파파리 리군 Manipal

Manipal University

Department of Sciences

IV SEMESTER M.Sc. (CHEMISTRY),

END SEMESTER EXAMINATIONS, June-July, 2016

SUBJECT: BIOORGANIC AND MEDICINAL CHEMISTRY (CHM – 704) REVISED CREDIT SYSTEM

Time: 3 Hours

Date: 28/06/2016

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer any five full questions.
- ✤ Missing data may be suitably assumed.

1A. Classify the drugs used for convulsive seizures based on the substitutions in ureide moiety. Explain the synthesis of Trimethadione.

1B. What are sphingophospholipids? Explain the structures of cephalin and lecithin.

Write any four functions of phospholipids.

1C. i) Differentiate between the following;

a) Metal activated enzymes & metalloenzymes

b) Absolute and relative substrate specificity

ii) What are the cardinal requirements of an antibiotic? Discuss the steps involved in the synthesis of Penicillin-V.

(3+3+4)

2A. Discuss the structure of proteins in four different levels.

2B. Explain the classification and mechanism of action of H₁-receptor antagonists. Describe

the synthesis of Benadryl. What are the advantages of second generation antihistamines?

2C. i) Define and mention the significance of Michaelis-Menten constant. How can it be determined experimentally?

ii) Give reasons for the following statements;

a) Proteins undergo denaturation on addition of detergents and urea.

b) Renin-angiotensin pathway plays a key role in cardiovascular diseases.

(3+3+4)

3A. Give any four differences between DNA and RNA. Explain the Watson & Crick model of DNA structure.

3B. Discuss the classification and two differences between antipyeretic and narcotic analgesics. Explain the synthesis and use of narcotic antagonists.

3C. i) What is meant by phase specificity of antineoplastic chemotherapeutics? Describe the synthesis and mechanism of action of methotrexate.

ii) Explain the synthetic route involved in the preparation of antimalarial drug, Chloroquine Phosphate.

(3+3+4)

4A. Describe one, two and three compartment open model systems of drug distribution in the body.

4B. Explain renal excretion in detail.

4C. Differentiate between the following;

i) Catabolism and anabolism

ii) Agonist and antagonist

(3+3+4)

5A. Explain the procedures for the estimation of the following;

i) Cholesterol in blood ii) Urea in urine iii) Creatinine in urine

5B. Describe the different methods of improving the drug solubility and explain their importance.

5C. Explain the significance of drug metabolism in medicinal chemistry. Discuss the inducers and inhibitors of drug metabolism.

(3+3+4)

6A. Describe the general classification of drugs with suitable examples.

6B. Explain the following;

i) Toxicological aspects of drug administration

ii) Biopharmaceutics

iii)Pharmacodynamics

6C. i) Explain enterohepatic circulation in detail.

ii) Describe the Charniere's theory of drug action.

(3+3+4)
