

<b>Name:</b>	 <b>UPES</b> UNIVERSITY WITH A PURPOSE
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2021**

**Course: Physical Pharmaceutics I**

**Semester: III**

**Program: B. Pharm.**

**Time: 03 hrs.**

**Course Code: BP302T**

**Max. Marks: 75**

**Instructions: All the sections are compulsory.**

**SECTION A**

S. No.	CO	Question	Marks
		<b>Answer all the questions.</b>	<b>20</b>
1.	CO1	The driving force for the diffusion to occur is ____. A. Temperature gradient                      B. Concentration gradient C. Height gradient                              D. Potential difference gradient	<b>1</b>
2.	CO1	Which of the following factors affect the absorption of drug from gastro-intestinal tract? A. pH    B. Solubility of drug C. Partition co-efficient                              D. pKa of drug molecule	<b>1</b>
3.	CO1	Which statement is correct regarding facilitated diffusion? A. Requires transmembrane proteins B. It requires physiological energy. C. Requires transmembrane proteins and the physiological energy both. D. Anti-porters helps in the process of diffusion.	<b>1</b>
4.	CO1	The partition co-efficient is an unit less quantity. A. True    B. False	<b>1</b>
5.	CO2	Which of the following instrument is used to distinguish between Dextro and Levo isomeric forms of the molecule can be determined by -----?. A. pH meter    B. Polarimeter C. Conductometer                                      D. Refractometer	<b>1</b>
6.	CO2	The process of phase, change from solid phase to gaseous phase is known as ____. A. Condensation                                      B. Deposition C. Evaporation    D. Sublimation	<b>1</b>
7.	CO2	According to Charle's Law, _____ A. At a fixed pressure, the volume of a gas is proportional to the temperature of the gas B. the pressure of a fixed amount of gas at a constant temperature is inversely proportional to the volume of the gas C. At a constant volume, the pressure is directly proportional to temperature D. The volume of a sample gas is directly proportional the number of moles in the sample at constant temperature and pressure	<b>1</b>
8.	CO2	The vapor pressure of a liquid depends on the temperature. A. True    B. False	<b>1</b>

9.	<b>CO3</b>	According to Freundlich isotherm, mass of gas adsorbed per unit weight of adsorbent is directly proportional to pressure of gas. A. True B. False	<b>1</b>
10.	<b>CO3</b>	Select all the true statements about physical adsorption. A. Involves Van der Waals forces B. Characterized by low heats of adsorption C. The process is irreversible D. Involves non-specific interaction between adsorbent and adsorbate	<b>1</b>
11.	<b>CO3</b>	If the angle of contact between liquid and solid surface is less than 90°, then the surface is not easily get wetted by aqueous liquid. A. True B. False	<b>1</b>
12.	<b>CO3</b>	Define critical micellar concentration.	
13.	<b>CO4</b>	Define chelates.	<b>1</b>
14.	<b>CO4</b>	Picric acid complex is a ..... type of complex. A. Inorganic B. Charge transfer C. pi-bond D. Hydrogen bonded	<b>1</b>
15.	<b>CO4</b>	The natural β-CD consists of 7 units of glucose in its molecular structure. A. True B. False	<b>1</b>
16.	<b>CO4</b>	Complex formation between drug and complexing agents can lead to _____. (Select all possible options) A. Can not affect the pharmacologic activity of the agent B. Inhibit interaction with receptors C. Removal of toxic metal ions from human bodies D. Poor solubility or decreased absorption of drugs	<b>1</b>
17.	<b>CO5</b>	Which of the following method is used to adjust tonicity of the pharmaceutical formulations? A. Addition of surfactant B. Freezing point depression C. Boiling point depression D. None of the above	<b>1</b>
18.	<b>CO5</b>	The solutions that possess the tendency to resist change in their pH upon addition of small quantities of an acid or alkali are known as _____. A. Acid B. Base C. Neutral solution D. Buffer solution	<b>1</b>
19.	<b>CO5</b>	Name the scale that is used to determine pH of a solution on the scale 1 to 14?	<b>1</b>
20.	<b>CO5</b>	State any two limitations of Sorensen scale of pH determination.	<b>1</b>

### SECTION B

<b>Answer any two questions of the following.</b>			<b>20</b>
1.	<b>CO1</b>	a) Define with an example: Distribution co-efficient and Active diffusion b) Summarize the significance of studying the principles of diffusion.	<b>5+5</b>
2.	<b>CO2</b>	a) Explain the co-relation between polarity of the molecules and electric dipole moment. b) Illustrate and discuss the impact of structure of molecule on optical rotation.	<b>5+5</b>

3.	<b>CO3</b>	a) Why does the surface of liquid possess surface tension? b) Describe any one method for determination of surface tension.	<b>5+5</b>
<b>SECTION C</b>			
<b>Answer any seven questions of the following.</b>			<b>35</b>
1.	<b>CO5</b>	Why intravenous formulations should be isotonic to blood plasma?	<b>5</b>
2.	<b>CO1</b>	Justify with an example. The molecular structure / functional groups in molecule significantly affect the solubility of solute in solvents.	<b>5</b>
3.	<b>CO3</b>	Discuss the applications of surface-active agents in pharmaceutical formulations with an example.	<b>5</b>
4.	<b>CO5</b>	Outline the need of buffered solutions in formulation of certain pharmaceutical systems or dosage forms.	<b>5</b>
5.	<b>CO4</b>	Explain the term “complexation” with an example.	<b>5</b>
6.	<b>CO2</b>	Enlist the properties of gaseous phase.	<b>5</b>
7.	<b>CO5</b>	Discuss the electrometric method of pH determination.	<b>5</b>
8.	<b>CO4</b>	Discuss the effect of complexation and drug action with examples.	<b>5</b>
9.	<b>CO4</b>	Write a short note on clathrates.	<b>5</b>
		<b>Total</b>	<b>75</b>