27/12/2021 m

Roll Number ---------------------- (Total Number of Questions 13) (Total number of Printed Pages 01)

Programme	B. Pharmacy
Semester	3rd
Subject	Physical Pharmaceutics-I
Subject Code	BP302T
Paper ID	75106
Time	3Hours
Maximum Marks	75

Instructions to Candidates: *No supplementary/continuation sheet will be issued to the candidates. Answer the questions precisely.*
Section A consists of Ten parts of 2 marks each (Objective Type); Attempt ALL.
**Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any TWO.*
***Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.*

Section A   (10 X2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	Define the term Solubility.
ii.	What is Raoult's Law?
iii.	Define Eutectic Mixtures.
iv.	Give the Expression for Dielectric Constant.
v.	How will you define the term Surface Free Energy?
vi.	Differentiate between Absorption and Adsorption.
vii.	What is Complexation?
viii.	What is Protein Binding?
ix.	What is Buffer Capacity?
x.	Give any two Applications of buffers in Pharmaceuticals.

Section B   (2 X 10 = 20)

2.	Describe in detail "How Surface Tension can be measured?"
3.	Classify Complexation and give its applications.
4.	Explain the principle and working of Refractometers.

Section C   (7 X 5 = 35)

5.	Describe various factors which influence solubility of drugs.
6.	Elaborate how Optical Rotation can be measured.
7.	Define Spreading Coefficient. Derive the expression for it.
8.	Elaborate the applications of Buffers in Pharmaceutical Systems with examples.
9.	What is HLB Scale? Draw it.
10.	Show how Solute- Solvent interaction takes place.
11.	Differentiate between Amorphous and Crystalline state of solids.
12.	How pH can be measured? Explain.
13.	What is the significance of Critical Solution Temperature?

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Section A   (10 X2 = 20)

1. Give very short answers to the followings (2 marks each):

i.	What is Relative humidity?
ii.	What is indicator constant?
iii.	Define Spreading coefficient.
iv.	How are degrees of freedom calculated?
v.	What are binary solutions?
vi.	What are chelates?
vii.	Define refractive index.
viii.	What do you mean by diffusion?
ix.	Define solubility.
x.	Define HLB value and its scale.

Section B   (2 X 10 = 20)

2.	Discuss ideal solutions and explain complete and partial solubility.
3.	Discuss various factors influencing solubility.
4.	Discuss the distribution method for determination of stoichiometric ratio in a complex.

Section C   (7 X 5 = 35)

5.	Discuss the relationship between vapour pressure and critical point.
6.	Briefly discuss diffusion in biological system.
7.	Describe the applications of buffers in pharmaceutical systems.
8.	Write the difference between solvation and association with examples.
9.	Explain self association phenomena.
10.	Explain aerosols and their ingredients.
11.	Write a note on distribution coefficient.
12.	Discuss the significance of polymorphism.
13.	Explain Raoults law.

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Section- A   (10 X2 = 20)

1.	Give very short answers to the followings:
i.	Define Triple point.
ii.	What are Layer type complexes?
iii.	Give Distribution law.
iv.	What is Buffer capacity?
v.	Define Solubility in terms of qualitative and quantitative.
vi.	What is Surface free energy?
vii.	Define gas laws.
viii.	What is Dipole moment?
ix.	What is the role of propellant in aerosols?
x.	Define the term Detergency.

Section- B   (2X10=20)

2.	Explain various methods used for analysis of Complexation.
3.	Write a note on a) Solvation and Association. b) Give properties of Solids, Liquid and Gases.
4.	Explain Buffer equation along with various applications of buffers in pharmaceuticals.

Section- C   (7X5 =35)

5.	Write a note on Optical Rotation.
6.	Classify Surfactants with examples.
7.	Write a detail note on diffusion principles used in biological system.
8.	Explain various methods used for measuring Isotonicity.
9.	What is Spreading Coefficient?
10.	Explain HLB system.
11.	Write a note on Sublimation.
12.	How Surface and Interfacial tension can be measured?
13.	Explain working of Abbe's refractometer.

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Section- A   (10X2=20)

1.	Give very short answers to the followings
i.	What is relative humidity?
ii.	What is indicator constant?
iii.	Define spreading coefficient.
iv.	How are degrees of freedom calculated?
v.	What are binary solutions?
vi.	What are chelates?
vii.	Define refractive index.
viii.	What do you mean by diffusion?
ix.	Define solubility.
x.	Define HLB value and its scale.

Section- B   (2X10=20)

2.	Discuss ideal solutions and explain complete and partial solubility.
3.	Discuss various factors influencing solubility.
4.	Discuss the distribution method for determination of stoichiometric ratio in a complex.

Section- C   (7X5=35)

5.	Discuss the relationship between vapour pressure and critical point.
6.	Briefly discuss diffusion in biological system.
7.	Describe the applications of buffers in pharmaceutical systems.
8.	Difference between solvation and association with examples.
9.	Explain self association phenomena.
10.	Explain aerosols and their ingredients.
11.	Write a note on distribution coefficient.
12.	Discuss the significance of polymorphism.
13.	Discuss Raoults law.

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***Section C consists of nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

Section- A   (10 X2 = 20)

1.	Give very short answers to the following:
i.	Define the ideal solution.
ii.	Define azeotropes.
iii.	What are supercritical fluids? Give examples.
iv.	What is an eutectic mixture?
v.	What is a refractive index?
vi.	Define surfactants. Give examples.
vii.	BET equation
viii.	What are inclusion complexes?
ix.	Buffer capacity
x.	Dipole moment

Section- B   (2 X 10 = 20)

2.	Draw and explain the phase diagram of the phenol water system.
3.	Define phase rule. Explain phase rule for one and two-component systems.
4.	What is the significance of protein binding? Explain the kinetics of protein binding.

Section- C   (7 X 5 = 35)

5.	State and explain Raoult's Law.
6.	What are liquid crystals? Explain different types of liquid crystals.
7.	Write a note on the properties and application of supercritical fluids.
8.	Describe Freundlich's absorption isotherm.
9.	Write a note on the capillary rise method to determine the surface tension of the liquid.
10.	What is Klotz's plot? Explain with a diagram.
11.	Write a note on methods of adjustment of tonicity.
12.	Define dielectric constant. Write a note on its measurement and application.
13.	Describe the HLB system.

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***Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.*

Section- A   (10 X2 = 20)

1.	Give very short answers to the followings:
i.	What is the buffer equation for a weak base and its salt?
ii.	Define HLB scale.
iii.	What is dipole moment?
iv.	Define solvation and association.
v.	What is meant by protein binding of drug with suitable examples?
vi.	Define triple point and latent heat.
vii.	Differentiate between hypotonic, hypertonic and isotonic solution.
viii.	Define critical solution temperature.
ix.	What is eutectic mixture?
x.	What is surface free energy?

Section- B   (2 X 10 = 20)

2.	What are the methods used in adjusting isotonicity?
3.	What are ideal gases? What is the derivation of the ideal gas from the real gas?
4.	Explain different methods for measurement of surface tension.

Section- C   (7 X 5 = 35)

5.	Classify and give applications of complexation.
6.	Give a brief notes on- A) Solubilisation B)Detergency
7.	Write about measurement of optical rotation.
8.	What are the applications of buffers in pharmaceutical and biological systems?
9.	What are the factors influencing solubility of drugs?
10.	Discuss different methods for pH determination.
11.	Explain diffusion principles in biological systems.
12.	What is Phase Rule? Explain one component system of phase rule?
13.	Give the Distribution law along with its limitations and applications.

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Semester	3rd
Subject	Physical Pharmaceutics-I
Subject Code	BP302T
Paper ID	75106
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Maximum Marks	75

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Section A consists of Ten parts of 2 marks each (Very Short Answer); Attempt ALL.
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*** Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.*

Section- A   (10X2=20)

I.	Give very short answers to the followings:
i.	What are buffered isotonic solutions?
ii.	Enlist methods to determine surface tension of liquids and solids.
iii.	Why drop of liquid hanging in air is spherical in shape?
iv.	Differentiate between monomolecular and macromolecular complexes.
v.	Explain relation between pH and solubility.
vi.	Write significance of complexation in pharmaceutical products.
vii.	Define intrinsic solubility.
viii.	Differentiate between solutions and colloids.
ix.	What do you understand by sublimation and condensation?
x.	What is Raoult's law?

Section- B   (2X10=20)

2.	Derive ideal gas equation and explain various gas laws?
3.	Explain adsorption at solid interface in detail.
4.	Discuss various physiochemical properties of drug molecules.

Section- C   (7X5=35)

5.	Explain role of diffusion in biological principles.
6.	Differentiate between melting temperature and glass transition temperature.
7.	Classify and explain various types of crystal defects.
8.	Explain Henderson-Hasselbalch equation with its application.
9.	Write a note on biological buffers.
10.	Describe various methods to determine HLB.
11.	Explain drop count and drop weight method.
12.	Discuss different types of complexes.
13.	Explain the factors affecting protein binding.

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Semester	3rd LEET
Subject	Physical Pharmaceutics
Subject Code	BP302T
Paper ID	75106
Time	3 Hours
Maximum Marks	75

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***Section B consists of Three questions carrying 10 marks each (Long Answer); attempt any **TWO**.*
****Section C consists of Nine questions carrying 5 marks each (Short Answer); attempt any **SEVEN**.*

Section- A   **(10X2=20)**

1.	Give very short answers to the following:
i.	Differentiate pH and buffer.
ii.	How solubility of amorphous solids is more than crystalline?
iii.	Explain how solute-solvent interaction affects the solubility of drug molecules.
iv.	What are pharmaceutical aerosols?
v.	What are surface active agents?
vi.	Why do solubilization value ranges differ from detergency in the HLB scale?
vii.	Enlist numerous calorimetric parameters of pH determination.
viii.	State Raoult's law with formula and give its two limitations.
ix.	What is protein-drug binding?
x.	Explain how the isotonic solution is different from the buffer isotonic solution.

Section- B   **(2X10=20)**

2.	Describe various methods for the measurement of surface tension.
3.	Write in detail about crystalline structure of complexes and thermodynamic treatment of stability constant.
4.	Explain various physiochemical properties of drug molecules.

Section- C   **(7X5=35)**

5.	Distinguish in between unit dose devices and multi-dose devices.
6.	Give a neat labelled diagram, principle, and working of the Franz diffusion cell.
7.	Elaborate on various pharmaceutical applications of complexation.
8.	Explain the phenomenon of surfactant reducing surface tension.
9.	Explain pharmaceutical applications and the importance of buffers in biological systems.
10.	Explain the solubility of gas in a liquid system.
11.	Define polymorphism; give details on its various characterization techniques.
12.	Define Critical solution temperature. Explain the rate-limiting step involved in diffusion.
13.	Give a detailed account of the method of analysis of complexation.

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Subject Code	BP 302T
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Section- A consists of **ten questions, each carrying **2 marks** (Very Short Answer Type); **Attempt all.***
Section- B consists of **three questions**, each carrying **10 marks** (Long Answer Type); **Attempt any two.
****Section- C consists of **nine questions**, each carrying **5 marks** (Short Answer Type); **Attempt any seven.***

Section- A　　　　　　　　　　　　　(10X2=20)

1.	Give very short answers to the followings:
i.	Define changes in states of matter.
ii.	Write a note on Raoult's rule.
iii.	What is CMC?
iv.	Give two applications of buffers.
v.	Mention two uses of surfactants.
vi.	What are eutectic mixtures?
vii.	Write the method of analysis of complexation.
viii.	Define surface free energy.
ix.	What is solubilisation and detergency?
x.	Write the phase rule.

Section- B　　　　　　　　　　　　　(2X10=20)

2.	Write note on -
	a)　What is protein binding? Discuss its importance
	b)　Write a note on buffers? Explain their importance in pharmaceutical and biological systems.
3.	Write a note on solubility expressions and factors influencing on solubility of drugs.
4.	Write note on -
	a)　Describe the methods for determination of surface tension.
	b)　Write a note on polymorphism and its applications.

Section- C　　　　　　　　　　　　　(7X5=35)

5.	What is critical solution temperature with its applications?
6.	Define complexation and classify its various types.
7.	How do you measure pH using hydrogen electrode.
8.	Analyze the factors influencing the solubility of drugs.
9.	Define stability constant and its thermodynamic significance.
10.	Write method to determine PKa and its applications.
11.	What do you mean by buffered isotonic solutions?
12.	Summarize the HLB scale and its applications.
13.	Define spreading coefficient and summarize adsorption at the solid interface.

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***Section -C consists of Nine questions carrying 5 marks each (Short Answer); attempt any SEVEN.

Section- A   (10X2=20)

1.	Give very short answers to the followings:
i.	What are real solutions?
ii.	Define relative humidity.
iii.	What is buffer capacity?
iv.	What are layer type complexes?
v.	What is surface free energy?
vi.	Define protein drug complex.
vii.	Enlist ideal solubility parameters.
viii.	Define polymorphism.
ix.	What are chelating agents?
x.	Differentiate between surface and interfacial tension.

Section- B   (2X10=20)

2.	Explain various methods used for analysis of complexation.
3.	Write a detail note on diffusion principles in biological system.
4.	Explain any two methods used for measurement of surface and interfacial tension.

Section- C   (7X5=35)

5.	Explain optical rotation with its applications.
6.	Write a note on buffered isotonic solutions.
7.	Explain spreading coefficient.
8.	Elaborate the factors influencing solubility of drug.
9.	Derive buffer equation.
10.	Explain eutectic mixture with composition.
11.	Classify complexes.
12.	Draw HLB scale with reference to pharmaceutical applications.
13.	Write a note on distribution law along its applications and limitations.

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