

Subject: Physical Pharmaceutics-I

Year and Sem: Second year B Pharm., Sem. III,
CBCS (Revised 2019)

Duration: 3 hours

Total marks: 80

N.B.: 1. All questions are compulsory
2. Figures to right indicate full marks

Q. 1	Choose appropriate option for following multiple choice based questions.	20
1	Raoult's law describes	
a	how the solubility of gas varies with pressure	
b	how partial pressure of gas varies with temperature	
c	how partial pressure of solvent vapour varies with solute concentration	
d	how partial pressure of solvent vapour varies with solute molecular mass	
2	Solubility of a substance in decreasing order is as follows	
a	Crystalline, metastable, amorphous	
b	Crystalline, amorphous, metastable	
c	Amorphous, metastable, crystalline	
d	Amorphous, crystalline, metastable	
3	In endothermic processes solubility increases with the	
a	Decrease in temperature	
b	Increase in viscosity	
c	Decrease in volume	
d	Increase in temperature	
4	Fick's law is used for the study of	
a	Dissolution rate	
b	Disintegration rate	
c	Dissociation rate	
d	Diffusion	
5	When oil is dispersed in a polar solvent using surfactants, the process is called	
a	Polarization	
b	Emulsification	
c	Gelatinization	
d	Solubilization	
6	Relative humidity is measured by using	
a	Hygrometer	
b	Manometer	
c	Viscometer	
d	Stalagmometer	
7	For the proper functioning of aerosol, adequate vapour pressure is needed for this component	

a	Propellant	
b	Actuator	
c	Drug Solution	
d	Preservative	
8	Amorphous solid is	
a	isotropic	
b	anisotropic	
c	hydrotropic	
d	mesotropic	
9	Optically active substance is able to show its optical activity due to _____	
a	Chiral Carbon in molecule	
b	Symmetry in molecule	
c	Polarity of molecule	
d	Cohesivity of molecule	
10	Which of the following methods is used to determine surface tension?	
a	Rheometer	
b	Sonometer	
c	Stalagmometer	
d	Viscometer	
11	Higher the HLB value of surfactant, more _____ it is	
a	Hydrophilic	
b	Lipophilic	
c	Amphiphilic	
d	Water insoluble	
12	The difference in the work of adhesion and the work of cohesion of liquids on the surface of other liquid is known as	
a	Spreading coefficient	
b	Henry's constant	
c	Diffusion coefficient	
d	Kinematic viscosity	
13	The surface tension usually decreases with	
a	Increase in temperature	
b	Decrease in temperature	
c	Addition of electrolytes	
d	Decrease in surfactant concentration	
14	Which of the following methods has an application in determination of specific surface area of solids?	
a	Langmuir	

b	BET	
c	Kisliuk	
d	Freundlich	
15	EDTA has coordination number	
a	Six	
b	Five	
c	Four	
d	Three	
16	The donor: acceptor ratio of a complex can be obtained by	
a	Solubility Method	
b	Scanning electron microscopy	
c	Differential Scanning Calorimetry	
d	X- ray Diffraction	
17	Identify the type of complex classified under organic molecular complex	
a	PABA-Caffeine Complex	
b	Starch iodine complex	
c	Hexamine Cobalt Chloride complex	
d	Beta Cyclodextrin-salicylic acid	
18	pH of 0.01 N HCL is	
a	2.00	
b	0.699	
c	1.699	
d	1.2	
19	Bursting of blood cells takes place in.....solution	
a	Hypotonic	
b	Hypertonic	
c	Isotonic	
d	Neutral	
20	Buffer capacity can be defined as the ratio of increment of strong base or strong acid to the.....	
a	Change in pH	
b	Change in buffer index	
c	Change in osmotic pressure	
d	Change in temperature	

Q. 2 A	Answer any one question.	12
a	Explain solubility by different solute-solvent interactions with suitable examples.	
b	What are the assumptions of Langmuir adsorption isotherm study? Derive the expression for Langmuir adsorption isotherms.	
Q. 2 B	Answer any four questions	48
a	Explain principle of drop count method used in determination of surface tension. In the determination of surface tension of a liquid by the drop-number method, it gives 55 drops while water gives 25 drops for the same volume. The densities of the liquid and water are 0.996 and 0.800 g/cm ³ respectively. Find the surface tension of the liquid if that of water is 72.0 dynes/cm.	
b	What is optical activity? With a neat labelled diagram explain the principle and working of polarimeter.	
c	State and explain Nernst distribution law of partition coefficient including its limitations. Explain the applications of partition coefficient in pharmacy.	
d	Classify complexes and explain different types of inclusion complexes.	
e	Give a detailed account of pharmaceutical buffers and buffer capacity.	