



MANIPAL
ACADEMY of HIGHER EDUCATION
Institution of Excellence Deemed to be University

Reg.No.

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

Time: 3 Hours

Date: 23 / 12 / 23

MAX. MARKS: 50

Note: (i) Answer ALL questions

(ii) Draw diagrams, and write equations wherever necessary

1A	Describe the diacetyl monoxime and specific urease assays for quantifying urea in blood and urine.	6	CO-1	BL-2
1B	Differentiate between phagocytosis and pinocytosis (any 4 differences).	2	CO-1	BL-3
1C	Explain voltage and temperature gated channels associated with biological membrane transport.	2	CO-1	BL-2
2A	Discuss the primary and secondary level structures of proteins. Define Michaelis-Menten constant and its significance. How is it calculated?	6	CO-2	BL-3
2B	List two differences between the following. i) Bond and group specificity ii) A- and B-DNA	2	CO-2	BL-3
2C	Construct and discuss the structure of AMP.	2	CO-2	BL-2
3A	i) Write any two differences between Group I and II hormones. Explain the mechanism of group II hormone with a suitable sketch and mention two examples. ii) If the number of moles of Guanine and AT/GC ratio in <i>S. aureus</i> DNA are 6000,000 and 0.93, respectively, calculate the number of moles of Thymine.	6	CO-2	BL-3
3B	Discuss the structure of cephalin.	2	CO-2	BL-2
3C	Justify the following statements; i) Peptide bond is transplanar. ii) Lyases undertake catalysis by bond strain.	2	CO-2	BL-4

4A	Mention any of the four factors that affect the rate of absorption of a drug. Discuss the role of chelation of drugs in relation to biological activity with two suitable examples.	6	CO-3	BL-2
4B	Discuss the four primary receptor families.	2	CO-3	BL-2
4C	Differentiate between analogue and prodrug with appropriate examples.	2	CO-3	BL-3
5A	i) Discuss the ureide structure of four classes of anticonvulsants. ii) Discuss the synthesis and mechanism of action of methotrexate.	6	CO-4	BL-2
5B	List the different classes of antimalarials.	2	CO-4	BL-2
5C	Mention the cardinal requirements of antibiotics.	2	CO-4	BL-2
