

B.Pharm II Year I Semester (R19) Supplementary Examinations September 2022

**PHYSICAL PHARMACEUTICS – I**

Time: 3 hours

Max. Marks: 75

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Define the term highly soluble and sparingly soluble.
  - (b) Define the term Critical Solution Temperature (CST).
  - (c) What is polymorphism? What is its importance in pharmacy?
  - (d) Describe Snell's law.
  - (e) Define spreading coefficient and mention its significance.
  - (f) Give any two examples of surface-active agents.
  - (g) Explain the factors affecting plasma protein binding of drugs.
  - (h) Mention the forces that are involved in molecular complexes.
  - (i) Define buffer capacity.
  - (j) Name the two important biological buffer systems.

**PART – B**

**(Answer any two questions: 02 X 10 = 20 Marks)**

- 2 What is HLB? Describe in detail about the HLB scale for surface active agents.
- 3 Explain the kinetics and mention what are the significance of protein binding.
- 4 Write in brief about the measurement and applications of refractive index.

**PART – C**

**(Answer any seven questions: 07 X 05 = 35 Marks)**

- 5 Explain spreading coefficient and its significance.
- 6 Differentiate between crystalline solid and amorphous solid.
- 7 Discuss the thermodynamic treatment of stability constants.
- 8 Explain the various laws that are used to describe behaviour of gases.
- 9 Describe various methods used to determine solubility of gases in liquid.
- 10 Discuss eutectic mixtures and its importance in formulations.
- 11 Discuss buffers in biological systems.
- 12 Describe distribution law and its application.
- 13 Define Sorensen's pH scale. Write down different methods of determination of pH.

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B.Pharm II Year I Semester (R19) Regular & Supplementary Examinations April 2022

**PHYSICAL PHARMACEUTICS – I**

Time: 3 hours

Max. Marks: 75

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Define the term solubility.
  - (b) Define real and ideal solution.
  - (c) Define eutectic point. Give one example of eutectic mixture.
  - (d) Define aerosol. Mention its application in pharmacy.
  - (e) Why drop of liquid hanging in air is spherical in shape?
  - (f) What is HLB value? Write any two importance of HLB scale.
  - (g) Define chelation. Give two examples of chelating agent.
  - (h) Define protein binding. What is its significance in pharmacy?
  - (i) Write down the Henderson-Hasselbalch equation for weak acid and weak base.
  - (j) Name the two important biological buffer systems.

**PART – B**

**(Answer any two questions: 02 X 10 = 20 Marks)**

- 2 Discuss about buffer equation and write its applications in pharmacy.
- 3 Discuss in detail about the various physicochemical properties of the drug molecules.
- 4 Define complexation and briefly explain about inclusion complexes.

**PART – C**

**(Answer any seven questions: 07 X 05 = 35 Marks)**

- 5 Describe the factors affecting solubility of drugs.
- 6 Differentiate between crystalline solid and amorphous solid.
- 7 Write a short note on 'Glassy state'.
- 8 What is surface tension? Explain how it can be measured.
- 9 Describe BET equation. Write different types of isotherms.
- 10 Write down the factors affecting the solubility of gas in liquid.
- 11 State and explain isotonic solution. How isotonicity can be adjusted?
- 12 Explain critical solution temperature and mention its applications.
- 13 Discuss the importance of buffers in biological and pharmaceutical systems.

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B.Pharm II Year I Semester (R19) Supplementary Examinations August 2021

**PHYSICAL PHARMACEUTICS – I**

Time: 3 hours

Max. Marks: 75

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- State Raoult's law.
  - Define normality.
  - What is polymorphism? Give two examples.
  - What is dipole moment?
  - What are surface active agents? Give two examples.
  - Define adsorption.
  - Define complexation.
  - Give the significance of protein binding of drugs.
  - What are hypertonic and hypotonic solutions?
  - Give buffer equation.

**PART – B****(Answer any two questions: 02 X 10 = 20 Marks)**

- 2
- What are eutectic mixtures? Explain.
  - Discuss the different methods of analysis of complexes with examples.
- 3
- Discuss aerosols and inhalers.
  - Define surface tension and explain any two methods of determination of surface tension.
- 4
- Define pH. Explain the methods of determination of pH.
  - Explain the following physicochemical properties of drugs: (i) Refractive index. (ii) Optical rotation.

**PART – C****(Answer any seven questions: 07 X 05 = 35 Marks)**

- 5
- Briefly discuss the mechanisms of solute-solvent interactions.
  - What are liquid complexes? Explain.
- 6
- Write notes on liquid crystals and glassy states.
  - Discuss Freundlich and Langmuir adsorption isotherm.
- 7
- What is HLB scale? Give its significance.
  - Classify complexes and explain inclusion complexes.
- 8
- What are buffers and buffer capacity? Give the pharmaceutical applications of buffers.
  - Define solubility. Explain the factors influencing solubility of drugs.
- 9
- Discuss diffusion principles in biological systems.
  - Write a note on sublimation and sublimation critical point.

Contd. in page 2

- 10 (a) Differentiate between crystalline and amorphous solids.  
(b) What is dissociation constant? Discuss about its determination.
- 11 (a) Briefly discuss about partially miscible liquids.  
(b) Write a note on solubilization and detergency.
- 12 (a) Enumerate the pharmaceutical applications of complexation.  
(b) Write a note on Sorensen's pH scale and buffered isotonic solutions.
- 13 (a) What is meant by solvation? Discuss about ideal solubility parameters.  
(b) What is critical solution temperature? Give its applications.

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B.Pharm II Year I Semester (R19) Regular Examinations March 2021

**PHYSICAL PHARMACEUTICS – I**

Time: 3 hours

Max. Marks: 75

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What is ideal solution?
  - (b) What is meant by critical solution temperature?
  - (c) What do you mean by latent heat?
  - (d) Define sublimation.
  - (e) What is spreading coefficient?
  - (f) What is surface free energy?
  - (g) Give distribution law.
  - (h) What is protein binding of drugs? Give its significance.
  - (i) What is buffer capacity?
  - (j) What is optical rotation?

**PART – B****(Answer any two questions: 02 X 10 = 20 Marks)**

- 2 (a) What are partially miscible liquids? Explain.  
(b) Define complexes. Classify and explain complexes with suitable examples.
- 3 (a) Define surfactants. Explain classification of surfactants with suitable examples.  
(b) Elaborate on optical rotation.
- 4 (a) Explain the methods of determination of protein binding of drugs.  
(b) What is refractive index? Explain the method of determination of refractive index.

**PART – C****(Answer any seven questions: 07 X 05 = 35 Marks)**

- 5 (a) Write about Raoult's law, ideal and real solutions.  
(b) Define solubility. What are the various methods of expressing solubility?
- 6 (a) What are isotherms? Discuss about Langmuir adsorption isotherm.  
(b) What is meant by dielectric constant and dissociation constant?
- 7 (a) Briefly discuss about Liquid crystalline state and Supercritical fluids.  
(b) Give the pharmaceutical application of surface active agents.
- 8 (a) Write a note on liquid complexes.  
(b) Explain distribution law, its limitations and applications.
- 9 (a) Write a note on isotonic solutions, hypertonic solutions and hypotonic solutions.  
(b) Briefly discuss about eutectic mixtures.

Contd. in page 2

- 10 (a) Define pH. Explain a method of determination of pH.  
(b) Briefly discuss diffusion principles in biological systems.
- 11 (a) What is HLB scale? Give its significance.  
(b) What is critical solution temperature? Give its applications.
- 12 (a) Write a note on solubilisation and detergency.  
(b) Briefly discuss about partially miscible liquids.
- 13 (a) Write application of buffers in pharmaceutical and biological system.  
(b) What is polymorphism? Differentiate between crystalline and amorphous solids.

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