



## Sessional II (Even) Semester Examination May 2025

Roll no.....

Name of the Course: B.Pharm

Semester: VI

Name of the Paper: Biopharmaceutics & Pharmacokinetics

Paper Code: BP-604T

Time: 1.5 hour

Maximum Marks: 30

### Note:

- (i) This question paper contains three sections
- (ii) All the sections are compulsory

### Section-A

#### MULTIPLE CHOICE QUESTION

10 X 1 = 10 MARKS

S.NO	CONTENTS	Cos
1.	Which parameter is calculated using the formula: $0.693/KE$ ? A. $V_d$ B. $K_a$ C. $t_{1/2}$ D. AUC	CO3
2.	The relationship between clearance, $KE$ , and $V_d$ is: A. $Cl_t = KE / V_d$ B. $Cl_t = V_d / KE$ C. $Cl_t = V_d \times KE$ D. $Cl_t = KE / Cl_t$	
3.	What is the main difference between compartmental and non-compartmental models? A. Non-compartmental models require complex mathematics A. Compartmental models do not use any assumptions B. Non-compartmental models do not assume a specific compartment structure C. Compartmental models are purely theoretical	
4.	Physiological models differ from compartmental models because they: A. Are more abstract B. Do not use real organ data C. Represent actual anatomical and physiological structures D. Are easier to compute	
5.	In a one-compartment open model, drug elimination occurs from: A. A separate peripheral compartment B. Only after the drug reaches the kidney C. The central compartment directly D. Outside the body without metabolism	
6.	In the two-compartment model, the initial rapid decline in drug concentration represents: A. Elimination B. Absorption C. Distribution phase D. Steady state	CO4
7.	The biexponential equation in a two-compartment model includes terms for: A. One exponential decay B. Absorption only C. Distribution and elimination D. Constant plasma levels	



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8.	The accumulation factor depends on: A. Clearance only B. Half-life and dosing interval C. Dose size only D. Route of administration
9.	To maintain steady-state concentration, the maintenance dose is calculated based on: A. Bioavailability and clearance B. Elimination rate only C. Half-life alone D. Volume of distribution
10.	The equation for loading dose is: A. $Dose = C_{ss} \times Cl_t$ B. $LD = C_{ss} \times V_d / F$ C. $LD = V_d / C_{ss}$ D. $LD = Cl_t \times K_a$

**Section B**

**Short Questions: Attempt any TWO questions.**

**2x5 = 10 marks**

SN	QUESTIONS	CO's
1.	Explain about the Wagner-Nelson method for the determination of absorption rate constant.	CO 3
2.	Explain loading and maintenance dose along with its calculation.	CO 4
3.	Enlist various pharmacokinetics model. Give the difference between compartment and non-compartment model.	CO3

**Section C**

**Long questions: Attempt any ONE questions**

**1x10 = 10 marks**

SN	QUESTIONS	CO's
1	Explain the one-compartment open model with IV bolus administration and calculate various pharmacokinetics parameter.	CO3
2	Describe the two-compartment open model for IV bolus injection.	CO4