

August 2011

[KZ 4256]

Sub. Code : 4256

SECOND B.PHARM. EXAMINATION
Paper I – PHYSICAL PHARMACEUTICS

Q.P. Code : 564256

Time : Three hours

Maximum: 100 Marks

Answer ALL questions.

I. LONG ESSAYS

(2 x 20 = 40)

1. a) Explain Critical micellar concentration, theories of micelle formation.
b) Electrical properties of interfaces.
2. Write about the various decomposition and stabilization study of medicinal agents.

II. SHORT NOTES

(8 x 5 = 40)

1. Noyes Whitney equation.
2. Colloidal properties.
3. Settling of suspensions.
4. First order reaction.
5. Explain the term Micromeritics.
6. Pharmaceutical applications of Rheology.
7. Give a brief account of inclusion compounds.
8. pH determination and its applications.

III. SHORT ANSWERS

(10 x 2 = 20)

1. Define diffusion.
2. Types of colloids.
3. Deflocculating agents.
4. Factors influencing the physical stability of emulsion.
5. Accelerated stability studies.
6. Methods of determining surface area.
7. Newtonian system. 8. Binding equilibria.
9. Give examples for polymer complexes.
10. Define sedimentation volume.

[LB 4256]

AUGUST 2012

Sub. Code: 4256

SECOND YEAR B.PHARM. EXAM
Paper I – PHYSICAL PHARMACEUTICS

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

(180 Min) Answer ALL questions in the same order.

I. Elaborate on:

Pages Time Marks
(Max.)(Max.)(Max.)

- | | | | |
|---|----|----|----|
| 1. a. Define interfacial tension? Discuss the classification & application of surfactant? | | | |
| b. Explain about types of colloids. | 19 | 33 | 20 |
| 2. a. What is meant by Rheology? Give an account of shear thickening system? | | | |
| b. Write briefly about various methods of determining particle size. | 19 | 33 | 20 |

II. Write notes on:

- | | | | |
|---|---|---|---|
| 1. Noyes Whitney equation. | 3 | 8 | 5 |
| 2. Spreading coefficient. | 3 | 8 | 5 |
| 3. Cup and Bop viscometer. | 3 | 8 | 5 |
| 4. Diffusion layer model theory. | 3 | 8 | 5 |
| 5. Controlled flocculation. | 3 | 8 | 5 |
| 6. How do you predict shelf life. | 3 | 8 | 5 |
| 7. Define micro merits. Discuss the applications. | 3 | 8 | 5 |
| 8. Inclusion complexes. | 3 | 8 | 5 |

III. Short Answers:

- | | | | |
|---------------------------|---|---|---|
| 1. Define Emulsion. | 1 | 5 | 2 |
| 2. Yield value. | 1 | 5 | 2 |
| 3. Dielectric constant. | 1 | 5 | 2 |
| 4. Zero order reactions. | 1 | 5 | 2 |
| 5. Stability of emulsion. | 1 | 5 | 2 |
| 6. Polymorphism. | 1 | 5 | 2 |
| 7. Kraft. | 1 | 5 | 2 |
| 8. Kinematic viscosity. | 1 | 5 | 2 |
| 9. Specific gravity. | 1 | 5 | 2 |
| 10. Porosity. | 1 | 5 | 2 |

[LC 4256]

FEBRUARY 2013

Sub. Code: 4256

SECOND YEAR B.PHARM. EXAM

Paper I – PHYSICAL PHARMACEUTICS

Q.P. Code: 564256

**Time : Three hours
(180 Min)**

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40 marks)

1. Describe about the different methods of analysis of complexes with examples.
2. Discuss about the preparation and evaluation of pharmaceutical suspensions.

II. Write notes on:

(8 x 5 = 40 marks)

1. Explain the principles of gastro intestinal absorption of drugs.
2. What is buffer capacity? How do you determine the buffer capacity?
3. Describe the derived properties of powders.
4. Write the applications of rheology in pharmacy.
5. Explain the factors influencing rate of reaction.
6. Write notes on spreading coefficient.
7. Discuss about instabilities of emulsion.
8. Describe the optical properties of colloids.

III. Short Answers:

(10 x 2 = 20 marks)

1. Half life.
2. Thixotropy.
3. Protein binding of drugs.
4. Applications of colloidal system.
5. Solubilization.
6. Hydrophilic lipophilic balance.
7. Viscosity.
8. Multiple emulsions.
9. Protective colloids.
10. Examples of pharmaceutical buffers.

(LD 4256)

AUGUST 2013

Sub. Code: 4256

**SECOND YEAR B.PHARM. EXAM
PAPER I – PHYSICAL PHARMAEUTICS**

Q.P. Code: 564256

Time: Three Hours

Maximum: 100 marks

I. Elaborate on:

(2X20=40)

1. a) Explain objectives, procedures and limitations of accelerated stability testing.
b) Explain briefly on degradation and stabilization of pharmaceutical products.
2. What is complexation and brief about different types of complexes?
Explain any two methods of complex analysis.

II. Write notes on:

(8X5=40)

1. Briefly explain the diffusion principles in biological systems
2. Write short notes on different colloidal systems
3. Explain protein binding of drugs.
4. Discuss Sedimentation technique that used for particle size analysis.
5. Describe Cone and Plate viscometer
6. Explain instabilities of emulsion
7. Explain pharmaceutical applications of surfactants according to HLB values.
8. Discuss shear thickening systems with suitable examples.

III. Short Answers on:

(10X2=20)

1. Factors causing breaking in emulsion
2. Zeta potential
3. Noyes Whitney equation
4. Define Yield value in plastic systems
5. Thixotrophy
6. Porosity
7. Define Glidants with suitable examples.
8. Buffer capacity
9. Dissolution
10. Factors influencing CMC

(LE 4256)

FEBRUARY 2014

Sub. Code: 4256

**SECOND YEAR B.PHARM. EXAM
PAPER I – PHYSICAL PHARMAEUTICS**

Q.P. Code: 564256

Time: Three Hours

Maximum: 100 marks

I. Elaborate on:

(2X20=40)

1. a) Define suspensions. Explain setting properties of suspensions.
b) Explain different types colloids.
2. a) Define thixotropy. Types of thixotropy. Measurement and application of thixotropy.
b) Write about the flow properties of powder.

II. Write notes on:

(8X5=40)

1. Explain the electric double layer of interface.
2. Write about the applications of surfactant.
3. Short notes on Inclusion complexes.
4. Write the methods to determine the order of reaction.
5. Explain coulter counter apparatus.
6. Isotonic solutions.
7. Fick's laws of diffusion.
8. Theories of emulsion.

III. Short Answers on:

(10X2=20)

1. CMC.
2. Chelates.
3. Ferrocene.
4. Rheopexy.
5. Noyes-Whitney equation.
6. Surface and interfacial tension.
7. Edmunson equation.
8. HLB.
9. AST.
10. Flocculation and coalescence.

SECOND YEAR B.PHARM. DEGREE EXAMINATION

Paper I – PHYSICAL PHARMACEUTICS

Q. P. Code: 564256

Time: Three Hours

Maximum: 100 Marks

Answer All Questions

I. Essay Questions:

(2 x 20 = 40)

1. a) What is Kinetics? Define order of reaction.
Distinguish between the first order and zero order reaction.
Explain the methods to determine the order of reaction.
b) Methods to determine specific surface area of powders.
2. a) What is an emulgent. Classify emulgents with suitable example.
Explain the mechanism of action of emulgent.
b) Write about the Fick's laws of diffusion.

II. Short Notes:

(8 x 5 = 40)

1. Isotonic solutions and tonicity adjustment.
2. Inorganic complexes in pharmacy.
3. Electric properties of interface.
4. Thioxotrophy.
5. Purification of colloids.
6. Stability of suspensions with sedimentation parameter.
7. Explain Do-nouy ring method.
8. Significance of protein binding.

III. Short Answers:

(10 x 2 = 20)

1. Spreading coefficient.
2. Carrier mediated transport.
3. CMC.
4. Bancraft rule.
5. Creaming and cracking.
6. Porosity.
7. Edmunson equation.
8. HLB.
9. Types of viscometer.
10. Non-newtonian system.

(LG 4256)

FEBRUARY 2015

Sub. Code: 4256

**B.PHARM. EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 marks

I. Essay: (2 x 20 = 40)

1. a) What are colloids? Explain the stability of colloids using DLVO theory.
How are the colloids protected?
b) Define dissolution. Write about the factors affecting rate of dissolution.
2. a) What are the basic properties of a powder? Explain any one method to determine one basic property.
b) Define complexes. Classify the complexes with suitable example. Write about the inclusion complexes.

I. Short notes: (8 x 5 = 40)

1. Classification of flocculating agents
2. Determination of expiry date
3. Classification of viscometers
4. Stability of emulsions
5. Electric properties of interface
6. Isotonic solutions
7. Significance of protein binding
8. Types of suspensions

III. Short answers: (10 x 2 = 20)

1. Gibb's adsorption equation
2. Spreading coefficient
3. Endocytosis
4. Ultra centrifuge
5. Bancraft rule
6. Ferrocene
7. CMC
8. Bulges and spurs
9. Thioxotrophy
10. Order of reaction

B.PHARM. DEGREE EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS

Q.P. Code: 564256

Time : Three Hours

Maximum : 100 marks

Answer All Questions

I. Essay:

(2 x 20 = 40)

1. Define diffusion. Describe steady state of diffusion. Explain the factors affecting dissolution.
2. What is buffer capacity? Explain the various methods for adjusting tonicity. Explain the importance of pharmaceutical buffers.

II. Short notes :

(8 x 5 = 40)

1. Protein binding of drugs.
2. Theory of emulsification.
3. Nernst and zeta potential.
4. Determination of order of reaction.
5. Particle size and size distribution.
6. Newtonian systems.
7. Clathrates.
8. Spreading coefficient.

III. Short answers:

(10 x 2 = 20)

1. Define osmosis
2. Brownian motion.
3. Multiple emulsion.
4. HLB values.
5. Noyes whitney equation.
6. Porosity.
7. Kinematic viscosity.
8. Rheopexy.
9. Chelates.
10. Specific rate constant.

(LI 4256)

FEBRUARY 2016

Sub. Code: 4256

**B.PHARM. EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Essay: **(2 x 20 = 40)**

1. a) Explain objective, procedure and limitations of accelerated stability testing.
b) Explain briefly on degradation and stabilization of pharmaceutical products.
2. a) Explain various methods of complex analysis.
b) Discuss shear thickening systems with suitable examples.

II. Short notes: **(8 x 5 = 40)**

1. Discuss Sedimentation technique that used for particle size analysis.
2. Briefly explain the diffusion principles in biological systems.
3. Write short notes on different colloidal systems.
4. Dilatant flow.
5. Describe Cone and Plate viscometer.
6. Explain instabilities of emulsion
7. Explain pharmaceutical applications of surfactants according to HLB values.
8. Brief about Factors affecting dissolution.

III. Short answers: **(10 x 2 = 20)**

1. Factors causing breaking in emulsion.
2. Zeta potential.
3. Noyes Whitney equation.
4. Define Yield value in plastic systems.
5. Thixotrophy.
6. Porosity.
7. Define Protective colloids.
8. Buffer capacity.
9. Dissolution.
10. Stoke's law.

(LJ 4256)

AUGUST 2016

Sub. Code: 4256

**B.PHARM. EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Essay: **(2 x 20 = 40)**

1. What are suspensions? Describe formulation of suspensions. Add note on theory of sedimentation.
2. Explain the Rheological behavior of Non Newtonian systems. Discuss the choice of viscometer for Rheological properties determination. Describe capillary viscometer.

II. Short notes: **(8 x 5 = 40)**

1. Instabilities of emulsion.
2. Pharmaceutical application of colloids.
3. Electric double layer.
4. Decomposition and stabilization of drugs.
5. Derived properties of powders.
6. Inclusion Complex.
7. Buffers in pharmaceutical and biological systems.
8. Pharmaceutical applications of complexation.

III. Short answers: **(10 x 2 = 20)**

1. pH partition hypothesis
2. Diffusion
3. Electrophoresis
4. Schulze Hardy rule
5. Wetting agents
6. Angle of repose
7. Micrometrics
8. CMC
9. Creaming
10. Polymorphism

(LK 4256)

FEBRUARY 2017

Sub. Code: 4256

**B.PHARM. EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Elaborate on: **(2 x 20 = 40)**

1. a) Explain theory of micelle formation. Add note on factors influencing critical micelle concentration.
b) Write note on HLB scale.
2. a) Define physical stability of a suspension. Discuss the principles involved in the formulation of a physically stable suspension.
b) Discuss different experimental methods of determining protein binding of drug.

II. Write notes on: **(8 x 5 = 40)**

1. Explain the term thixotropy and negative thixotropy.
2. How do you determine particle size by coulter-counter method?
3. pH titration method for complex analysis.
4. Discuss about electrical properties of colloids.
5. Explain rate and order of reaction.
6. Write short note on steady state diffusion.
7. Explain isotonic solution and methods of adjusting tonicity.
8. Describe multiple and micro emulsion.

III. Short answers on: **(10 x 2 = 20)**

1. Factors affecting dissolution.
2. Define Newtonian systems.
3. Complexation.
4. BET equation.
5. Angle of repose.
6. Define Clathrates.
7. Brownian movement.
8. Tyndall effect.
9. Application of buffer in biological system.
10. Spreading coefficient.

(LL 4256)

AUGUST 2017

Sub. Code: 4256

**B.PHARM. DEGREE EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Define complexation and classify complexes with examples. Explain the methods to analyse complexes.
2. Describe and explain the theories of Emulsification. Write a note on stability problem in Emulsion.

II. Write notes on:

(8 x 5 = 40)

1. Define and classify surfactants with suitable examples.
2. Write short notes on different colloidal systems.
3. Describe cone and plate viscometer.
4. Discuss different experimental methods of determining protein binding of drug.
5. Define suspension. What are the ideal properties of suspension?
6. Describe coulter – counter method.
7. Discuss steady-state diffusion.
8. Write the methods to determine the order of reaction.

III. Short answers on:

(10 x 2 = 20)

1. Factors influencing CMC.
2. Overages.
3. Edmundson equation.
4. Examples of pharmaceutical buffers.
5. Rheopexy.
6. Thixotrophy.
7. Stoke's law.
8. Protective colloids.
9. Half life.
10. Noyes whitney equation.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LM 4256)

FEBRUARY 2018

Sub. Code: 4256

**B.PHARM. DEGREE EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Define and classify Colloids with suitable examples. Discuss their electrical properties.
2. a) Explain the term Rheology. Differentiate newtonian and non newtonian fluids with examples.
b) Describe the derived properties of powders.

II. Write notes on:

(8 x 5 = 40)

1. Give an account of various factors affecting dissolution rate.
2. Describe the controlled flocculation.
3. Derive first order rate constant.
4. Discuss briefly about protein binding of drugs and its significance.
5. Write a note on accelerated stability studies.
6. Describe air permeability technique for measurement of specific surface.
7. Explain isotonic solution and methods of adjusting tonicity.
8. Spreading co-efficient.

III. Short answers on:

(10 x 2 = 20)

1. Zeta potential.
2. Buffer capacity.
3. Porosity.
4. Polymorphism.
5. Dissolution.
6. Bancroft's rule.
7. HLB.
8. Kraft point.
9. Micro emulsion.
10. Chelates.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LN 4256)

AUGUST 2018

Sub. Code: 4256

**B.PHARM. DEGREE EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Define micromeritics. Explain the various methods to determine particle size analysis.
2. a) Explain objectives, procedures and limitations of accelerated stability testing.
b) Explain briefly difference between flocculation and deflocculation suspension.

II. Write notes on:

(8 x 5 = 40)

1. Spreading coefficient.
2. Diffusion principles in biological systems.
3. Theory of emulsification.
4. Inclusion Complex.
5. Electrical properties of interface.
6. Purification of colloids.
7. Methods to adjust isotonicity.
8. Non-Newtonian system.

III. Short answers on:

(10 x 2 = 20)

1. Angle of repose.
2. BET equation.
3. Plug flow.
4. Surface tension.
5. Partition coefficient.
6. Schulze Hardy rule.
7. Multiple emulsion.
8. Micellar solubilization.
9. Chelates.
10. Yield value.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LO 4256)

FEBRUARY 2019

Sub. Code: 4256

**B.PHARM. DEGREE EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Define Suspensions. Explain types of suspensions and stability of suspensions.
b) Write about the Ficks laws of diffusion.
2. a) Define viscosity. Classify viscometer with examples.
b) Explain a method for the determination of surface area of powder.

II. Write notes on:

(8 x 5 = 40)

1. Explain electric double layer of interface.
2. Write the methods to determine the order of reaction.
3. What is isotonicity? Write about the tonicity testing and adjustment of tonicity.
4. Significance of protein binding.
5. Explain non-Newtonian system.
6. Classify the colloidal system.
7. Du-nouy ring method
8. Describe classification of complex.

III. Short answers on:

(10 x 2 = 20)

1. Creaming any cracking.
2. Noyes-whitney equation.
3. Accelerated stability testing.
4. Edmunson equation.
5. Thixotrophy.
6. Angle of repose.
7. Butter capacity.
8. Critical Micellar concentration.
9. Spreading coefficient.
10. Carrier mediated transport.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LP 4256)

AUGUST 2019

Sub. Code: 4256

**B.PHARM. DEGREE EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Explain in detail about properties of colloids.
b) Explain about the types of thixotropy with suitable examples and application of thixotropy.
2. Explain theory of micelle formation. Add a note on factors influencing critical micelle concentration.

II. Write notes on:

(8 x 5 = 40)

1. Write an account on different colloidal systems with examples.
2. How do you determine particle size by coulter-counter method?
3. Explain the factors influencing rate of reaction.
4. What is an emulsifier? Explain the mechanism of action of emulsifier.
5. Explain isotonic solution and methods of adjusting tonicity.
6. Explain the principles of gastro intestinal absorption of drugs.
7. Describe the pH titration method for complex analysis.
8. Discuss about the electric double layer at interface.

III. Short answers on:

(10 x 2 = 20)

1. Define shelf life.
2. Buffer solution.
3. Write the equation by Edmundson to determine particle size.
4. What is rheopexy?
5. Define diffusion.
6. Define Dialysis.
7. What are the methods used to measure the surface & interfacial tension?
8. What is Newtonian system?
9. What are the factors causing breaking in emulsion?
10. Define protein binding.

THE TAMIL NADU DR. M.G.R. MEDICAL UNIVERSITY

(LQ 4256)

FEBRUARY 2020

Sub. Code: 4256

**B.PHARM. DEGREE EXAMINATION
SECOND YEAR
PAPER I – PHYSICAL PHARMACEUTICS**

Q.P. Code: 564256

Time: Three hours

Maximum: 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. a) Define dissolution, write about the factors affecting the rate of dissolution.
b) Explain one method for determining the particle size.
2. a) Define complexes. Explain method of analysis of complex.
b) What is Newtonian and non-Newtonian systems? Explain with suitable examples.

II. Write notes on:

(8 x 5 = 40)

1. Determination of expiry date.
2. Stability of emulsion.
3. Types of suspensions.
4. Explain steady – state diffusion.
5. Write about the pharmaceutical buffer and biological buffer.
6. Stability of colloidal system.
7. Isotonic solutions.
8. Electrical properties of colloids.

III. Short answers on:

(10 x 2 = 20)

1. Gold number.
2. Ban craft rule.
3. Ferrocene.
4. Critical Micellar Concentration.
5. Order of reaction.
6. Suspending agents.
7. Types of colloids.
8. Buffer equation.
9. BET Equation.
10. Stokes equation.
