

7th SEMESTER

PHARMACEUTICS-VI (Biopharmaceutics & Pharmacokinetics)

PH. 7.1 THEORY

3 hours/ week

UNIT -I

1. Introduction to Biopharmaceutics and Pharmacokinetics and their role in information development and clinical setting.
2. **Biopharmaceutics :**
Passage of drugs across biological barrier (passive diffusion, active transport facilitated Diffusion and pinocytosis.
Factors influencing absorption-Physicochemical, physiological and pharmaceutical.

UNIT -II

- Drug distribution in the body, plasma protein binding.
Metabolism of drugs.
3. **Pharmacokinetics:**
Different Pharmacokinetic models and their significance.
Compartment model- Definition and scope.
Significance of Plasma drug concentration measurement.

UNIT -III

- Pharmacokinetics of drug absorption – Zero order and first order absorption rate constant.
Volume of distribution and distribution coefficient.
Compartment kinetics – One compartment and two compartment models.
Determination of pharmacokinetic parameters from plasma and urine data after drug administration by intravascular and oral route.

UNIT -IV

- Clearance concept, Mechanism of renal clearance, clearance ratio, determination of renal clearance.
Extraction ratio, hepatic clearance, biliary excretion, extrahepatic circulation.
4. **Bioavailability and bioequivalence:**
Measures of bioavailability , C_{max} , t_{max} and area under the curve (AUC)

RECOMMENDED BOOKS :

1. Biopharmaceutics and Pharmacokinetics by D.M. Brahmankar and Sunil B. Jaiswal
2. Fundamentals of Biopharmaceutics and Pharmacokinetics by V. Venkateswarulu
3. Biopharmaceutics and Clinical Pharmacokinetics by Notari
4. Biopharmaceutics and Clinical Pharmacokinetics by Gibaldi
5. Applied Biopharmaceutics and Pharmacokinetics by Shargel and Yu