MANIPAL UNIVERSITY

Reg. No.

Deemed-to-be-University under Section 3 of the UGC Act, 1956

DEPARTMENT OF SCIENCES, M.Sc (Chemistry)
IV SEMESTER END SEMESTER EXAMINATIONS, APRIL 2017

SUBJECT: BIOORGANIC & MEDICINAL CHEMISTRY [CHM 704]

(REVISED CREDIT SYSTEM)

Time: 3 Hours Date: 22/04/2017 MAX. MARKS: 50

Note: (i) Answer all five questions.

(ii) Write equations and draw diagrams wherever necessary.

1A. Differentiate between the following
- a) Phospholipids & glycolipids
- b) Optical & reaction specificity of enzymes
- c) Hydrolytic & oxidative rancidity
- d) Competitive & Non-competitive inhibitors

1B. Which are the different classes of antihistamines? What are the advantages of second generation antihistaminics? Explain the action of Astemizole.

1C. What is transcription? Describe the structure of t-RNA with a neatly labelled sketch.

(4+4+2)

2A. Give reason for the following statements;
- a) The mechanism of protein denaturation varies with detergent and urea.
- b) Single stranded RNA do not obey Chargaff's rule.
- c) Glycine forms diketopiperazine at higher temperature.
- d) Basal anesthetics are advantageous over other anesthetic types for minor surgical procedures.

2B. Explain the general structure of different classes of anticonvulsant drugs. Describe the synthetic route for anticonvulsant Trimethadione and anticancer drug Methotrexate.

2C. Discuss the classification of lipids with appropriate examples.

(4+4+2)

3A. Explain the role of narcotic antagonists with a suitable example. Discuss the limitations of opiate analgesics. How are antipyretic analgesics- paracetamol and aspirin synthesized?

3B. How are group-I hormones different from group-II hormones? Explain the mode of action of Group-II hormones with a neatly labelled diagram.

3C. Explain saponification and iodine value of an oil. What are their significances?

(4+4+2)

4A. Differentiate between the following:

a) Epithelial & inhalation type drugs
b) Intramuscular & subcutaneous injections
c) Agonist & antagonist
d) Clinical toxicology and toxicokinetics

4B. a) What is dielectric constant as applied to drugs? Explain its significance.

b) How saliva can be used as a diagnostic tool? Explain with two illustrative examples.

4C. Describe Charnier's theory of drug action.

(4+4+2)

5A. Give the procedures for the estimation of the following in blood:

a) Cholesterol b) Urea c) Hemoglobin d) Uric acid

5B. What are prodrugs? Explain the methods with mechanisms to increase as well as to decrease the rate of hydrolysis of ester containing prodrugs.

5C. What is urinalysis? Explain any two physical characteristics of urine of a normal adult.

(4+4+2)

6A. Explain the following:

a) Enterohepatic circulation
b) Two compartment open model system of drug distribution.
c) Rectal route of drug administration
d) Metaphilic effect

6B. a) Describe the role of hydrogen bonding in a relation to the biological activities of a drug with illustrative examples.

b) Give reason; ATP is called as biological energy currency.

6C. Explain inducers and inhibitors of drug metabolism.

(4+4+2)

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