DOCTOR OF PHARMACY
Fourth Year Pharm. D. : SUMMER : 2022
SUBJECT: BIOPHARMACEUTICS & PHARMACOKINETICS

Day : Friday
Date 13-May-2022 **S-5747-2022**
Time : 02:00 PM-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) What is pre systemic metabolism? Give its significance.
ii) A protein bound drug is pharmacokinetically and pharmacodynamically inert. Explain.
iii) What is perfusion rate and how does it affect distribution?
iv) Write the Biopharmaceutics Classification System for drugs with suitable examples.
v) Explain salivary cycling of drugs.
vi) Write the Fick's first law of diffusion.

B) Write the sequence of events in the absorption of drugs from orally administered solid dosage form. **(03)**

Q.2 Explain in detail about mechanism of drug absorption. **(12)**

Q.3 **a)** Explain pH-partition hypothesis and give its significance. **(07)**

b) Give an account of the barriers to drug distribution. **(05)**

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

a) Drug metabolizing Enzymes
b) Factors affecting renal clearance
c) Theories of drug dissolution
d) Significance of protein binding

SECTION - II

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

i) Highlight the disadvantages of compartment modeling.
ii) Define pharmaceutical equivalents and bioequivalents.
iii) What is dosage regimen and therapeutic window?
iv) What is elimination half life?
v) Define drug effect and drug potency.
vi) Enlist various approaches used for quantitative study of kinetic process of drug disposition.

B) Define pharmacokinetics. Name and define the three pharmacokinetic parameters that describe a typical plasma level- time curve after oral administration. **(03)**

Q.6 Derive the equations for the pharmacokinetic parameters for i.v. infusion according to one compartment open model. **(12)**

Q.7 **a)** What are the different pharmacokinetic models? Give detail account of the same. **(07)**

b) What are the reasons for poor bioavailability? What are the approaches to improve bioavailability? **(05)**

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

a) Determination of K_E from urinary excretion data.
b) Feathering method for estimation of absorption rate constant.
c) Sigma minus method
d) Bioequivalence studies

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