Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM - SEMESTER–6 EXAMINATION – WINTER -2023

Subject Code: BP604TT **Date: 12/12/2023**

Subject Name: Biopharmaceutics and Pharmacokintetics

Time: 02.30 p.m. to 5.30 p.m. **Total Marks: 80**

Instructions:

1. **Attempt any five questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Discuss the objectives and factors affecting drug absorption through oral route.	**06**
	(b)	What is apparent volume of distribution. Discuss the influence of protein binding on apparent volume of distribution.	**05**
	(c)	Discuss Michaelis-Menten Equation.	**05**
Q.2	**(a)**	Define following terms: Absolute bioavailability, Relative Bioavailability, Bioequivalence.	**06**
	(b)	Write a short note on kinetics of protein-drug binding.	**05**
	(c)	Briefly describe factors affecting distribution of drug.	**05**
Q.3	**(a)**	Introduce the concept of IVIVC. Discuss BCS based biowaivers in IVIVC briefly.	**06**
	(b)	Write a short note on non-renal excretion of drugs.	**05**
	(c)	Define high soluble and high permeable as per BCS classification. Enumerate various methods for improvement of dissolution rates of poorly soluble drug.	**05**
Q.4	**(a)**	Explain Latin crossover design in bioequivalence studies.	**06**
	(b)	Explain briefly what is compartmental model. Explain Catenary and Mammillary compartment models in detail	**05**
	(c)	Describe the method of residuals for determination of absorption rate constant.	**05**
Q.5	**(a)**	Write a note on PBPK models.	**06**
	(b)	Enumerate USP dissolution apparatus along with examples of relevant dosage forms evaluated in each dissolution apparatus.	**05**
	(c)	Explain Wagner nelson method in detail.	**05**
Q. 6	**(a)**	Discuss briefly the concept of loading dose and maintenance dose.	**06**
	(b)	Write a brief note on two compartment open model.	**05**
	(c)	Write a note on factors affecting protein binding with suitable examples.	**05**
Q.7	**(a)**	Explain the factors causing non linearity in pharmacokinetics in drugs.	**06**
	(b)	Explain merits and demerits of non-compartmental pharmacokinetics.	**05**
	(c)	Differentiate between plasma-protein drug binding and tissue-drug binding.	**05**

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