)

Note:- Section 'B' contains eight (08) short-answer type questions of Eight (08) marks each. Learners are required to answer any Four (04) questions only.

(4x8=32)

1. What are water-soluble and fat soluble vitamins? Explain the origin of the term vitamin.
2. What are the enzyme inhibitors? Discuss briefly about the types of enzyme inhibitors.
3. What are alkaloids? Discuss their classifications and uses.
4. Discuss the Diels-Alder reaction of oxazole with acetylenes and alkenes.
5. Write short notes on the following:
   (a) Sydnones
   (b) Dimroth rearrengment
6. Formulate the glycolysis of carbohydrates.
7. Describe briefly the following:
   (a) HOMO COSY
   (b) 2D INADEQUATE
8. Discuss medicinal importance and chemistry of benzofurans and quinoline.

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