

**FACULTY OF PHARMACY****M. Pharmacy (Pharmaceutics) II-Semester (PCI) (Main) Examination,  
August 2019****Subject : Advanced Biopharmaceutics and Pharmacokinetics****Time: 3 Hrs****Max. Marks: 75****Note:** Answer any Five Questions. All Questions Carry Equal Marks.

1. (a) Explain in detail various factors affecting dissolution. 10  
(b) Write a note on Biopharmaceutics classification system 5
2. (a) Explain various causes of nonlinearity. Write Michaelis-Menten equation and explain the terms there in 8  
(b) Write important characteristics of carrier-mediated transport. Compare facilitated diffusion and active transports 7
3. Write in detail about:  
(a) Clearance 5  
(b) Physiological model 5  
(c) Absolute & relative bioavailability 5
4. (a) List compendial methods of dissolution. Explain alternative methods of dissolution testing 8  
(b) Write in detail about in vitro-in vivo correlation 7
5. (a) Write the significance of absorption rate constant. How do you determine  $K_a$  by Wagner-Nelson method, 8  
(b) Explain various methods to study drug permeability 7
6. (a) Oral bolus dose: 10mg. Drug follows one-compartment model, assume that drug is 80% absorbed. Following is blood data.

Time (hrs)	0.25	0.5	0.75	1.00	2	4	6	10	14	20
Concentration (ng/ml)	2.83	5.43	7.75	9.84	16.2	22.15	23.01	19.09	13.9	7.97

Determine elimination constant,  $K_a$ ,  $t_{1/2}$ ,  $t_{max}$ ,  $C_{max}$ ,  $V_d$  and Clearance

7. (a) Explain pharmacokinetic drug interactions with examples 8  
(b) Write a note on biosimilars 7
8. (a) Discuss briefly the influence of pharmaceutical excipients on drug bioavailability 7  
(b) Explain the application of pharmacokinetics in design of modified release dosage forms 8

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