

BACHELOR OF PHARMACY (B. PHARM.) (CBCS - 2015 COURSE)
Final Year B. Pharm. Sem-VII : WINTER : 2021
SUBJECT: BIOPHARMACEUTICS & PHARMACOKINETICS

Day : Saturday
Date : 15-01-2022

W-13722-2021

Time : 02:00 PM-05:00 PM
Max. Marks: 60

N.B.

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
- 2) Figures to the right indicate **FULL** Marks.
- 3) Answers to the both sections should be written in **SEPARATE** answer books.

SECTION-I

- Q.1** Answer **ANY FIVE** of the following: **(10)**
- a) Classify drug transport mechanism.
 - b) Phenobarbital and Salicylic acid have almost the same $K_{o/w}$ but the former shows extensive distribution. Why?
 - c) Give the flow chart showing the different steps in biotransformation.
 - d) A protein bound drug is pharmacokinetically and pharmacodynamically inert. Explain.
 - e) Define total clearance and renal clearance and give its equations.
 - f) Explain interfacial barrier theory of drug dissolution.
- Q.2** a) Describe in detail various patient related factors affecting drug absorption. **(06)**
- b) Give an account of physicochemical factors influencing drug distribution. **(04)**
- Q.3** a) Explain the significance of protein drug binding. **(06)**
- b) Explain the chemical factors affecting biotransformation. **(04)**
- Q.4** Write a short note on **ANY TWO** of the following: **(10)**
- a) Factors affecting renal clearance
 - b) Physiological barriers to drug distribution
 - c) Salt form of drug

SECTION-II

- Q.5** Answer **ANY FIVE** of the following: **(10)**
- a) Give examples of zero, first and mixed order process.
 - b) What is meant by non-compartmental analysis? Give its advantages.
 - c) Define bioavailability. What are the objectives of bioavailability studies?
 - d) Name the methods used to calculate K_E from urinary excretion data.
 - e) What is the influence of K_a and K_E on C_{max} , t_{max} and AUC.
 - f) What are the advantages of urinary data over plasma data
- Q.6** a) Derive the pharmacokinetic parameters following administration of IV bolus assuming one compartment open model. **(06)**
- b) Discuss Wagner-Nelson method to obtain absorption rate constant K_a . **(04)**
- Q.7** a) Give detailed account of bioequivalence experimental study design. **(06)**
- b) Explain the pharmacokinetic based methods to determine bioavailability. **(04)**
- Q.8** Write a short note on **ANY TWO** of the following: **(10)**
- a) Compartment modeling
 - b) Methods to enhance bioavailability
 - c) IVIVC

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