Jadavpur University
Department of Pharmaceutical Technology
Kolkata-700032.

M.Pharm (IP)/ 1st year/2nd Sem/Time 3 hrs/ FM 75/ 2025

Course: Advanced Biopharmaceutics & Pharmacokinetics **Code: MIP 201T**

Note: 1. Answer ALL the questions.
2. Question 1 is Compulsory.

1. Answer the following questions. 10x2M=20 Marks

i. Give the composition of cell membrane.
ii. Acidic drugs are best absorbed from which part of the GIT?
iii. Which form of Chloramphenicol is more water soluble & why?
iv. State the rate determining step for absorption of hydrophilic and lipophilic drug with example.
v. Give the name of different approaches for pharmacokineic analysis of experimental data.
vi. Name the different methods available for bio-availability and bio-equivalence study.
vii. How absolute bioavailability can be defined?
viii. Define refernce listed drug.
ix. Who proposed BCS classification system and define high solubility according to BCS classification?
x. Give one examples of in vitro binding study as suggested by FDA.

Short Answer Question **7 x 5Marks = 35Marks**

(Answer 7 out of 9)

2. Write a note on Thalidomide disaster.
3. Major site for drug absorption is Small intestine-----explain.
4. Enlist the dissolution test apparatus as per IP & USP with their applications.
5. Describe the various pharmacokinetic & pharmacodynamic parameters from plasma level-time curve.
6. Define dosage regimen, therapeutic window, MRT, V_d & clearance.

[Turn over

7. Prove mathematically that when an i.v loading dose followed immediately by a constant rate infusion, the plasma concentration remains steady as long as the infusion is continued.
8. A drug is given by i.v infusion. The $t_{1/2}$ is 22 h and V_d is 15.7 Ltr and the desired steadt-state plasma conc. Is 0.0002 mcg/ml. Assuming one compartment kinetics, calculate –
   a). The infusion rate to achieve desired C_{ss}.
   b). The loading dose to attain C_{ss} rapidly.
9. The plasma conc. of a drug after i.v bolus administration was 10 and 5.5 mcg/ml at 2 h and 4 h. Assuming one compartment kinetics calculate –
   a) Half-life of the drug.
   b) Drug conc. in plasma at time zero.
10. Write short note on sink condition.

Long Answer Questions. **2 x 10M = 20 Marks**

(Answer 2 out of 3)

11. Discuss in vivo measurement of active moiety or moieties in biological fluid through pharmacokinetic study.
12. How Bio-equivalence Studies can be done for new drug development.
13. Discuss on cross over study design, replicate cross over study design and parallel study design epmloyed for bioequivalne study. 4.5+2.5+3