FOURTH YEAR PHARM. D (SUPPLEMENTARY) : SUMMER - 2018

SUBJECT : BIOPHARMACEUTICS & PHARMACOKINETICS

Day : **Friday**
Date : **06/07/2018**

S-2018-4071

Time : **02.00 P.M. TO 05.00 PM**
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 presystemic metabolism? Give its significance.
ii) Explain the influence of gastric emptying on drug absorption.
iii) What is perfusion rate and how does it affect distribution?
iv) Influence of molecular weight on excretion behavior of drugs.
v) Explain drug related factors affecting protein binding.

b) Explain Biopharmaceutics drugs disposition classification system. **(03)**

Q.2 Discuss various barriers for distribution of drugs. Explain kinetics of drug protein binding. **(12)**

Q.3 **a)** Explain concept of renal clearance. Discuss various factors affecting renal excretion. **(07)**

b) Discuss various physico-chemical factors affecting absorption of drug. **(05)**

Q.4 Write short note on any **THREE:** **(12)**
a) Theories of drug dissolution
b) Enterohepatic cycling
c) Drug protein binding
d) First pass effect

SECTION - II

Q.5 **a)** Answer any **FOUR** of the following: **(08)**
i) What is zero order kinetics?
ii) Give some uses of pharmacokinetic models.
iii) Define clearance, total body clearance and organ clearance.
iv) Define pharmaceutical equivalence and bioequivalence.
v) What is nonlinear pharmacokinetic?

b) The half-life for first order photolysis of Cefotaxime solution containing 150 mg drug is 50 min. How long will it take for the drug to decompose to 20% of its original amount? **(03)**

Q.6 Derive the equation to obtain the pharmacokinetic parameter for i.v. infusion with loading dose assuming one compartment open model. **(12)**

Q.7 **a)** Explain the approaches to improve the bioavailability of a BCS Class II drug. **(07)**
b) Elaborate on the study design employed to establish bioequivalence. **(05)**

Q.8 Write short note on any **THREE** of the following: **(12)**
a) Statistical moment theory
b) Methods of enhancement of bioavailability
c) Methods of residuals
d) IVIVC

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