

Total No. of printed pages = 4

PY 134104

Roll No. of candidate

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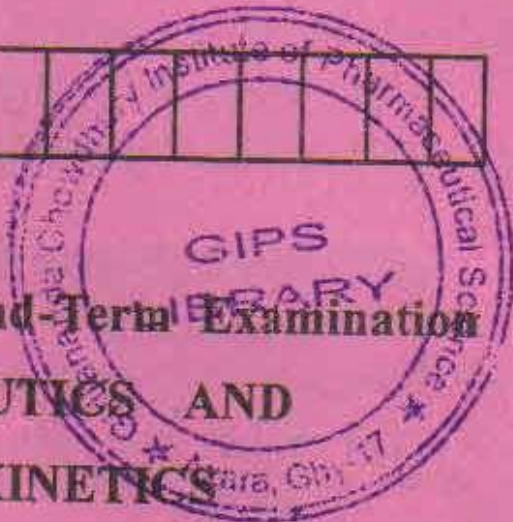
SCANNED

2016

M. Pharm 1st Semester End-Term Examination

BIOPHARMACEUTICS AND

PHARMACOKINETICS



Full Marks -100 Pass Marks - 35 Time - Three hours

The figures in the margin indicate full marks for the questions.

1. Define any *five* of the following terms :

2×5=10

- (a) Apparent volume distribution
- (b) BCS system of classification
- (c) Biological half life
- (d) Bioequivalence
- (e) Total clearance
- (f) % of drug metabolised.

2. Briefly answer any *ten* of the following questions :

3×10=30

- (a) Explain the 'mean residence time'.

[Turn over

- (b) What is the importance of salivary excretion of drugs ?
- (c) What is 'first-pass metabolism' ? Explain its clinical significance.
- (d) What do you mean by pharmacokinetic drug interaction ?
- (e) What are the objectives of bioavailability studies ?
- (f) What are the major parameters studied in the urinary excretion data ?
- (g) Enlist the methods to enhance the bioavailability through enhancement of drug solubility.
- (h) What is plasma level time curve ?
- (i) The dose of amoxicillin capsule was 500 mg and the AUC was 50.9 mcg \cdot hr/L. The dose of suspension was 500 mg and the AUC is 61.93 mcg \cdot hr/L. Calculate the relative bioavailability of capsule to the oral suspension.
- (j) What is enterohepatic cycle ?
- (k) Briefly mention influence of alcohol, smoking and food on drug action.

(1) What is pharmaceutical equivalence ? What are the criteria to be considered for determination of pharmaceutical equivalence ?

3. Write short notes on any *four* : $5 \times 4 = 20$

(a) Physiological barrier to drug distribution.

(b) Limitations of multi-compartmental analysis.

(c) Apparent volume of distribution.

(d) Statistical moment theory.

(e) Chronopharmacokinetic.

(f) Open and closed compartments model.

4. Answer any *two* of the following questions :

$5 \times 2 = 10$

(a) Explain pharmacokinetic model and their objectives.

(b) Write the procedure involved in the determination of elimination rate constant using urinary excretion data.

(c) Explain Wagner-Nelson method. Write about its merits and demerits.

5. Answer any *three* of the following questions :
10×3=30

- (a) What is capacity limited kinetics ? Explain the causes of non-linearity. Discuss the application of Michaelis-Menton equation in non-linearity.
- (b) What are the factors affecting drug absorption? Discuss the Loo-Riegelman method for determination of absorption rate constant.
- (c) Discuss the kinetics of protein binding. How protein binding affects drug distribution ?
- (d) The following data is obtained after a single dosage of a drug taken by extravascular route. Then, calculate elimination rate constant (K_E) and half life ($t_{1/2}$).

Time (hrs.)	0	1	2	3	4	5	6	7	8
Drug concentration ($\mu\text{g/ml}$)	0	7	10	5	2.5	1.25	0.6	0.2	0.1