GUJARAT TECHNOLOGICAL UNIVERSITY
PHARM D YEAR-4/ PHARM.D (PB) YEAR-1 EXAMINATION – SUMMER -2024

Subject Code: 848805/818905   **Date:16/05/2024**
Subject Name: Biopharmaceutics and Pharmacokinetics
Time: 10:30AM TO 01:30PM   **Total Marks: 70**
Instructions:
1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Write a note on Michaelis Menten equation for estimation of Km and Vmax.	**06**
	(b)	Discuss causes of non - linearity with examples.	**04**
	(c)	Write a note on Statistical moment theory.	**04**
Q.2	**(a)**	Write a note on Mammillary and Catenary Model.	**06**
	(b)	Discuss merits and demerits of non-compartmental pharmacokinetics.	**04**
	(c)	Write a note on Physiological Pharmacokinetic model.	**04**
Q.3	**(a)**	Define Bioavailability. Explain various methods used for determination of Bioavailability.	**06**
	(b)	Write a note on elements of Bioavailability study protocol	**04**
	(c)	Discuss Latin square design in Bioequivalent study	**04**
Q.4	**(a)**	Define Drug Absorption. Enumerate various factors influencing GI absorption of a drug. Discuss Pharmaceutical factors in detail.	**06**
	(b)	Discuss various barriers of Drug Distribution.	**04**
	(c)	Explain Passive Diffusion in detail.	**04**
Q.5	**(a)**	Explain One compartment open model for IV infusion.	**06**
	(b)	Discuss the factors affecting renal excretion.	**04**
	(c)	Define: (1) Peak plasma concentration (2) Area under the curve (3) Minimum effective Concentration (4) Duration of action	**04**
Q. 6	**(a)**	Explain Wagner Nelson method for computing absorption rate constant.	**06**
	(b)	Explain two compartment open model for IV bolus administration.	**04**
	(c)	Write a note on Apparent volume of distribution and its significance.	**04**
Q.7	**(a)**	How Multiple dose regimen for IV bolus is determined?	**06**
	(b)	How elimination rate can be determined using Urinary Excretion Data?	**04**
	(c)	Describe any four methods to enhance the bioavailability through enhancement of Dissolution rate.	**04**

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