Seat No.: _____ Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM.-SEMESTER–VIII- EXAMINATION –SUMMER-2017

Subject Code: 2280001 **Date: 26/04/2017**

Subject Name: Dosage Form Design- II

Time: 10:30 AM to 01:30 PM **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)	Describe bioerodible and combination of diffusion dissolution system with examples.	**06**
	(b)	Discuss physicochemical factors to be considered for oral controlled release system.	**05**
	(c)	Describe the ideal requirements for sustained release formulations. Discuss selection criteria of polymers used in novel parenteral formulations with examples.	**05**
Q.2	(a)	Write a note on: Matrix system, Reservior system.	**06**
	(b)	Write a note on various site specific drug delivery systems with examples of suitable drug candidate.	**05**
	(c)	Describe formulation and evaluation of liposomes.	**05**
Q.3	(a)	Describe evaluation of transdermal drug delivery system.	**06**
	(b)	Enlist causes for non-linearity. Write Michaelis Menten equations for different plasma level concentration.	**05**
	(c)	Write detail note on “Ocusert”.	**05**
Q.4	(a)	Explain with examples with reference to CDDS: porosity and tortuosity, erodible and non-erodible.	**06**
	(b)	Explain calculation of loading and maintenance dose with examples.	**05**
	(c)	Write note on formulation and evaluation of microspheres.	**05**
Q.5	(a)	Write definition and scope of Clinical Pharmacokinetics. Discuss dosage adjustment in renal failure patients.	**06**
	(b)	Write rationales for gastro-retentive drug delivery. Explain expandable approach.	**05**
	(c)	Derive equations for first and zero order kinetics.	**05**

Q. 6	(a)	Derive equations for absorption rate constant using Wagner- Nelson and Loo-Riegelman method.	**06**
	(b)	Describe various formulation approaches in brief for transdermal drug delivery system.	**05**
	(c)	Theophylline is effective in the treatment of bronchitis at blood level of 10-20µg/ml, i.e., therapeutic range. Theophylline follows first order elimination kinetics. Average $t_{1/2}$ is 3.4 hour and range is 1.8 to 6.8 hour. The average volume of distribution is 30.Litre. Calculate upper and lower limits of clearance for theophylline.	**05**
Q.7	(a)	Explain: First pass effect, Hepatic clearance, Volume of distribution.	**06**
	(b)	Discuss Pharmacokinetic drug interactions with examples. Explain its importance in combination therapy.	**05**
	(c)	A 70kg patient is given oubain by i.v. infusion at a rate of 0.1 µg/ml. The drug has a half-life of 22 hours and the desired steady state plasma concentration is 0.0002 µg/ml. Assuming the drug disposition as one compartment open model. Calculate time required to reach 90 % Css and apparent volume of distribution.	**05**

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