



**MANIPAL**  
ACADEMY of HIGHER EDUCATION  
(Institution of Eminence Deemed to be University)

Reg.No.

**DEPARTMENT OF SCIENCES, III SEMESTER M.Sc. (Chemistry)**  
**END SEMESTER EXAMINATIONS, DECEMBER 2023**  
**BIOORGANIC AND MEDICINAL CHEMISTRY [CHM6013]**  
**(CHOICE BASED CREDIT SYSTEM - 2021)**

Time: 3 Hours

Date: 2 / 12 / 2023

MAX. MARKS: 50

Note: (i) Answer ALL questions

(ii) Draw diagrams, and write equations wherever necessary

1A	Describe the detection of uric acid in blood and urine.	6	CO-1	BL-2
1B	With a suitable example explain coupled reactions in biological systems.	2	CO-1	BL-2
1C	Explain the facilitated diffusion involved in the passive transport mechanism of biological membranes.	2	CO-1	BL-2
2A	i) Explain the classification of enzymes with suitable reactions. ii) Describe the structure of transfer RNA	6	CO-2	BL-2
2B	List two differences between the following. i) Fibrous and globular proteins ii) Cerebroside and ganglioside	2	CO-2	BL-3
2C	Explain the mechanism of steroid hormones.	2	CO-2	BL-2
3A	Discuss the secondary structure of proteins. What are the effects of side chain on the secondary structure?	6	CO-2	BL-3
3B	Discuss the structure of lecithin.	2	CO-1	BL-2
3C	Justify the following statements; i) Hemoglobin has a quaternary level structure. ii) Casein is a conjugated protein.	2	CO-1	BL-4
4A	Mention any four methods each to improve the solubility of drugs. Discuss the role of steric features of drug on its biological function with suitable examples.	6	CO-3	BL-2
4B	Discuss the role of classical bioisosterism using Uracil as an example.	2	CO-3	BL-2
4C	Justify the following statements. i) Riboflavin is more active biologically compared to dichloro riboflavin. ii) Aspirin is readily absorbed in stomach.	2	CO-3	BL-3

<b>5A</b>	i) Explain the synthesis of Promethazine Hydrochloride. List the essential features in the chemical structure of phenothiazine antihistaminics. ii) Discuss the synthesis of paracetamol and aspirin. Why is aspirin regarded as the drug of choice in the treatment of fever?	6	CO-4	BL-2
<b>5B</b>	Discuss the importance of Chloramphenicol as an antibiotic.	2	CO-4	BL-2
<b>5C</b>	Give reasons for the following statements; i) Narcotic analgesics have several limitations compared to antipyretic analgesics. ii) Basal anesthetics are preferred to inhalation anesthetics.	2	CO-4	BL-3

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