Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF PHARMACY

B. Pharm., Winter 2023-24 Examination

Semester: 3 **Date: 24/01/2024**
Subject Code: BP302T **Time: 10:00am to 1:00pm**
Subject Name: Physical Pharmaceutics I **Total Marks: 75**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1	**Multiple Choice Questions (MCQs)** (1 Mark Each)				**(20)**	CO	PO	BT
1.	If one part of solute is dissolved in 1-10 parts of the solvent, then the solute will be					**1**	**1-9, 11**	**1**
	a)	Soluble	b)	Sparingly soluble				
	c)	Freely soluble	d)	None				
2	Which of the following statements is correct with regards to the solubility of gases in water?					**1**	**1-9, 11**	**1**
	a)	Increases with increase in pressure of gas	b)	Increases with increase in temperature				
	c)	Increases with addition of electrolytes	d)	Decrease with addition of surfactant				
3	Which of the following defines Phenol-water solution?					**1**	**1-9, 11**	**1**
	a)	Immiscible	b)	Partially Miscible				
	c)	Miscible	d)	All of the above				
4	Which of the following has highest solubility?					**2**	**1-4, 6-9, 11**	**2**
	a)	Crystalline substance	b)	Polymorph				
	c)	Pseudomorph	d)	Amorphous substance				
5	Nernst distribution law applicable to					**1**	**1-9, 11**	**1**
	a)	Immiscible Liquids	b)	Gases				
	c)	Miscible Liquids	d)	Eutectic Mixture				
6	When the pH of solution of weak acid is equal to the pKa of the acid, ____ % of weak acid gets ionized.					**2**	**1-4, 6-9, 11**	**3**
	a)	100	b)	50				
	c)	25	d)	0				
7	The point on a phase diagram at which the substance is indistinguishable between liquid and gaseous states is called as _____.					**2**	**1-4, 6-9, 11**	**2**
	a)	Triple point	b)	Critical point				
	c)	Cloud point	d)	Dew point				
8	If adhesive force>cohesive force, then what occurs					**3**	**1-9, 11**	**2**

	a)	Spreading	b)	Capillary Rise				
	c)	Wetting	d)	All of the above				
9	Tween 80 is a surfactant of type _____					**3**	**1-9, 11**	**2**
	a)	Amphihphilic	b)	Cationic				
	c)	Anionic	d)	Non-ionic				
10	Isotonic solutions have the same					**4**	**1-4,6-8, 11**	**2**
	a)	Vapour pressure	b)	Osmotic pressure				
	c)	Atmospheric pressure	d)	Internal pressure				
11	In a metal ion complex, the metal ion and ligand are _____ respectively.					**4**	**1-4,6-8, 11**	**2**
	a)	Acceptor and donor	b)	Acid and base				
	c)	salt and base	d)	None of the above				
12	Which of the following is central atom in Cisplatin?					**4**	**1-4,6-8, 11**	**3**
	a)	Chlorine	b)	ammonium				
	c)	Platinum	d)	Cesium				
13	pH can be kept constant with the help of					**4**	**1-4,6-8, 11**	**1**
	a)	Buffer Solution	b)	Saturated solution				
	c)	Super saturated solution	d)	Unsaturated solution				
14	Which of the following will provide more than two donor groups to combine with metal ion?					**4**	**1-4,6-8, 11**	**2**
	a)	Chloride	b)	ammonium				
	c)	Ethylenediamine tetraacetate	d)	water				
15	A surfactant with HLB value 18 is expected to function as					**3**	**1-9, 11**	**2**
	a)	Anti-foaming agent	b)	Water in oil (w/o) emulsifier				
	c)	Oil in water (o/w) emulsifier	d)	Solubility enhancer				
16	The concept of pH was introduced by _____.					**3**	**1-9, 11**	**1**
	a)	Arrhenius	b)	Bronsted				
	c)	Sorensen	d)	Lewis				
17	Which of the following method is not used for determination of surface tension?					**3**	**1-9, 11**	**2**
	a)	Tensiometer	b)	viscometer				
	c)	Bubble pressure method	d)	Drop weight method				
18	Addition of Sodium Chloride salt to Phenol-Water system will _____ Critical Solution Temperature.					**1**	**1-9, 11**	**4**
	a)	decrease	b)	increase				
	c)	not affect	d)	may increase or decrease				

19	Boiling point is the temperature at which vapor pressure is					**2**	**1-4, 6-9, 11**	**2**
	a)	More than atmospheric pressure	b)	Less than atmospheric pressure				
	c)	Equal to atmospheric pressure	d)	None of the above				
20	Amorphous substance does not have_____.					**2**	**1-4, 6-9, 11**	**2**
	a)	Sharp melting point	b)	Definite shape				
	c)	Crystallinity	d)	All of above				

Seat No: _____ **Enrollment No: _____**

PARUL UNIVERSITY

FACULTY OF PHARMACY

B. Pharm., Winter 2023-24 Examination

Semester: 3 **Date: 24/01/2024**
Subject Code: BP302T **Time: 10:00am to 1:00pm**
Subject Name: Physical Pharmaceutics I **Total Marks: 75**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.2	**Long Answers (any 2 out of 3)** (10 Mark Each)	**(20)**	CO	PO	BT
1.	A. Define solubility. Explain the various factors affecting solubility of solids in liquids.		**1**	**1-9, 11**	**2**
2.	A. Define surfactant. What is HLB scale? Classify surfactant activity based on HLB value. B. Define the term complexation. Classify it and discuss the method of analysis in complexation.		**3** **4**	**1-9, 11** **1-4,6-8, 11**	**2** **2**
3.	Define and discuss various physicochemical properties of drug molecules.		**2**	**1-4, 6-9, 11**	**3**

Q.3	**Short Answers (any 7 out of 9)** (5 Mark Each)	**(35)**	CO	PO	BlT
1.	Explain Critical solution temperature and mention its applications.		**1**	**1-9, 11**	**2**
2.	Explain Raoult's law and discuss ideal and non-ideal solutions in detail.		**1**	**1-9, 11**	**2**
3.	Define relative humidity and explain how it impacts drug stability in storage and packaging. Discuss techniques to control relative humidity in pharmaceutical production facilities.		**2**	**1-4, 6-9, 11**	**3**
4.	Define CMC and surfactant. What are micelles? Give its structure.		**3**	**1-9, 11**	**2**
5.	Explain contact angle and its applications in pharmacy.		**3**	**1-9, 11**	**2**
6.	Short note on protein binding.		**4**	**1-4,6-8, 11**	**2**
7.	Write a brief note on Cyclodextrin.		**4**	**1-4,6-8, 11**	**3**
8.	Explain in brief: Sorensen's pH Scale.		**3**	**1-9, 11**	**2**

9.	Define the term "vapor pressure" and explain how it is influenced by temperature and intermolecular forces.		**2**	**1-4, 6-9, 11**	**3**