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

Enrollment No.....

Faculty of Pharmacy
End Sem Examination Dec 2024
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. Assume suitable data if necessary. Notations and symbols have their usual meaning.

			Marks	BL	PO	CO	PSO
Q.1	i.	Write the solubility expressions as per IP.	**2**	02	01, 02, 09	01, 06	
	ii.	Define binary and ideal solutions with examples.	**2**	02	01, 02, 09	01, 06	
	iii.	Differentiate amorphous and crystalline solids with examples.	**2**	02	01, 02, 09	02, 06	
	iv.	Explain sublimation critical point and optical rotation.	**2**	02	01, 02, 09	02, 06	
	v.	What do you mean by spreading coefficient and surface free energy?	**2**	02	01, 02, 09	03, 06	
	vi.	Write any two examples of physical and chemical adsorption.	**2**	02	01, 02, 09	03, 06	
	vii.	Define complexation and protein binding with examples.	**2**	02	01, 02, 09	04, 06	
	viii.	Give an example of olefins and aromatic type of complex.	**2**	02	01, 02, 09	04, 06	
	ix.	Give the importance of buffers in pharmaceutical system.	**2**	02	01, 02, 09	05, 06	
	x.	What do you mean by buffer equation and buffer capacity?	**2**	02	01, 02, 09	05, 06	
Q.2		Attempt any two:					
	i.	Write a note on factors affecting solubility of solid in liquids.	**10**	02	01, 02, 09	01, 06	
	ii.	Write a note on- (a) Relative humidity (b) Polymorphism	**10**	02	01, 02, 09	02, 06	

P.T.O.

			Marks	BL	PO	CO	PSO
	iii.	(a) Discuss the distribution law and its applications in pharmacy.	**5**	02	01, 02, 09	01, 06	
		(b) Write the applications of dielectric constant and dissociation constant.	**5**	02	01, 02, 09	02, 06	
Q.3		Attempt any seven: Two questions from each section is compulsory.					
		Section - A					
	i.	Define HLB scale and surface-active agents.	**5**	02	01, 02, 09	03, 06	
	ii.	Explain various methods to determine surface & interfacial tensions.	**5**	02	01, 02, 09	03, 06	
	iii.	Define surface free energy and its applications.	**5**	02	01, 02, 09	03, 06	
		Section - B					
	iv.	Classify complexation with their applications.	**5**	02	01, 02, 09	04, 06	
	v.	Describe factors affecting complexation and protein binding.	**5**	02	01, 02, 09	04, 06	
	vi.	Explain thermodynamic treatment of stability constants on complexation.	**5**	02	01, 02, 09	04, 06	
		Section - C					
	vii.	Write the importance of buffers in pharmaceutical and biological systems.	**5**	02	01, 02, 09	05, 06	
	viii.	Discuss the methods to determine pH.	**5**	02	01, 02, 09	05, 06	
	ix.	What are the different methods for adjusting tonicity of preparation?	**5**	02	01, 02, 09	05, 06	

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Marking Scheme
PY3CO10 (T) Physical Pharmaceutics -I (T)

Q.1 i) Solubility expressions table – 2 Marks **2**
at least four terms
one term – 0.5 Mark

ii) Definition of Binary solutions with examples – 1 Mark **2**
Definition of Ideal solutions with examples – 1 Mark

iii) One Difference – 1 Mark any two difference **2**

iv) Sublimation critical point – 1 Mark **2**
Optical rotation – 1 Mark

v) Spreading coefficient – 1 Mark **2**
Surface free energy – 1 Mark

vi) Any one examples of physical adsorption – 1 Mark **2**
any one examples of chemical adsorption – 1 Mark

vii) Definition of complexation with examples – 1 Mark **2**
Definition of protein binding with examples – 1 Mark

viii) An example of olefins – 1 Mark **2**
An example of aromatic type of complex – 1 Mark

ix) One importance – 1 Mark any two **2**

x) Buffer equation – 1 Mark **2**
Buffer capacity – 1 Mark

Q.2 Attempt any two:

i. Factor affecting solubility of solids in liquids – 10 Mark **10**

ii. Relative Humidity - 5 Mark **10**
Polymorphism - 5 Mark

iii. (a) Distribution law – 3 Mark **5**
(b) Applications in pharmacy – 2 Mark
(c) Applications of dielectric constant – 2.5 Mark **5**
(d) Applications of Dissociation constant. - 2.5 Mark

Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

i. HLB Scale – 2 Mark **5**

Surface-active agents – 3 Mark

ii. Methods to determine surface tensions- 2.5 **5**
Methods to determine interfacial tensions- 2.5

iii. Definition of surface free energy – 1 Mark **5**
A note on surface free energy – 4 Mark

Section - B

iv. Classification of Complexation – 3 Mark **5**
Applications – 2 Mark

v. Factors affecting complexation – 2.5 Mark **5**
Factors affecting protein binding – 2.5 Mark

vi. Explanation – 5 Mark **5**

Section - C

vii. Importance of buffers in pharmaceutical – 3 Mark **5**
Importance of buffers in biological systems – 2 Mark

viii. One method – 2.5 Mark 2.5 Marks each **5**

ix. One method – 1 Mark any 3 **5**

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