Printed Pages: 01 **Subject Code:BP302T**

Paper Id: 150302 **Roll No:** | | | | | | | | | | |

B PHARM
(SEM III) THEORY EXAMINATION 2018-19
PHYSICAL PHARMACEUTICS -I

Time: 3 Hours ***Total Marks: 75***

Note: 1. Attempt all Sections.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a. Define ideal solution?
b. A solution contains 0.25 mole of solute and 0.75 mole of solvent. Calculate mole fraction of solvent in the solution?
c. What is Charles's law? Explain it.
d. Explain eutectic mixtures.
e. Why drop of liquid hanging in air is spherical in shape?
f. Explain the term Solubilization.
g. Define complexation.
h. What are chelate compounds and chelation?
i. What is Sorensen's pH scale?
j. Name the two important biological buffer systems.

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a. Explain ideal solubility parameters. What are its applications, advantage and limitation? Describe briefly the methods for determination of ideal solubility parameters.
b. Define crystalline solid. What are the types of crystals? Enlist and explain characteristics of crystals.
c. Define tonicity. Differentiate between isosmotic and isotonic solutions. Describe the methods that are used to adjust pH and tonicity.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a. Define solubility. Explain mechanism of solute solvent interaction. Mention the reason of solubility in different type of solvents.
b. Explain critical solution temperature and its applications using suitable example.
c. Differentiate between crystalline solid and amorphous solid.
d. Define adsorption. Explain the factors affecting adsorption. Mention the characteristic features of physisorption and chemisorptions.
e. Give the statement and postulates of kinetic molecular theory of ideal gases.
f. Discuss the thermodynamic treatment of stability constants.
g. Elaborate the electrometric and colorimetric pH determination methods.

Sub Code:BP302T

Paper Id: 150302 Roll No:

B. PHARM
(SEM-III) THEORY EXAMINATION 2019-20
PHYSICAL PHARMACEUTICS-I

Time: 3 Hours *Total Marks: 75*

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a. Enlist limitations of distribution law.

b. Define salvation and association.

c. Define real solution.

d. Define diffusion.

e. What are chelate compounds?

f. State Raoult's Law.

g. What is vapor pressure?

h. Define HLB scale.

i. What are surface and interfacial tensions?

j. Define Sorensen's pH scale.

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a. Describe solubility of liquid in liquids.

b. Describe determination and applications of dipole moment and dissociation constant.

c. Describe classification of complexation.

SECTION C

3. Attempt any *five* parts of the following: **5 x 7 = 35**

a. Describe pharmaceutical and biological buffers.

b. Define buffered isotonic solution. Describe methods of adjustment tonicity.

c. Discuss protein binding.

d. Explain solubilization and detergency.

e. Describe sublimation critical point and eutectic mixtures.

f. Discuss critical solution temperature and applications.

g. Write short notes on liquid crystals and glassy states.

PAPER ID-311004

Roll No: | | | | | | | | | | | | | |

B PHARM
(SEM: III) THEORY EXAMINATION 2020-21
PHYSICAL PHARMACEUTICS I

Time: 3 Hours ***Total Marks: 75***

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define Molarity and Normality.
b.	Differentiate crystalline solid and amorphous solid.
c.	Define critical solution temperature.
d.	What is critical micelles concentration.
e.	What are chelating agents?
f.	Define buffer capacity.
g.	Detergency.
h.	Define glassy state.
i.	What is liquid crystal? Name its two types.
j.	What is surface tension and surface free energy?

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	Derive Raoult's law and discuss deviation from Raoult's law giving example.
b.	Explain buffer action and application of buffer in pharmaceutical and biological system.
c.	Classify complex compounds. Discuss chelates and cyclodextrin complexes with its application in pharmacy.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Discuss diffusion mechanism in biological system with examples.
b.	Discuss various method of analysis of complexation.
c.	What are different methods of determining surface tension? Discuss construction, working principle of capillary rise method.
d.	Classify surface active agents. Discuss application of surface active agents in pharmaceutical system.
e.	How will you determine optical activity? Explain.
f.	Define Nernst potential and Zeta potential. Discuss the electrical properties at the interface.
g.	What are buffered isotonic solution? Write different method of adjusting tonicity of solution.

PAPER ID-411744

Roll No: | | | | | | | | | | | | | |

BPHARM
(SEM III) THEORY EXAMINATION 2021-22
PHYSICAL PHARMACEUTICS I

Time: 3 Hours ***Total Marks: 75***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define the term "critical solution temperature" with an example.
b.	Interpret the term "freely soluble".
c.	Define the term "relative humidity".
d.	Define the term "sublimation" with an example.
e.	List various types of surfactants according to their use as per the HLB scale.
f.	Define the term "detergency".
g.	Define the term "plasma protein binding" with an example.
h.	Identify the central metal ion present in the Vitamin B_{12}.
i.	Differentiate between an isotonic, a hypotonic and a hypertonic solution.
j.	Explain the term "pH".

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	Discuss in detail the "Raoult's law" with the help of diagrams showing positive and negative deviations and explain reasons behind these deviations.
b.	Differentiate between amorphous and crystalline solids with proper examples and also explain the phenomenon of polymorphism with suitable example.
c.	Illustrate the Freundlich and Langmuir adsorption isotherms.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Explain distribution law and mention some of its applications.
b.	Explain the term "eutectic mixture" with proper example.
c.	Write down the different methods for the measurement of surface and interfacial tensions and illustrate any one of these methods in detail.
d.	Classify and discuss the different types of complexes with appropriate examples.
e.	Explain various factors affecting protein binding of drugs and discuss any one method for the determination of protein binding of a drug.
f.	Describe the term "buffer capacity" and also explain the applications of buffers in pharmaceutical and biological systems.
g.	Write down the various methods for adjusting the tonicity of a pharmaceutical solution and applying an appropriate method determine the %-age of sodium chloride needed to make a solution of 0.05% of atropine sulphate isotonic with blood plasma. (Sodium chloride equivalent value (E) of atropine sulphate is 0.12.)

Printed Pages:01 **Sub Code:BP-302T**

Paper Id: 233443 **Roll No.** | | | | | | | | | | |

B PHARM
(SEM III) THEORY EXAMINATION 2022-23
PHYSICAL PHARMACEUTICS I

Time: 3 Hours ***Total Marks: 75***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 10 x 2 = 20

(a) State the equation forIdeal solubility parameter.

(b) Define Solvation and Association.

(c) Define the term "eutectic mixture" with an example.

(d) Enumerate the term "Vapor Pressure".

(e) Explain the term "Detergency".

(f) Classify surfactants with examples.

(g) List out the various methods used for determining protein binding.

(h) Define Chelate compounds.

(i) Define Buffer capacity.

(j) Define Sorensen's pH scale.

SECTION B

2. Attempt any *two*parts of the following: 2 x 10 = 20

(a) Demonstrate various methods used for the determination of surface and interfacial tension.

(b) Describe the classification of complexation in detail.

(c) Describe the solubility of liquids in liquids.

SECTION C

3. Attempt any *five*parts of the following: 7 x 5 = 35

(a) Explain the working of the polarimeter for finding optical rotation.

(b) Explain the differences between the solid-crystalline and amorphous states.

(c) Derive the equations for spreading coefficient and surface free energy.

(d) Discuss the various methods used for the analysis of complex formation.

(e) Discuss the distribution law along with its applications and limitations.

(f) Demonstrate various applications of buffers in pharmaceutical and biological systems.

(g) Derive the buffer equations for a weak acid and its salt.

PAPER ID-411503

Roll No:

BPHARMA
(SEM III) THEORY EXAMINATION 2023-24
PHYSICAL PHARMACEUTICS I

TIME: 3 HRS **M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define the term critical solution temperature with example
b.	Define diffusion
c.	Define the term eutectic mixtures with examples
d.	What is ideal gas equation?
e.	What is spreading coefficient and its formulae
f.	Define term solubilization
g.	Define adsorption
h.	Define detergency
i.	What are chelating agents with examples.
j.	Define buffer capacity.

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	Define tonicity. Differentiate between iso-osmotic and isotonic solutions. Describe methods that are used to adjust the pH and tonicity.
b.	Explain Refractive Index by Snell's Law. Draw the diagram and explain working of Abbes Refractrometer and its applications.
c.	Describe in brief about Solubility of liquids in liquids.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Discuss diffusion mechanism in biological system with example.
b.	Differentiate between crystalline solids and amorphous solids.
c.	Explain in brief about isotherm with diagram.
d.	Discuss various methods of analysis of complexation.
e.	Elaborate electrometric and calorimetric pH determination method
f.	Discuss the distribution law along with its applications
g.	Explain critical solution temperature and its applications using example.

Subject Code: BP302T

PAPER ID-311473

Roll No: | | | | | | | | | | | | | |

BPHARM
(SEM III) THEORY EXAMINATION 2023-24
PHYSICAL PHARMACEUTICS I

TIME: 3 HRS **M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define the term critical solution temperature with example.
b.	What are liquid crystals? Name its two types.
c.	What is surface tension and interfacial tension?
d.	Define chelate compounds and chelation.
e.	What is Sorensen's pH scale?
f.	Define buffer capacity and its formulae.
g.	Define solvation and association.
h.	Define glassy state.
i.	Define buffer isotonic solution.
j.	Define detergency.

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	Describe solubility of Liquids in liquids in detail.
b.	Describe classification of complexation in detail along with examples.
c.	Define buffer isotonic solution. Differentiate between hypertonic and hypotonic buffer solution. Describe the methods of adjustment of tonicity.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Elaborate electrometric and calorimetric pH determination method.
b.	Discuss protein binding in detail. Write down its significance.
c.	Write down methods for measurement of surface and interfacial tension. Discuss in brief about any one of the methods in detail.
d.	Define Adsorption. Discuss in detail about types of adsorptions.
e.	Discuss HLB scale in detail
f.	Define spreading coefficient. Discuss in detail about reason for spreading.
g.	Define Raoult's law. Discuss about deviations from Raoult's law giving examples.

PAPER ID-311878

Roll No: | | | | | | | | | | | | | |

BPHARM
(SEM III) THEORY EXAMINATION 2024-25
PHYSICAL PHARMACEUTICS I

TIME: 3 HRS **M.MARKS: 75**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define Solvation and Association.
b.	Define critical solution temperature.
c.	Define Sorensen's pH scale.
d.	Explain eutectic mixtures.
e.	What are chelating agents?
f.	Explain the term solubilization.
g.	What is critical micellar concentration?
h.	Define Nernst potential and Zeta potential.
i.	Explain the term "Detergency".
j.	Describe Molarity and Normality.

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	Describe the solubility of liquids in liquids.
b.	Derive Raoult's Law and discuss deviation from Raoult's Law giving examples.
c.	Demonstrate various methods used for the determination of surface and interfacial tension.

SECTION C

3. Attempt any *five* parts of the following: **5 x 7 = 35**

a.	Define tonicity. Differentiate between isosmotic and isotonic solutions. Describe the methods that are used to adjust pH and tonicity.
b.	Describe the classification of complexation in detail.
c.	Classify surface active pharmaceutical system.
d.	Explain buffer action and application of buffer in pharmaceutical and biological system.
e.	Explain the differences between solid-crystalline and amorphous states.
f.	Discuss the distribution law along with its applications and limitations.
g.	Discuss protein binding.

PAPER ID-311348

Roll No:

BPHARM
(SEM III) THEORY EXAMINATION 2025-26
PHYSICAL PHARMACEUTICS I

TIME: 3 HRS M.MARKS: 75

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 10 x 2 = 20

a.	Define ideal solubility parameter and give its significance.
b.	Define Solvation, Desolvation, and Association with one example each.
c.	Explain critical solution temperature and mention its types.
d.	Define eutectic mixture. Give two pharmaceutical examples.
e.	Define Sorensen's pH scale and write its mathematical expression.
f.	What is Critical Micellar Concentration (CMC)? Mention any two factors affecting it.
g.	Define Detergency. How does it differ from cleaning?
h.	Differentiate between Nernst potential and Zeta potential.
i.	What are chelating agents? Write any two pharmaceutical applications.
j.	Define viscosity and mention one factor affecting the viscosity of liquid .

SECTION B

2. Attempt any *two* parts of the following: 2 x 10 = 20

a.	Describe in detail the solubility of liquids in liquids. Discuss the types, factors affecting mutual solubility, CST, and pharmaceutical applications.
b.	Derive Raoult's Law for ideal solutions. Discuss positive and negative deviations from Raoult's law with suitable examples and diagrams.
c.	Explain various methods used for the determination of surface and interfacial tension:

SECTION C

3. Attempt any *five* parts of the following: 7 x 5 = 35

a.	Define isotonicity. Differentiate between isosmotic and isotonic solutions. Explain methods used to adjust tonicity
b.	Describe classification, properties, and pharmaceutical applications of complexation. Add examples for each class.
c.	Classify surface-active pharmaceutical systems. Explain HLB system and its role in emulsification and solubilization.
d.	Explain buffer action. Describe Henderson–Hasselbalch equation and applications of buffers in biological and pharmaceutical systems.
e.	Differentiate between crystalline and amorphous states based on structure, melting point, solubility, and stability. Give examples.
f.	Discuss Nernst Distribution Law. Explain its applications and limitations in pharmacy.
g.	Explain protein binding, types of protein–drug interactions, factors affecting protein binding, and its significance in pharmacokinetics.

Paper ID : 262082

Subject Code:BP302T

Roll No:													

BPHARM
(SEM. III) THEORY EXAMINATION 2025-26
PHYSICAL PHARMACEUTICS I

TIME: 3 HRS **M.MARKS: 75**

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **10 x 2 = 20**

a.	Define dielectric constant and state its significance.
b.	What is critical micelle concentration (CMC)?
c.	Define partition coefficient.
d.	What is zeta potential?
e.	Define adsorption isotherm.
f.	What is Nernst distribution law?
g.	Define refractive index.
h.	What is eutectic mixture?
i.	Define sedimentation volume.
j.	What is Brownian movement?

SECTION B

2. Attempt any *two* parts of the following: **2 x 10 = 20**

a.	Explain Nernst Distribution Law. Discuss its assumptions, limitations, and pharmaceutical applications.
b.	Describe electrical properties of colloidal dispersions. Explain zeta potential, electrical double layer, and methods of determination.
c.	Discuss the kinetics of drug degradation. Explain zero-order, first-order, and pseudo-first-order reactions with pharmaceutical examples.

SECTION C

3. Attempt any *five* parts of the following: **7 x 5 = 35**

a.	Discuss phase rule and explain one-component and two-component systems with suitable diagrams.
b.	Explain refractive index. Describe the principle, construction, and working of Abbé refractometer.
c.	Discuss colloidal dispersions. Classify colloids and explain their pharmaceutical applications.
d.	Explain sedimentation and diffusion. Discuss factors affecting sedimentation rate.
e.	Describe eutectic systems and their pharmaceutical significance with suitable examples.
f.	Explain dielectric constant and dipole moment. Discuss their importance in pharmacy.
g.	Explain polymorphism and its pharmaceutical significance.