



International Islamic University Chittagong

Department of Pharmacy

B. Pharm (Hon's) Program

Final Examination

Spring Semester 2019

Course Code: Pharm-3503

Course Title: Biopharmaceutics and Pharmacokinetics-I

Time: 2 hours 30 minutes

Full Marks: 50

(Answer of separate groups should be given in separate scripts. Figures on right margin indicate marks)

Group A *(Answer any two questions from the followings)* **Marks: 20**

1. a) Define drug distribution. Point out the distribution of drugs among different tissues of the body. 1+3
- b) Outline the factors affecting distribution of drugs. 3
- c) How does drug-protein binding affect pharmacological action of a drug? 3
2. a) Define and classify drug protein binding. 2
- b) What are the significances of drug protein binding? 3
- c) What is volume of distribution? Explain the effects of drug-protein binding on absorption and distribution. 4
3. a) Elucidate the kinetics of protein binding to the drug molecule. What would be the equation for protein with multiple binding sites? 5
- b) How to determine the binding constant and binding sites for a protein of unknown nature and amount? 5

Group B *(Answer any three questions from the followings)* **Marks: 30**

4. a) What is the basic difference between absolute and relative bioavailability. 3
- b) Define the terms -- generic name, brand name and chemical name. 3
- c) Mention the purpose of bioavailability study. 4
5. a) Explain the term bioavailability. 2
- b) You have been suffering from toothache but tetracycline hydrochloride is not available in the market. As a pharmacist what can you do? 3
- c) Mention the factors that influence the renal drug excretion. 5
6. a) Define drug clearance. Shows that clearance is the product of VD and k. 3
- b) Penicillin has a Cl_T of 15 mL/min. Calculate the elimination rate for penicillin when the plasma drug concentration, C_p is 2 µg/mL. 2
- c) Determine renal clearance by graphical methods. 5
7. a) What is biotransformation? Express the various phases of biotransformation reaction. 5
- b) Explain the Michaelis-Menten equation. 5