

Enrollment No./Seat No.:

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**PHARM.D. - YEAR - IV EXAMINATION - WINTER 2025**

**Subject Code: 848805**

**Date: 25-11-2025**

**Subject Name: Biopharmaceutics & Pharmacokinetics**

**Time: 10:30 AM TO 01:30 PM**

**Total Marks: 70**

**Instructions**

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

	<b>Marks</b>
<b>Q.1 (a)</b> Enlist various mechanism of drug transport. Write a detailed note on active transport process.	<b>06</b>
<b>(b)</b> Discuss various factors affecting drug absorption through GIT.	<b>04</b>
<b>(c)</b> Discuss various barriers of Drug Distribution.	<b>04</b>
<b>Q.2 (a)</b> Explain Catenary and Mammillary compartment models in detail.	<b>06</b>
<b>(b)</b> Define: 1) Therapeutic window 2) Onset of action 3) Minimum effective concentration 4) Maximum safe concentration	<b>04</b>
<b>(c)</b> Write a note on Physiological Pharmacokinetic model.	<b>04</b>
<b>Q.3 (a)</b> Explain the one-compartment open model of pharmacokinetics. How does this model apply to intravenous bolus administration?	<b>06</b>
<b>(b)</b> Define clearance and write about renal clearance in detail.	<b>04</b>
<b>(c)</b> Write a note on volume of distribution.	<b>04</b>
<b>Q.4 (a)</b> Explain the two-compartment open model with examples of drug administration routes.	<b>06</b>
<b>(b)</b> Describe the method of residuals for determination of absorption rate constant	<b>04</b>
<b>(c)</b> Write note on Loo Riegelman Method.	<b>04</b>
<b>Q.5 (a)</b> Discuss the effect of size of drug dose and frequency of administration on design of a dosage regimen.	<b>06</b>
<b>(b)</b> Write note on statistical moment theory.	<b>04</b>
<b>(c)</b> How mean residence time is estimated for one compartment?	<b>04</b>
<b>Q.6 (a)</b> Derive Michalis menten equation and give its limitation.	<b>06</b>
<b>(b)</b> Write note on causes of non-linearity.	<b>04</b>
<b>(c)</b> What is IVIVC? Write a note on Levels of IVIVC.	<b>04</b>
<b>Q.7 (a)</b> Explain various methods used for enhancement of bioavailability.	<b>06</b>
<b>(b)</b> Explain Wagner nelson method in detail.	<b>04</b>
<b>(c)</b> Define bioequivalence. Explain Latin crossover design in BE studies.	<b>04</b>

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