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

Enrollment No.....

Faculty of Pharmacy

End Sem (Odd) Examination Dec-2022

PY3CO10 Physical Pharmaceutics-I

Programme: B. Pharm. Branch/Specialisation: Pharmacy

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

Note: All questions are compulsory. Internal choices, if any, are indicated.

Q.1	i.	Define binary solutions with examples.	**2**
	ii.	Define real solutions with examples.	**2**
	iii.	Define refractive index.	**2**
	iv.	Define vapour pressure.	**2**
	v.	Write the full form of HLB scale with one of its applications.	**2**
	vi.	What are surface active agents give any two examples.	**2**
	vii.	Write any two applications of complexation.	**2**
	viii.	Define protein binding.	**2**
	ix.	Write any two applications of buffers.	**2**
	x.	Define isotonic solutions.	**2**
Q.2		Attempt any two:	
	i.	Explain solubility expressions and mechanisms of solute solvent interactions.	**10**
	ii.	Explain the changes in the state of matter and physicochemical properties of drug molecules.	**10**
	iii.	(a) Describe critical solution temperature and its applications.	**5**
		(b) Explain the determination of dissociation constant, and its applications.	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	Explain the measurement of surface & interfacial tensions.	**5**

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	ii.	Define the term solubilisation and explain the adsorption at liquid interfaces.	**5**
	iii.	Describe surface active agents with examples.	**5**
		Section - B	
	iv.	Explain complexation with its classification and applications.	**5**
	v.	Write a short note on crystalline structures of complexes and thermodynamic treatment of stability constants.	**5**
	vi.	Explain the phenomenon and mechanism of protein binding,	**5**
		Section - C	
	vii.	Describe Sorensen's pH scale and the methods of pH determination.	**5**
	viii.	Explain buffers, and buffer equation with its applications.	**5**
	ix.	Write a note on buffers in pharmaceutical and biological systems.	**5**

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Marking Scheme
PY3CO10 Physical Pharmaceutics-I

Q.1	i)	Definition – 1 Mark Example – 1 Mark	**2**
	ii)	Definition – 1 Mark Example – 1 Mark	**2**
	iii)	Definition – 2 Mark	**2**
	iv)	Definition – 2 Mark	**2**
	v)	Full form - 1 Mark Applications - 1 Mark	**2**
	vi)	Surface active agents – 1 Mark 2 Applications – 1 Mark	**2**
	vii)	2 Applications – 2 Mark	**2**
	viii)	Definition – 2 Marks	**2**
	ix)	2 Applications – 2 Marks	**2**
	x)	Definition – 2 Marks	**2**
Q.2		Attempt any two:	
	i.	Solubility expressions – 5 Marks Mechanisms of solute solvent interactions – 5 Marks	**10**
	ii.	changes in the state of matter – 5 Marks Physicochemical properties of drug molecules - 5 Marks	**10**
	iii.	Critical solution temperature – 3 Marks Applications – 2 Marks	**5**
		Determination of dissociation constant - 3 Marks Applications - 2 Marks	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	measurement of surface tensions – 2.5 Marks measurement of interfacial tensions - 2.5 Marks	**5**
	ii.	Definition – 2 Marks Adsorption at liquid interfaces – 3 Marks	**5**
	iii.	Describe surface active agents – 3 Marks 2 Examples – 2 Marks	**5**
		Section - B	
	iv.	Complexation – 2 Marks classification – 3 Marks applications - 2 Marks	**5**
	v.	Crystalline structures of complexes – 3 Marks thermodynamic treatment of stability constants – 2 Marks	**5**
	vi.	phenomenon – 1 Marks mechanism of protein binding – 4 Marks	**5**
		Section - C	
	vii.	Sorensen's pH scale – 2.5 Marks Methods of pH determination – 2.5 Marks	**5**
	viii.	Definition of buffers – 1 mark Buffer equation - 2 marks Its applications – 2 marks	**5**
	ix.	Buffers in pharmaceutical and biological systems. Definition – 1 mark Types – 1 mark Applications – 3 marks	**5**

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