Total No. of Questions: 3 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Pharmacy
End Sem Examination May-2024
PY3CO26 Biopharmaceutics & Pharmacokinetics

Programme: B. Pharm. Branch/Specialisation: Pharmacy

Duration: 3 Hrs. **Maximum Marks: 75**

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1	i.	Define drug absorption.	**2**
	ii.	Enlist any four factors influencing drug absorption.	**2**
	iii.	Define drug metabolism.	**2**
	iv.	Enlist any four factors influencing renal excretion of drugs.	**2**
	v.	Write the full form of Cl_T and Cl_R.	**2**
	vi.	Give the importance of AUC in Pharmacokinetics.	**2**
	vii.	What do you mean by two compartment open model?	**2**
	viii.	Differentiate one compartment and multiple compartment models.	**2**
	ix.	Write Michaelis Menten equation.	**2**
	x.	Define non-linear pharmacokinetics with two examples.	**2**
Q.2		Attempt any two:	
	i.	Discuss mechanisms of drug transport for absorption through GIT with suitable diagrams.	**10**
	ii.	Explain non-renal excretion of drugs with suitable examples.	**10**
	iii.	Write a note on –	
		(a) Clinical significance of protein binding of drugs	**5**
		(b) Absolute and relative bioavailability	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	Derive pharmacokinetic parameters if the drug is given by IV Bolus and it follows one compartment open model.	**5**
	ii.	Describe the significance and applications of any five Pharmacokinetic Parameters.	**5**

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	iii.	Discuss method of residuals for determination of absorption rate constant.	**5**
		Section - B	
	iv.	Explain the concept and importance of loading and maintenance doses.	**5**
	v.	Give the significance of multiple dosing.	**5**
	vi.	What do you mean by steady state drug concentration? Discuss any two factors that affect Css.	**5**
		Section – C	
	vii.	Explain the estimation of Pharmacokinetic parameters using Michaelis-Menten equation.	**5**
	viii.	Discuss factors that may cause for non-linearity in Pharmacokinetics.	**5**
	ix.	Write applications of Michaelis-Menten kinetics.	**5**

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Marking Scheme

Biopharmaceutics & Pharmacokinetics (T) - PY3CO26 (T)

Q.1	i)	Definition –	2 Marks	**2**
	ii)	One factor –	0.5 Marks	**2**
	iii)	Definition –	2 Marks	**2**
	iv)	One factor –	0.5 Marks	**2**
	v)	One full form –	1 Marks	**2**
	vi)	One importance –	1 Marks	**2**
	vii)	Explanation –	2 Marks	**2**
	viii)	One Difference –	1 Marks	**2**
	ix)	Equation –	2 Marks	**2**
	x)	Definition –	1 Marks	**2**
		One Example –	1 Marks	
Q.2	Attempt any two:			
	i.	Mechanisms –	5 Marks	**10**
		Diagrams –	5 Marks	
	ii.	Non renal excretion of drugs –	5 Marks	**10**
		Examples –	5 Marks	
	iii.	Clinical significance –	5 Marks	**5**
		Absolute Bioavailability –	2.5 Marks	**5**
		Relative Bioavailability –	2.5 Marks	
Q.3	Attempt any seven: Two questions from each section is compulsory.			
		Section - A		
	i.	Derivation –	5 Marks	**5**
	ii.	Significance –	2.5 Marks	**5**
		Applications –	2.5 Marks	
	iii.	Methods –	5 Marks	**5**
		Section - B		
	iv.	calculation of loading dose –	2.5 Marks	**5**
		maintenance doses –	2.5 Marks	
	v.	significance of IV bolus Kinetics of multiple dosing –	5 Marks	**5**
	vi.	steady state drugconcentration –	3 Marks	**5**
		one factor –	2 Marks	
		Section - C		
	vii.	Estimation of Michaelis-mention method –	5 Marks	**5**
	viii.	One factor –	1 Marks	**5**
	ix.	One application –	1 Marks	**5**