Fourth Year Pharm. D (SUPPLEMENTARY) : SUMMER - 2019

SUBJECT: BIOPHARMACEUTICS AND PHARMACOKINETICS

Day: Friday | Time: 02.00 P.M. TO 05.00 PM

Date: 05/07/2019 | **S-2019-4550** | 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) What is surface renewal theory?
ii) Define biotransformation and how does it differ from chemical stability
iii) What is blood brain barrier and placental barrier?
iv) Differentiate between plasma protein-drug binding and tissue –drug binding
v) What is entero hepatic cycling of drugs
vi) Give two reasons for higher solubility and better dissolution of salt forms of the drug in comparison to their free acidic or basic forms.

B) Discuss the limitations and significance of pH –partition hypothesis **(03)**

Q.2 Explain the influence of following physicochemical parameters on drug absorption **(12)**

a) salt form of the drug b) polymorphism

Q.3 **a)** Give an account of factors influencing renal clearance. **(07)**

b) Explain the factors influencing drug distribution. **(05)**

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

a) Bio activation and its significance
b) Volume of distribution
c) Kinetics of protein-drug binding
d) Manufacturing variables affecting drug absorption

SECTION - II

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

i) Define pharmacokinetics and clinical pharmacokinetics
ii) Define absolute and relative bioavailability
iii) Explain physiological modeling
iv) Explain the methods to determine AUC
v) Catenary pharmacokinetic model
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 equation for pharmacokinetic parameters after i.v. injection of a drug. Assume it follows first order kinetics and body behaves as a one compartment. **(12)**

Q.7 **a)** Explain various compartment models. **(07)**

b) Explain in detail Wagner – Nelson method and sigma minus method. **(05)**

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

a) Non-linear pharmacokinetics
b) Method of residuals
c) Methods of enhancement of bioavailability
d) Study designs in bioequivalence testing

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