MANIPAL ACADEMY of HIGHER EDUCATION
(Deemed to be University under Section 3 of the UGC Act, 1956)

Reg. No.										

DEPARTMENT OF SCIENCES, III SEMESTER M.Sc (CHEMISTRY)
END SEMESTER EXAMINATIONS, NOVEMBER 2018

BIOORGANIC AND MEDICINAL CHEMISTRY [CHM- 5014]
(REVISED CREDIT SYSTEM-2017)

Time: 3 Hours Date: MAX. MARKS: 50

Note: (i) Answer **ALL** questions
(ii) Draw diagrams, and write equations wherever necessary

1A. i) Explain the following quantification techniques;

a) Murexide test for uric acid in urine

b) Liebermann-Burchard test for cholesterol in blood

ii) Discuss the steps involved in protein sequencing by Edman degradation method.

1B. Discuss the secondary level structure of a protein.

1C. Differentiate between the following;

i) Messenger-RNA and transfer-RNA

ii) Isomerases and transferases

(6+2+2)

2A. i) Discuss the estimation of the following in blood;

a) Bilirubin by colorimetry b) Glucose by peroxidase method

ii) Explain the G-protein signaling mechanism in hormonal action.

2B. Discuss the structure of lecithin and galactocerebroside.

2C. What is Michaelis-Menten constant? What is its significance and how is it determined?

(6+2+2)

3A. i) What are second generation antihistaminics? Discuss the mechanism of action and structural aspects of Astemizole for its antihistaminic activity.

ii) Explain the structural features of thiamine pyrophosphate that enable it to catalyze various biochemical reactions.

3B. Explain relative and broad substrate specificities with appropriate examples.

3C. What are the advantages of NSAIDs? Discuss the synthesis and uses of Ibuprofen.

(6+2+2)

4A. i) List the four cardinal features of an antibiotic. Discuss the synthesis of phenoxymethylpenicillin.

ii) Discuss the role of chelates and redox potential in drug design with appropriate examples.

4B. Discuss the effect of geometrical isomerism on the biological activity of a drug with a suitable example.

4C. What are chaperons? Explain their role in protein synthesis.

(6+2+2)

5A. i) Discuss the synthesis of the following drugs;

a) Phenytoin sodium b) Methotrexate

ii) Give any four functions of nucleotides.

5B. Define the terms eutomer and distomer with an illustrative example.

5C. Justify the following statements;

i) K_m value of succinate dehydrogenase catalyzed reaction increases in presence of malonic acid.

ii) An apoenzyme cannot carry out its biological function.

(6+2+2)

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