M.P. 1st Sem. (ASTU) — 05.12.2015

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PY 134104

Roll No. of candidate

2015

M. Pharm 1st Semester End-Term Examination

BIOPHARMACEUTICS AND PHARMACOKINETICS

Full Marks –100 Pass Marks – 35 Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer any *ten* questions. 3×10=30

(a) Write notes on direct assessment of bio-availability.

(b) Explain the application of pH partition theory in predicting the drug absorption.

(c) Explain the concept of clearance, giving emphasis on hepatic clearance.

(d) What do you mean by first pass metabolism ? What is its importance ?

(e) What is BCS ? On what basis the drugs are classified under BCS ?

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(f) Define Persistence factor and Loss factor.

(g) Deduce the relationship of $t_{\frac{1}{2}} = \frac{0.693}{K}$.

(h) Delayed intestinal transit sometimes desirable. Why ?

(i) Explain the methods of studying drug protein binding.

(j) Classify the chemical pathways of drug metabolism.

(k) Explain the concept of loading dose and maintenance dose.

(l) Write the concept involved in pharmacokinetic modelling.

2. Answer any *eight* questions. 5×8=40

(i) Write a note on Wagner Nelsen method.

(ii) Discuss the diffusion layer theory.

(iii) What are the various approaches of enhancing the bioavailability of drugs from dosage form ?

(iv) Write a short note on Pharmacokinetic variability factors.

(v) Explain the following :

(i) AUMC

(ii) MRT.

(vi) What is the influence of various disease states on plasma protein level and drug binding ?

(vii) Discuss and compare the various approaches available for the pharmacokinetic analysis of the experimental data following intravenous bolus administration in one compartment open model.

(viii) What is the basic difference between pharmacokinetic and pharmacodynamic drug interactions ?

(ix) Explain with significance the parameters used in bioavailability determination by plasma level studies.

(x) What processes of drug ADME are known to show non-linearity ? Give examples.

3. Answer any *three* questions. 3×10=30

(a) Explain the significance and importance of invitro / invivo correlation in the bio-availability studies.

(b) Derive K_a value by method of residuals. Explain the flip flop phenomenon.

(c) What are the causes of non-linearity ? How will you detect non-linearity ? Explain Michaelis Menton equation.

(d) Discuss the mechanism of drug absorption. Explain in detail the physiological and physico-chemical factors effecting gastro intestinal drug absorption.