Fourth Year Pharm. D : SUMMER - 2019

SUBJECT: BIOPHARMACEUTICS AND PHARMACOKINETICS

Day: Friday
Date: 19/04/2019

S-2019-4521

Time: 02.00 P.M. TO 05.00 PM
Max. Marks: 70

N.B:

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

SECTION - I

Q.1 **A)** Attempt **ANY FOUR** of the following: **(08)**

i) Explain the influence of gastric emptying on drug absorption.
ii) Enlist the different steps and reactions of biotransformation.
iii) Define total clearance and renal clearance. Give their equations.
iv) Explain drug related factors affecting protein binding.
v) Name the specialized barriers to distribution of drug.
vi) Differentiate between passive and active transport mechanism.

B) Explain the pre systemic metabolism **(03)**

Q.2 Explain in details the theories of dissolution. **(12)**

Q.3 **a)** Explain Phase I and Phase II metabolic reactions with suitable examples. **(07)**

b) Give an account of physicochemical factors influencing drug distribution. **(05)**

Q.4 Write short notes on **ANY THREE** of the following: **(12)**

a) Concept of renal clearance
b) pH-partition hypothesis
c) Significance of protein binding
d) Volume of distribution

SECTION - II

Q.5 **A)** Attempt **ANY FOUR** of the following: **(08)**

i) What is AUC and trapezoidal rule?
ii) Enlist the pharmacokinetic parameters.
iii) What is non-linear pharmacokinetics?
iv) What is zero order kinetics?
v) What are the objectives of bioavailability studies?
vi) Define drug effect and drug potency.

B) What are the various approaches to quantitative study of kinetic process of drug disposition? **(03)**

Q.6 Derive the equation to obtain the pharmacokinetic parameters for i.v. loading dose followed by i.v. infusion according to one compartment open model. **(12)**

Q.7 **a)** Differentiate between compartment modeling and physiological modeling. **(07)**

b) Elaborate on the study designs employed to establish bioequivalence. **(05)**

Q.8 Write short notes on **ANY THREE** of the following: **(12)**

a) Sigma minus method
b) Method of residuals
c) Methods of enhancement of bioavailability
d) Pharmacokinetic modeling

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