APRIL - 2001

[KD 708] **Sub. Code : 4183**

SECOND B.Pharmacy DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours	Maximum : 90 marks
Two and a half hours	Sec. A & Sec. B : 60 marks
for Sec. A and Sec. B	Section C : 30 marks

Answer Sections A and B in the same Answer Book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions only.

1. (a) Explain the influence of binding of drugs to proteins.

(b) What are the various methods of determining the binding of drugs to proteins? Explain any two methods in detail.

2. (a) What are the different types of colloidal system?

(b) Explain the kinetic properties of colloids.

3. (a) Explain the term "micromeritics".

(b) Explain any two methods for determining the surface area of a powder.

4. (a) Explain the term 'Rheology'.

(b) Explain the importance of rheology in pharmacy and its applications in the formulations.

(c) Write a short note on pseudoplastic flow.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions only.

5. Explain about the special types of emulsion systems.

6. Explain the importance of wetting and flocculation in the formulation of suspensions.

7. What are the colligative properties of solutions? How will you determine the vapour pressure of solutions?

8. Explain the pH titration method for the determination of complexation.

9. Explain the terms '*zero order*' and '*first order*' reactions.

10. Explain about the hydrolytic decomposition of drugs. How will you protect the drugs from hydrolytic decomposition.

11. Write a short note on accelerated testing of pharmaceutical products.

12. Explain the electrical properties of interface.

13. What are "positive catalyst" and "auto catalyst"?

NOVEMBER - 2001

[KE 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours — Maximum : 90 marks

Two and a half hours — Sec. A & Sec. B : 60 marks

for Sec. A and Sec. B — Section C : 30 marks

Answer Sections A and B in same Answer Book.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. (a) Explain the term "micro meritics".

(b) Discuss any two methods for determining particle size of a sample.

2. (a) Explain the term thixotropy and negative thixotropy.

(b) Write a short note on a dilatant flow.

(c) Describe a method for the measurement of thixotropy.

3. (a) Explain the term complexation and classify various types of complexes with examples.

(b) What are the various methods of determining the binding of drugs to proteins? Explain any two methods.

4. (a) Explain the terms surface tension and interfacial tension.

(b) Give the comparison among zero, first and second order reactions. Explain methods for determining order of reactions.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Explain kinetic properties of colloids.

6. Write a note on accelerated stability studies.

7. How do you stabilize collidal systems? Discuss sensitization and protective action of colloids.

8. Explain the importance of wetting and flocculation in the formulation of suspensions.

9. Explain the factors causing the instability on emulsion. How the stability of emulsion is evaluated?

10. Explain working principle in plate and cone viscometer.

11. Explain the factors of affecting solubility with examples.

12. What are photo chemical reactions? State and explain basic laws of photochemistry.

13. Explain any one method to determine the surface area of a powder.

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MARCH - 2002

[KG 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours — Maximum : 90 marks

Two and a half hours for Sec. A & Sec. B. — Sec. A & Sec. B : 60 marks; Section C : 30 marks

Answer Sections A and B in same answer books.

Answer Section C in the answer sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions only.

All questions carry equal marks.

1. (a) Discuss the principles involved in the formulation of a stable emulsion with respect to the theories of emulsification and Stoke's law.

(b) Explain the interfacial properties of suspended particles. (10 + 5)

2. Enumerate the various factors responsible for decomposition of pharmaceutical products and explain the preventive measures to be taken during formulation. (15)

3. (a) Classify viscometers with suitable examples for each type of rheological systems and thixotropic formulation.

(b) Explain Beer–Lambert's law with its applications and limitations in pharmacy. (10 + 5)

4. (a) Explain any one method of purifications of colloids.

(b) Discuss the solubilisation technique and its applications in pharmacy.

(c) Describe any one method of determination of surface area of powder. (5 + 5 + 5)

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. (a) Describe the distribution of solutes between immiscible solvents. ($2\frac{1}{2}$)

(b) Derive an equation for determination of surface tension. ($2\frac{1}{2}$)

6. Discuss the diffusion principles in biologic systems. (5)

7. Write principle and applications of : ($2\frac{1}{2} + 2\frac{1}{2}$)

(a) Coacervation

(b) Donnan Membrane Equilibrium.

8. Give the theory of catalysis and write pharmaceutical applications with examples. (5)

9. Explain physical stability of suspensions and controlled flocculation. (5)

10. Discuss the rheology of semisolids and gels. (5)

11. Describe the Arrhenius equation and the predicting of shelf life of pharmaceutical products. (5)

12. Write short notes on : ($2\frac{1}{2} + 2\frac{1}{2}$)

(a) Heat capacity

(b) Photosensitisation.

13. Write short notes on : ($2\frac{1}{2} + 2\frac{1}{2}$)

(a) Isotonic solutions

(b) Stoke's diameter.

SEPTEMBER - 2002

[KH 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS .

Time : Three hours — Maximum : 90 marks

Two and a half hours — Sec. A & Sec. B : 60 marks

for Sec. A and Sec. B — Section C : 30 marks

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Explain critical micellar concentration and the phenomenon of micelle formation.

Discuss pharmaceutical applications of colloids.

2. What are fundamental and derived properties of powder?

Describe various derived properties.

3. What are complexes? What are the methods of studying complexation?

Discuss in detail solubility method.

4. Explain "Surface tension" and "interfacial tension". Distinguish 'zero order', 'first order' and 'second order' reactions.

Explain methods for determining order of reactions.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Explain optical properties of colloids.

6. Explain 'kraft point' and 'cloud point' in connection with surfactants.

7. Define and explain significance of 'angle of repose'.

8. Discuss pH Partian hypothesis of drug absorption.

9. Write a note on accelerated stability studies.

10. What is phase inversion of emulsions? Explain the reasons of phase inversion.

11. Write note on multiple emulsions.

12. Distinguish between flocculated and deflocculated suspension.

13. Add a note on protein binding of drugs.

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APRIL - 2003

[KI 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours — Maximum : 90 marks

Two and a half hours for Sec. A and Sec. B — Sec. A & Sec. B : 60 marks; Section C : 30 marks

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. (a) Discuss solubility of solids in liquids.

(b) Explain Noyes Whiteney's equation.

2. (a) Explain the methods of analysis for measurement of complexation.

(b) Write a note on organic molecular complexes.

3. (a) Discuss interfacial properties of suspended particles.

(b) Write a note on theory of emulsification.

4. (a) Give an account on oxidative degradation of drugs.

(b) Suggest remedial measures to overcome oxidative degradation reaction.

SECTION B — (6 × 5 = 30 marks)

Answer any SIX questions.

5. Write a note on optical microscopy.

6. Discuss any one method of determining surface area.

7. Write a brief account on adsorption at solid interfaces.

8. Discuss factors influencing rate of a reaction.

9. Describe electric properties of colloids.

10. Discuss pharmaceutical applications of rheology.

11. Describe various sources of photochemical radiation.

12. Write a note on crystalline structure of complexes.

13. Give pharmaceutical applications of thixotropy.

OCTOBER - 2003

[KJ 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours — Maximum : 90 marks

Two hours and forty minutes — Sec. A & Sec. B : 70 marks

for Sec. A and Sec. B — Section C : 20 marks

Twenty minutes for Section C

Answer Sections A and B in the **SAME** Answer Book.

Answer Section C in the Answer Sheet provided.

SECTION A

Answer any TWO : (2 × 15 = 30)

1. Describe the formulation of flocculated and deflocculated suspensions.

2. Explain the rheology of non–Newtonian systems.

3. Classify Colloids with examples. Explain their preparation, purification and stabilization.

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT :

4. Describe the mechanism of action of emulsifying agents.

5. What are surfactants? Describe their properties and applications.

6. Differentiate between zero and first order kinetics.

7. How are the drugs protected against oxidation, discuss?

8. Describe steady state diffusion through a membrane using the suitable equation.

9. Explain the factors affecting flow property of powders.

10. State and discuss the concepts of laws of thermodynamics.

11. What are clathrates? Give their applications.

12. Write a note on photochemical reactions.

13. Write the principle involved in the "air permeability" technique.

APRIL - 2004

[KK 708] Sub. Code : 4183

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer Sections A and B in the SAME answer book.

SECTION A — (2 × 15 = 30 marks)

Answer any TWO questions.

1. Enlist the various methods available for determination of order of a reaction. Explain in detail any one method for determination of order of a reaction. (5 + 10)

2. Define thixotropy. Mention two pharmaceutical applications of thixotropy. How the extent of thixotropic breakdown can be measured? (3 + 2 +10)

3. Define colloids. Compare and contrast lyophilic, lyophobic and association colloids. (3 + 12)

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

4. Discuss the origin of zetapotential and give the significance of zeta potential values.

5. Discuss the alternative schemes for the formulation of suspensions.

6. What is Freundlich Adsorption isotherm?

7. Explain the principle involved in coutter–counter.

8. Deduce the expression for $t_{\frac{1}{2}}$ in case of a first order reaction.

9. How drugs are stabilized against hydrolysis?

10. Discuss the basic laws of photochemistry.

11. Write a note on complexation and drug action.

12. Give a brief account of inclusion compounds.

13. What is Fick's First Law of diffusion?

AUGUST - 2004

[KL 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

Answer Sections A and B in the **SAME** answer book.

SECTION A — (2 ×15 = 30 marks)

Answer any TWO questions.

1. What do you understand by accelerated stability studies? Discuss the methodology and limitations of accelerated stability testing.

2. Describe and explain the theories of emulsification. Write a note on creaming in emulsion. How is creaming minimised in emulsions?

3. Enumerate the methods available for particle size determination and describe a method to determine particle size and size distribution in a polydispersed powder.

SECTION B — (8 × 5 = 40 marks)

Answer any EIGHT questions.

4. Explain both basic laws of photochemistry.

5. Explain organic molecular complexes with suitable examples.

6. Explain the applications of thixotropy in pharmaceutical formulations with suitable examples.

7. In thermodynamic sense, define the following :

   (a) Closed system

   (b) Open system

   (c) Isolated system

   (d) Isothermal process

   (e) Heat capacity.

8. Calculate the amount of sodium chloride required to make 50 ml of 1% physostigmine isotonic with lacrimal fluid.

   (Freezing point depression of 1% physiostigmine is 0.08° and 1% sodium chloride is 0.58°C)

9. Explain the formation of electric double layer around a dispersed particle and define zeta potential and Nernst potential.

AUGUST - 2004

10. Differentiate flocculated suspension from deflocculated suspension.

11. List out the kinetic properties of colloids and explain any three of them.

12. How are the drugs protected against hydrolysis.

13. Explain the Fick's laws of diffusion.

FEBRUARY - 2005

[KM 708] Sub. Code : 4183

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours Maximum : 90 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

SECTION A — (2 x 15 = 30 marks)

Answer any TWO questions.

1. (a) Discuss the principles of solubilization.

(b) Explain steady state diffusion and paratonic solutions.

2. (a) Discuss the properties of association colloids.

(b) Explain the stabilization of lyophobic colloids.

3. (a) Discuss the formulation of O/W emulsion.

(b) Write an account of preservation of emulsion.

4. (a) With an example explain pseduo first order reaction kinetics.

(b) What is the significance of Arrhenius equation?

SECTION B — (8 x 5 = 40 marks)

Answer any EIGHT questions.

5. What are various sources of UV light?

6. Give the mathematical treatment of protein binding.

7. Quantity thixotropy.

8. How do you determine the surface area of a powder (one method)?

9. Explain neat of neutralization.

10. What is Bioavailability, how is its determined?

11. Discuss the significance of zeta potential.

12. Write an account of sedimentation kinetics.

13. What is electrodialysis?

14. Write on optical properties of colloids.

AUGUST - 2005

[KN 708] **Sub. Code: 4188**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III - PHYSICAL PHARMACEUTICS

Time: Three hours **Maximum: 90 marks**

Theory: Two hours and forty minutes **Theory: 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

I. Long Essay : **(2 × 15 = 30)**

Answer any TWO questions.

1. (a) Explain the term Rheology. Differentiate Newtonian and non-Newtonian fluids.

(b) Discuss the working principles and applications for the following viscosmeter :

(i) Falling sphere viscometer

(ii) Plate and cone viscometer.

2. (a) Define emulsions and explain special type of emulsion systems.

(b) Differentiate flocculated and deflocculated suspensions.

(c) Discuss the factors influencing creaming and cracking of emulsions.

3. (a) What are colloids and differentiate in detail lyophilic and lyophobic colloids?

(b) Explain optical and electrical properties of colloids.

4. (a) What are colligative properties of solutions? How will you determine the vapour pressure of solution?

(b) Explain the factors influencing the solubility of a solid in liquid.

II. Short notes : **(8 × 5 = 40)**

Answer any EIGHT questions.

1. Discuss the different types of complexes with examples.

2. Explain Gib's adsorption isotherm.

3. Define and classify emulsifying agents.

4. Derive the first order rate constant.

5. Describe briefly microscopic method for the determination of particle size.

6. What are positive catalysts and autocatalysts?

7. Explain molar heat capacity of a system.

8. What are sources of photochemical radiation and photochemical reactions?

9. Describe bolt basic laws of photochemistry.

10. Ficks laws of diffusion — Explain.

FEBRUARY - 2006

[KO 706] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours | Maximum : 90 marks

Theory : Two hours and forty minutes | Theory : 70 marks

M.C.Q. : Twenty minutes | M.C.Q. : 20 marks

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. (a) Discuss the effect of temperature on the solubility of solids in liquids.

(b) Explain the significance of diffusion in pharmacy.

2. (a) Distinguish between Lyophillic and Lyophobic colloids.

(b) Write an account of Electrokinetic properties of colloids.

3. (a) Discuss the principles of formulation of Flocculated Suspensions.

(b) Write a note on special types of emulsions.

4. (a) Describe the First Order Kinetics.

(b) Discuss the drug decomposition mechaniams.

II. Short notes on any EIGHT questions : (8 × 5 = 40)

(1) Explain the role of Emulgent in emusion stability

(2) Discuss the scope of pharmaceutical semisolids.

(3) Classify surfactants with examples and applications

(4) Explain the terms entropy, enthalpy, heat capacity

(5) Write an account of homogeneous and heterogenous catalysis

(6) Explain any two derived properties of powders

(7) Describe cone and plate viscometer

(8) Explain the importance of complexation and drug action

(9) State the basic laws of photochemistry

(10) Discuss the rheology of semisolids and gels.

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AUGUST - 2006

[KP 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 20 = 40)

Answer any TWO questions.

1. Explain the hydrolysis of pharmaceutical preparation with examples. How will you prevent hydrolysis?

2. (a) Explain the phenomena of adsorption. What are the factors affecting adsorption?

(b) Explain the theory behind BET adsorption isotherm.

3. (a) What are protective colloids? Mention their use in pharmacy.

(b) Explain the DVLO theory. How is this theory applied to stabilize a colloidal dispersion?

4. (a) What is porosity? How will you determine porosity?

(b) Explain the working principle of coulter counter with labelled diagram.

II. Short notes on : (6 × 5 = 30)

Answer any SIX questions only.

1. Write the role of thixotropy in formulation.

2. Explain Stoke's law and its application in product development of suspension technology.

3. Write applications of emulsion dosage forms.

4. Explain the principle involved in the pH titration method in complexation.

5. What are the application of chemical kinetics?

6. What is HLB? How is it calculated?

7. What is zeta potential? Mention its application in product formulation and development.

8. How will you quantify flore property of powders?

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FEBRUARY - 2007

[KQ 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours **Maximum : 90 marks**

Theory : Two hours and forty minutes **Theory : 70 marks**

M.C.Q. : Twenty minutes **M.C.Q. : 20 marks**

I. Long Essay : **(2 × 20 = 40)**

Write any TWO questions.

1. What are different types of colloids? Explain the method of preparation of lyophobic colloids.

2. What are various chemical decompositions of medicinal agents?

3. What are theories of emulsification?

4. Derive the equation of first order Kinetics and its half life.

II. Write short notes on : **(6 × 5 = 30)**

Answer any SIX questions.

1. Flow property.
2. Cone and plate viscometer.
3. Inclusion compounds.
4. Purification of colloids.
5. Zeta and Nerst Potential.
6. Negative thixotropy.
7. Discuss derived properties of powders.
8. Write a note on protein binding.

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August-2007

[KR 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Time : Three hours Maximum : 90 marks

Theory : Two hours and forty minutes Theory : 70 marks

M.C.Q. : Twenty minutes M.C.Q. : 20 marks

I. Long Essay : (2 × 15 = 30)

Answer any TWO questions.

1. (a) Classify complexes with examples. (5)

(b) Discuss any two methods of analysis of complexes. (10)

2. (a) Explain briefly the different orders of reaction. Describe any one method for the determination of the order of a reaction. (10)

(b) Derive the Equation for first order reaction rate constant. (5)

3. (a) Define Colloids. Differentiate between lyophilic and lyophobic colloids. (5)

(b) Mention the optical and Electrical Properties of Colloids. (10)

4. (a) Differentiate between Newtonian and Non-Newtonian systems. (5)

(b) Explain in detail any two instruments used to study the flow properties of Non-Newtonian systems. (10)

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. State and explain Fick's Laws of diffusion.

2. Explain any one method for determining particle size distribution.

3. Explain the importance of controlled flocculation in suspension formulation.

4. Describe the factors that influence the solubility of gases in liquids.

5. What are positive and Auto Catalysts?

6. Describe the Laws of photo chemistry.

7. What are Emulsions? Mention their applications in pharmacy.

8. Discuss the Freundlich adsorption Isotherm.

9. Describe various derived properties of powders and mention significance of each.

10. Define surface tension. Describe a method for its determination.

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February-2008

[KS 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Q.P. Code : 564183

Time : Three hours — Maximum : 90 marks

Theory : Two hours and forty minutes — Theory : 70 marks

M.C.Q. : Twenty minutes — M.C.Q. : 20 marks

I. Long Essay : $(2 \times 15 = 30)$

Answer any TWO questions.

1. How will you determine the particle size of the given sample? Explain any two methods in detail.

2. (a) Explain the theory behind the formation and stabilization of emulsion by emulsifying agents. (8)

(b) Describe "controlled flocculation". (7)

3. (a) Explain the formation of electrical double layer at an interface and give its significance. (8)

(b) What are surfactants? Discuss their types, properties and applications. (7)

4. (a) Explain the flow behaviour of Non–Newtonian fluids. (8)

(b) Classify viscometers. Explain "cub and bob" viscometers, taking an example. (7)

II. Short notes : (8 × 5 = 40)

Answer any EIGHT questions.

1. Define solubility. Discuss any four factors affecting solubility.

2. Explain I order kinetics.

3. How are the medicinal substances stabilized against oxidation?

4. Explain the importance of drug dissolution on absorption drugs.

5. Describe air permeability technique for measurement of specific surface.

6. Give an account of different types of organic molecular complexes.

7. What is the influence of complexation on drug action? Discuss.

8. Discuss the concepts of basic laws of thermodynamics.

9. Describe the different sources of photochemical radiation.

10. Give the different causes for creaming and cracking of an emulsion.

August 2008

[KT 708] **Sub. Code : 4183**

SECOND B.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

Paper III — PHYSICAL PHARMACEUTICS

Q.P.Code : 564183

Time : Three hours Maximum : 90 marks

I. Long Essays : (2 × 20 = 40)

Answer any TWO questions.

(1) Define and Classify Colloids with suitable examples. Discuss their Optical, Kinetic and Electric Properties.

(2) Define the terms Surface Tension and Interfacial Phonamena. Discuss about the different methods used to measure Surface Tension and Interfacial Phenamena.

(3) Describe and Explain the Theories of Emulsification. Write a note on Creaming and Cracking in Emulsion. How it will be minimised during the preparation of Emulsion?

II. Short Notes : (8 × 5= 40)

Answer any EIGHT questions.

(1) Drug Kinetics and Drug Diffusion in Coarse Disperse System —Explain.

(2) Derive First Order Rate Constant.

(3) Explain the First law of Thermodynamics.

(4) Give a note on various factors affecting Solubility.

(5) Significance of Rheology in Pharmacy.

(6) Describe the Particle Size measurement by Microscopic Method.

(7) Discuss the significance of Zeta Potential.

(8) Write brief note of Amphiphilic Colloids.

(9) Discuss the basic laws of Photochemistry.

(10) Define Control Flocculation.

III. Short Answers : (5 × 2 = 10)

Answer any FIVE questions.

(1) Define Gold Number with examples.

(2) Define Brownian Movement.

(3) Surface Free Energy — Define.

(4) Dilatant flow.

(5) Write note on effect of Raoult's law on real solution.

(6) Differentiate Amorphous and Polymorphic forms of Particles.

(7) Quantum Efficiency.

February 2009

[KU 708] **Sub. Code: 4183**

SECOND B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations) Candidates Admitted upto 2003-04
Paper III – PHYSICAL PHARMACEUTICS
Q.P. Code : 564183

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. **a)** Explain the phenomenon of adsorption. What are the factors affecting adsorption? **(10)**
   b) Explain the theory behind bet adsorption isotherm. **(5)**
   c) Classify viscometers. Explain cup and bob viscometer with neat diagram. **(5)**
2. **a)** Explain the term rheology. Differentiate newtonian and non-newtonian fluids with example. **(10)**
   b) Explain the hydrolysis of pharmaceutical preparations with example. How will you prevent hydrolysis? **(10)**
3. **a)** Explain the factors causing instability of emulsion. How the stability of emulsion is evaluated? **(10)**
   b) What are the various methods of determining the binding of drugs to proteins? Explain any two methods. **(10)**

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Distinguish between lyophobic and lyophilic colloids.
2. Explain the formation of electrical double layer around dispersed particle.
3. Write a note on : Inclusion compounds.
4. Explain the importance of wetting and flocculation in the formulation of suspension.
5. How will you quantify flow property of powders?
6. What are the applications of chemical kinetics?
7. Write a Note on : Optical properties of colloids.
8. Explain the principle involved in coulter-counter method of determining particle size?
9. Explain critical micellar concentration and phenomenon of Micelle formation.
10. What is Fick's Law of diffusion? Explain it.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Define Zeta potential. How is it different from nernst potential?
2. Define surface tension. What is it due to?
3. Give one identification test for emulsion.
4. Differentiate between half life and shelf life.
5. Write two applications of complexation.
6. What is meant by plug flow? What is it due to?
7. Define Angle of repose.

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August 2009

[KV 708] **Sub. Code: 4183**

SECOND B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper III – PHYSICAL PHARMACEUTICS
Q.P. Code : 564183

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. Define and explain factors affecting solubility, steady state diffusion, dissolution, drug release and diffusion principles in biology system.
2. Classify and define colloids with suitable examples. Discuss their kinetic, optical and electric properties.
3. Define suspensions. Explain interfacial properties of suspended particles, setting in suspensions and formulation of suspensions.

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Theory of catalysts and its application in pharmacy.
2. Give a note on method of determining of particle size, particle shape and surface area.
3. Describe the Newtonian and non Newtonian fluids in rheology.
4. Write brief note on metal, organic and inclusion complexes.
5. Discuss the light absorption basis laws of photochemistry.
6. Give a note on isotonic solutions.
7. Define emulsion. How can you preserve and maintain the rheological properties of emulsion?
8. Define and classify surfactants.
9. Explain the thermodynamics of non-reacting mixtures.
10. Give an account of derived properties of powders.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Define phase equilibria.
2. Define surface tension.
3. Define thixotrophy.
4. Write note on gold number with examples.
5. Define Brownian movement.
6. Dilatant flow.
7. Write note on amorphous and polymorphic forms of particles.

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February 2010

[KW 708] **Sub. Code: 4183**

SECOND B.PHARM. DEGREE EXAMINATION
(ReRevised Regulations)
Candidates Admitted upto 2003-04
Paper III – PHYSICAL PHARMACEUTICS
Q.P. Code : 564183

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions (2 x 20 = 40)

1. Explain and describe the theories of emulsification. Write a note on Creaming and cracking in emulsion. How it will be minimized during the preparation of emulsion?
2. Define order of reaction. Describe the influence of temperature and rate, decomposition and stabilization of medicinal agents, kinetics in the solid state and accelerated stability analysis.
3. Define and explain the terms surface tension and interfacial phenomena. Discuss about the different methods used to measure surface tension and interfacial phenomena.

II. Write Short Notes : Answer any EIGHT questions (8 x 5 = 40)

1. Describe the control flocculation.
2. Write brief note on basic laws of photochemistry.
3. Define amphiphilic colloids.
4. Discuss the significance of zeta potential.
5. Explain the particle size measurement by microscopic method.
6. Significance of rheology in pharmacy.
7. Give an account of various factors affecting solubility.
8. Explain the drug kinetics and drug diffusion in coarse dispersed system.
9. Derive first order rate constant.
10. Explain the thermodynamics of nonreacting mixures.

III. Short Answers: Answer any FIVE questions (5 x 2 = 10)

1. Define suspensions.
2. Define viscosity.
3. Write note on dilatant flow.
4. Define Thixotrophy.
5. Define Brownian movement.
6. Define complexation.
7. Define photochemical radiation.

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September 2010

[KX 708] **Sub. Code: 4183**

SECOND B.PHARM. DEGREE EXAMINATION
(Re-Revised Regulations)Candidates Admitted upto 2003-04

Paper III – PHYSICAL PHARMACEUTICS

Q.P. Code : 564183

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : **(2 X 20 = 40)**

Answer any TWO questions.

1. What are the sedimentation parameters? Explain the formulation of a physically stable suspension. Write a note on Pharmaceutical application of suspensions.

2. Discuss about derived properties of powders. Describe the methods of determination of particle size and particle size distribution.

3. Classify liquids based on Rheology. Discuss about methods of determining flow properties of liquids.

II. Write Short Notes : **(8X 5 = 40)**

Answer any EIGHT questions.

1. Give the principle and procedure of drop number method to determine surface tension of a liquid.
2. Explain the various pharmaceutical applications of adsorbents.
3. Write a note on electrical double layer in colloids.
4. Define suspension. What are the various desirable properties of a suspension?
5. Give differences between flocculated and deflocculated suspension.
6. Write a note on creaming and breaking of emulsions.
7. What are the various methods to determine the order of a reaction?
8. Write a note on Pharmaceutical applications of complexation.
9. Discuss briefly about protein binding of drugs and its significance.
10. Classify surfactants with suitable examples.

III. Short Answers: **(5X2 = 10)**

Answer any FIVE questions.

1. What is spreading coefficient?
2. Write a note on hydrophilic-lipophilic balance of surfactants.
3. What is the importance of Zeta potential in Pharmacy?
4. Write a note on micellar solubilization.
5. Write a note on Stoke's law.
6. Define pseudo first order reaction.
7. Write a note on isotonic solutions.

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FEBRUARY 2011

[KY 708] **Sub. Code: 4183**

SECOND B.PHARM. DEGREE EXAMINATION

(Re-Revised Regulations) Candidates Admitted upto 2003-04

Paper III – PHYSICAL PHARMACEUTICS

Q.P. Code : 564183

Time : Three hours **Maximum : 90 marks**

I. Essay Questions : Answer any TWO questions. (2 x 20 = 40)

1. What are the various methods to determine the order of reaction? Discuss about factors affecting the rate of reaction.

2. Classify types of Colloids. Explain various properties of Colloids.

3. Discuss about types of Complexes. What are the methods to analyse complexes.

II. Write Short Notes : Answer any EIGHT questions. (8 x 5 = 40)

1. Adsorption at solid gas interface.
2. Thixotropy.
3. Discuss about method of determination of solubility.
4. Write a note on Fick's second law.
5. Discuss factors affecting dissolution rate.
6. Explain the pharmaceutical applications of adsorbent.
7. What are the Ideal properteies of suspensions?
8. Write about applications of photochemistry.
9. Write a note on pharmaceutical application of suspension.
10. Explain the various application of Colloids.

III. Short Answers: Answer any FIVE questions. (5 x 2 = 10)

Define the following:

1. Surface tension.
2. CMC.
3. Buffer solution.
4. Isotonic solution.
5. Half life.
6. Catalytic poisoning.
7. True density.

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