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, DECEMBER 2021

Bio-Organic & Medicinal Chemistry [CHM 6013]
(CBCS Scheme)

Time: 3 Hours | Date: 13 Dec 2021 | MAX. MARKS: 50

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

1A. Discuss the structural features of glycerophospholipids using Lecithin as an example.

1B. List any two differences between the following:
i) Fibrous and globular protein
ii) Native and denatured protein
iii) A and Z forms of DNA

1C. Explain with appropriate examples the following types of enzyme specificity;
i) Bond **ii)** Group **iii)** Absolute **iv)** Optical **(3+3+4)**

2A. Construct the structure of Uridine-5'-monophosphate from Uracil. Explain three ways by which chaperons assist in protein folding.

2B. Explain the mechanism of action of group-II hormones with a neatly labelled sketch.

2C. **i)** What is partition coefficient, as applied to drugs? How is it measured?
ii) Write the synthesis of the drug, carbamazepine. **(3+3+4)**

3A. Explain the synthesis and mode of action of the drug, halothane.

3B. Name any two antifertility drugs used for men. Explain the mode of action of levonorgestreol.

3C. Explain any four methods to improve the solubility of drugs in detail. **(3+3+4)**

4A. Describe the lock and key principle for drug-ligand interactions in detail

4B. Justify the following;
i) ATP is called as biological energy currency.
ii) Parenteral route of drug administration is preferred over oral in some cases.
iii) Saliva is considered as one of the potential diagnostic tool.

4C. i) Describe different oral routes of drug administration.
ii) Explain the procedure involved in the gastric fluid analysis. **(3+3+4)**

5A. Write the structure of the drug, atorvastatin. Explain its mode of action.

5B. Differentiate the following;

i) Intramuscular and subcutaneous injections
ii) Catabolism and anabolism
iii) Drug and Prodrug

5C. i) Write the structure of thiamine pyrophosphate. Mention two of its functions.
ii) Describe the procedure of pleural fluid analysis. **(3+3+4)**

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