Q.P. Code : 717500

(3 Hours) **[Total Marks : 70**

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

1. Answer the following: **15**
   (a) Define distribution **2**
   (b) Stomach is not the principal site of drug absorption **2**
   (c) Chloroquine has volume of distribution approximately 15000 liters. Explain. **1**
   (d) What is enzyme auto-induction? **2**
   (e) How are drugs excreted through pulmonary route? **2**
   (f) How do you classify drug as highly soluble as per BCS? **2**
   (g) What are the assumptions of one compartment model? **2**
   (h) Differentiate between absolute and relative bioavailability. **2**

2. (a) Discuss the characteristics of passive diffusion. **4**
   (b) How do salt forms of drugs show better dissolution and absorption? **4**
   (c) What is the effect of gastro intestinal pH on drug absorption? **3**

3. (a) How does the compression force employed in tabletting affect absorption of drugs? **3**
   (b) What are the physiological barriers to distribution of drugs. Discuss blood-brain barrier. **4**
   (c) Discuss sigma minus method of urine analysis after IV administration. **4**

   OR

   Write a note on Michaelis Menten Kinetics.

4. (a) Why is glucuronidation the commonest and most important of phase II reactions? **4**
   (b) How does the hepatic blood flow affect hepatic clearance of the drugs? **3**
   (c) Enlist various factors affecting renal clearance of drug. Discuss any one in detail. **4**

5. (a) How does polymorphism affect the dissolution of drugs. 4

(b) Describe dissolution rate study using Apparatus I as per I.P. 3

(c) How do you measure bioavailability using plasma level-time profile. 4

OR

What are the different bioequivalence experimental study designs. Discuss any one.

6. (a) Describe all the pharmacokinetic parameters after oral administration of drugs. 4

OR

Describe all the pharmacokinetic parameters following IV administration of drugs.

(b) An intravenous bolus dose(150mg) of a drug following one compartment kinetics gave an extrapolated concentration at zero time of 35 mg/L and a K_E value of 0.91hr^{-1}. Calculate

(i) Volume of distribution 1

(ii) Half Life 1

(iii) AUC (zero to infinity) 1

(iv) The amount eliminated from the body after 8 hours 2

(v) Time required to eliminate 70% of the dose. 2