W 011/015

1715124

| Enrolment Number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|

*Total No. of printed pages = 02*



**Winter, 2024**

**M Pharm (Pharmaceutics) 2nd Semester Examination**

**Advanced Biopharmaceutics and Pharmacokinetics**

**Course Code: MPH202T**

**Full Marks – 75** **Time – 03 hours**

*The figure in the margin indicates full marks for the questions.*

**1. Answer the following questions (in brief within 100 words).** **10×2=20**

(i) Explain what you mean by Mixed Order Kinetics.

(ii) Give the assumptions of One Compartment models.

(iii) Explain the importance of maintaining Sink Condition in drug absorption.

(iv) Describe the Rate determining steps in drug absorption and distribution.

(v) Enlist the factors effecting drug distribution.

(vi) Explain the BCS Classifications of drugs.

(vii) Discuss BBB as a physiological barrier effecting drug distribution.

(viii) Enlist the advantages and limitations of employing patients as volunteers in bioequivalence studies.

(ix) Differentiate between single dose and multiple dose studies in drug bioavailability determinations.

(x) Define Renal Clearance. Explain the mechanisms involved in formation of urine.

**2. Answer any seven from the following (within 300-500 words):** **7×5=35**

(a) Explain the different physicochemical factors effecting drug absorption through GIT.

(b) Give the factors involved in biopharmaceutical considerations in dosage form design.

(c ) Explain the various Phase I and Phase II reactions in drug metabolism.

(d) Explain role of pH Partition theory in the drug absorption.

(e) Discuss the factors that may be varied to optimize an in vitro dissolution test.

(f) Discuss on the importance and levels of In vitro in vivo correlation.

(g) Differentiate between Parallel design and Cross Over design with their applications.

(h) Explain the method of residuals for determination of Ka

(i) Explain renal function. Describe the method of dose adjustment in renal failure.

**3. Answer any two out of three (within 500-700 words):** **10×2=20**

(i) (a) Describe in details various mechanisms of Drug absorption through GIT. (5)

(b) Explain the different theories of Drug Dissolution. Explain the Diffusion layer model in details. (5)

(ii) (a) With a detailed protocol explain various aspects of Bioequivalence studies (5)

(b) Classify the different mechanisms of determination of bioavailability. (5)

(iii) (a) Explain the types of Pharmacokinetic models with their advantages and limitations. (4)

(b) Describe with suitable equations 'One Compartment open model for I V Bolus dose'. (6)