Reg. No.										

MANIPAL
ACADEMY of HIGHER EDUCATION

DEPARTMENT OF SCIENCES, M.Sc. Chemistry
III SEMESTER END SEMESTER EXAMINATIONS, Jan 2021

SUBJECT: Bio-Organic and Medicinal Chemistry
[CODE: CHM-5104]

(REVISED CREDIT SYSTEM)

Time: 3 Hours Date: MAX. MARKS: 50

Note: a) Answer any five full questions. b) Write diagram or equations wherever necessary.

1A. i) Explain the G-protein signaling mechanism in hormonal action.

ii) What is Michaelis-Menten constant? What is its significance and how is it determined?

Explain metalloenzymes and metal-activated enzymes with one example each.

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

1C. Differentiate between the following;

i) Cerebroside and ganglioside

ii) Transferases and lyases

(6+2+2)

2A. i) Discuss dual specificity of enzymes with suitable examples.

ii) Explain the structure of guanosine diphosphate. Give any four functions of nucleotides.

2B. Give reason for the following statements;

i) Glycerol trilinoleate is a liquid at room temperature.

ii) Ethanol can be used as an antidote during methanol poisoning.

2C. What are chaperons? Explain their role in protein synthesis.

(6+2+2)

3A. i) Describe the different methods of improving the solubility of drugs and explain their importance.

ii) Discuss any three types of receptors. Explain Lock and key model of drug-receptor interaction.

3B. What are β-lactam and aminoglycoside antibiotics? Give an example for each.

3C. Differentiate between the following;

i) Agonist and antagonist
ii) Pharmacodynamics and pharmacokinetics

(6+2+2)

4A. i) Explain the term "pyrexia". Write the mode of action of antipyretics.

ii) Discuss the three stages of HIV in detail.

4B. Explain the significance of chelates in medicinal chemistry.

4C. What are the side effects of drug, paracetamol? Write its synthetic scheme.

(6+2+2)

5A. i) Describe the classification of drugs on the basis of their origin with a suitable example for each.

ii) Explain the mode of action of anti-cancer drugs in detail.

5B. List any two most widely used antihypertensive drugs. Explain the mode of action of anti-hypertensive agents.

5C. Explain why ATP is called as biological energy currency.

(6+2+2)

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