FOURTH YEAR PHARM. D : SUMMER - 2018
SUBJECT : BIOPHARMACEUTICS & PHARMACOKINETICS

Day : **Tuesday** Time : **02.00 P.M. TO 05.00 P.M.**
Date : **17/04/2018** **S-2018-4042** Max. Marks : 70

N.B.

1) Q.1 and Q.5 are **COMPULSORY.** Out of the remaining questions solve any **TWO** questions from each section.
2) Figures to the right indicate **FULL** marks.
3) Answer to both the sections should be written in **SEPARATE** answer book.

SECTION - I

Q.1 **a)** Answer any **FOUR** questions: **(08)**
i) What is surface renewal theory?
ii) Enlist the different steps and reactions of biotransformation.
iii) What is placental barrier?
iv) Explain drug related factors affecting protein binding.
v) What is Biopharmaceutics drug disposition classification system?

b) Explain drug binding to Human Serum Albumin. **(03)**

Q.2 Discuss Phase – I and Phase II reactions in drug metabolism. Explain in detail first-pass effect. **(12)**

Q.3 **a)** Discuss an account of factors affecting drug absorption. **(07)**
b) Give an account of factors influencing renal clearance. **(05)**

Q.4 Write short note on any **THREE:** **(12)**
a) Volume of distribution and its significance
b) Enterohepatic cycling
c) pH partition hypothesis and its significance in drug absorption
d) Concept of clearance

SECTION - II

Q.5 **a)** Answer any **FOUR** of the following: **(08)**
i) What is AUC and trapezoidal rule?
ii) Give the disadvantages of compartment modeling.
iii) Explain elimination half-life.
iv) What is first order kinetics?
v) Define absolute and relative bioavailability.

b) If the plasma concentration of viomycin after i.v. bolus administration was found to be 10 and 55 mcg/ml at 2 and 4 hours respectively, assuming one compartment kinetics, calculate $t_{1/2}$ and C_0. **(03)**

Q.6 Explain in detail the mathematical treatment to obtain the pharmacokinetic parameters K_E and K_a following oral administration of a drug assuming one compartment open model and first order kinetics. **(12)**

Q.7 **a)** Explain in detail in vitro drug dissolution testing methods. **(07)**
b) Discuss design of protocols and statistical treatment in bioequivalence testing. **(05)**

Q.8 Write short note on any **THREE** of the following: **(12)**
a) Sigma minus method
b) Non-linear pharmacokinetics
c) Pharmacodynamic methods to determine BA
d) Methods of residuals

* * *