Time: 3 hours **Marks: 70**

Please check whether you have got the right question paper.

N.B: (1) All questions are **compulsory**.
(2) Figures to the right indicate **full marks**.
(3) **Use of scientific calculator is permitted.**

Q.1		Answer the following:	
	a.	Define Distribution.	**2**
	b.	Comment on bioavailability from buccal route of drug absorption.	**2**
	c.	Give the reasons for a lower volume of distribution of a drug than volume of plasma.	**1**
	d.	Define enzyme inhibition with a suitable example.	**2**
	e.	What is enterohepatic cycling?	**2**
	f.	State the BCS Classification.	**2**
	g.	State disadvantages of compartment modelling.	**2**
	h.	Compare absolute and relative bioavailability.	**2**
Q.2	a.	State the characteristics of primary active transport of drugs.	**4**
	b.	Explain in brief the pH partition hypothesis. What are assumptions on which it is based?	**4**
	c.	Discuss three significant factors that influence gastric emptying.	**3**
Q.3	a.	How do the various types of tablet dosage forms influence drug bioavailability.	**3**
	b.	Write in detail binding of drugs to human serum albumin.	**4**
	c.	Write a short note on rate of excretion method for urine analysis after IV administration.	**4**
		OR	
		Elaborate on the causes of non-linearity in drug absorption and distribution.	**4**
Q.4	a.	Describe Phase I reductive reactions.	**4**
	b.	Explain briefly concepts of clearance.	**3**
	c.	Discuss two important factors that affect renal excretion.	**4**
Q.5	a.	Explain the Film theory for drug dissolution.	**4**
	b.	Enlist dissolution rate testing apparatus official in the USP with an example of dosage form to be evaluated in each of them.	**3**
	c.	Discuss any four methods of bioavailability enhancement by accelerating drug solubility and dissolution.	**4**
		OR	
		Describe Latin square design for crossover Bioequivalence studies.	**4**

Q.6 a. Draw the plasma concentration –time profile and discuss any three parameters. **4**

OR

How will you determine absorption rate constant by method of residuals? **4**

b. The pharmacokinetics of plasma drug concentration curve for drug A given by IV bolus (Dose = 200mg) fits one compartment open model. The equation of the curve that fits the data is :

$C = 76\ e^{-0.46t}$

Calculate the following:

i.) Half life and volume of distribution **01**

ii.) Clearance and AUC(0 to ∞) **01**

iii.) The plasma drug concentration after 7 hrs **01**

iv.) Time required to eliminate 75% of the dose **02**

v.) Amount remaining in the body after 3 hours **02**
