

M.PHARM. DEGREE EXAMINATION
(PCI New regulations 2016)
SEMESTER-II
BRANCH-I – PHARMACEUTICS – MPH
PAPER II – ADVANCED BIOPHARMACEUTICS AND
PHARMACOKINETICS

Q.P. Code : 262936

Time : Three hours

Maximum : 75 Marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Explain in details about various physicochemical factors affecting the Gastro Intestinal tract drug absorption.
b) Write a note on various dissolution methods.
2. a) Explain in detail about one compartment open model both IV Bolus and IV infusion and derive suitable equations to assess Pharmacokinetic parameters.
b) A new antibiotic drug was given in a single intravenous bolus of 4 mg/kg to 5 healthy male adults ranging in age from 23 to 38 years (average weight 75 kg). The pharmacokinetics of the plasma drug concentration–time curve for this drug fits a one-compartment model. The equation of the curve that best fits the data is $C_p = 78e^{-0.46t}$.

Determine the following (assume units of mg/ml for C_p and hours for t)

- a) What is the $t_{1/2}$?
- b) What is the V_D ?
- c) What is the plasma level of the drug after 4 hours?
- d) How much drug is left in the body after 4 hours?

II. Write notes on:

(7 x 5 = 35)

1. Discuss about various types of pharmacokinetic models.
2. Michaelis-menten equation – estimation of k_{max} and V_{max} .
3. Define Bio-availability and write a note on relative and absolute availability.
4. pH partition hypothesis and its limitations.
5. Pharmacokinetics of bio-technology drugs.
6. Protein binding interactions of drug molecules.
7. *In vitro-in vivo* correlation.