

M.Sc Chemistry - 4th Semester**(2720)****Paper - Course-XXIV: Natural Products****Time Allowed: 2 hrs.****Max. Marks: 75****Note: Attempt any four questions. All questions are of equal marks.**

- 1a. Justify the meta orientation of hydroxal groups in naturally occurring phenols. 8.75
- 1b. Give biosynthesis of:
- i) Isopropyl pyrophosphate (IPP) 10
- ii) Geranyl Pyrophosphate (GPP)
2. Describe various degradation and synthesis methods used for the structure elucidation of Camphor 18.75
- 3a. Describe the synthesis and physiological significance of Oestrone. 8.75
- 3b. What is Progesterone? How it is synthesized from 10
- (i) Cholesterol (ii) Stigma sterol
- 4a. What is Nicotine? Prove chemically that N-methyl pyrrolidine moiety in case of Nicotine is linked to Pyridine ring through α -position and not through β -position. 10
- 4b. What are Chlorophyll-a and Chlorophyll-b? What is the structural difference between the two? How they can be identified in Laboratory? 8.75
- 5a. Explain the synthesis of Penicillin as carried out by Sheehan and others. 10
- 5b. What is insulin? Explain the amino acid sequence determination in case of insulin. 8.75
- 6a. What are prostaglandins? Describe their biological significance. Give Corey's synthesis of Prostaglandin E₂. 10
- 6b. What is α -helix? How it is formed and stabilized? 8.75
- 7a. What is mutarotation? Explain reasons due to which certain sugars like lactose show mutarotation while sugar like sucrose does not. 10
- 7b. Name the Sugars and Bases isolated from Nucleic acids. Also give their structure. 8.75
- 8a. What are nucleosides? How they are different from nucleotides? 8.75
- 8b. Describe in brief the methods for the determination of ring size in case of sugars. 10
