

IV B. Pharmacy II Semester Regular/Supplementary Examinations, April - 2018
BIOPHARMACEUTICS AND PHARMACOKINETICS

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
2. Answering the question in **Part-A** is Compulsory
3. Answer any **THREE** Questions from **Part-B**

PART -A

1. a) Explain the significance of structure of biological membrane in the transport of drugs. (4M)
- b) Write about plasma proteins responsible for binding of drugs. (4M)
- c) Discuss the importance of pH partition hypothesis. (4M)
- d) Define renal clearance and mention its significance. (3M)
- e) Mention the need for dose adjustment in renal failure. (3M)
- f) Write the role of C_{max} and T_{max} in bioavailability. (4M)

PART -B

2. a) Enumerate the mechanisms of drug transport with suitable examples. (8M)
- b) Discuss the role of physiological factors in drug absorption. (8M)
3. a) Explain the factors effecting the drug distribution. (8M)
- b) Write about factors influencing the protein binding of drugs. (8M)
4. a) Explain Loo-Riegelman method. (10M)
- b) A new drug was given in a single intravenous dose of 400 mg to an 80 kg adult male patient. After 6 hours, the plasma drug concentration was 3 mg/100 ml of plasma. Assuming that the apparent volume of distribution (V_d) is 10% of the body weight, compute the total amount of drug in the body fluids after 6 hours. What is the half life of this drug? (6M)
5. a) Explain Michaelis-Menten equation and discuss its significance. (7M)
- b) Explain method of residuals and write its merits and drawbacks. (9M)
6. a) Write about pharmacokinetic drug interactions citing suitable examples. (8M)
- b) What is clinical pharmacokinetics? Explain the application of clinical pharmacokinetics in dose adjustment in patients with hepatic failure. (8M)
7. a) Explain the design of single dose bioavailability studies. (8M)
- b) Explain the regulatory requirements for carrying out bioequivalence studies as per Drugs and Cosmetics Act. (8M)