[KD 271] **APRIL 2001**

M.Pharmacy DEGREE EXAMINATION.

(New Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEM

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. (a) What are SR products? How are they formulated? Describe the manufacture of coated beads (spansules).

(b) The following are the pharmacokinetic parameters of diclofenac sodium. Calculate the desired release rate, maintenance dose and total dose to design SR tablets for twice a day administration.

Oral dose = 25 mg; $t_{1/2}$ = 2 hr; F = 1; T_{max} = 1.5 hr. (25)

2. Describe your concepts about :

(a) Aqueous film coating

(b) Instrumentation of tablet machines. (25)

3. Write briefly on :

(a) Resealed erythrocytes

(b) Complex coacervation

(c) Implants. (25)

4. What are TTS? Mention their advantages. Discuss the pharmacokinetic considerations in their design. Describe any one design in detail. (25)

5. Write notes on :

(a) Air suspension coating

(b) Enhancement of Dissolution Rate

(c) Optimization techniques in the design of drug delivery systems. (25)

6. (a) Give an account of the regulatory considerations in controlled release medications.

(b) What are liposomes? Describe the various types of liposomes. Add a note on the preparation methods of Liposomes. (25)

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[KD 292] **APRIL 2001**

M.Pharmacy DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Answer ALL the questions.

All questions carry equal marks.

1. Explain the design, mechanism and evaluation of osmotic pumps and ocuserts. (25)

2. Explain the different forms of transdermal drug delivery systems. How are transdermal drug delivery systems evaluated? (25)

3. Explain with suitable examples the 'prodrug' and 'solubilisation' approach for enhancing bioavailability. (25)

4. Write notes on : (25)

(a) Biodegradable polymers

(b) Module for GIT

(c) Buccal delivery system

(d) Direct compression technology.

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[KE 271] **NOVEMBER 2001**

M.Pharm. DEGREE EXAMINATION.

(New Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Answer any FOUR questions.

All questions carry equal marks.

1. What are SR tablets? How are they designed? Mention atleast five drugs that are formulated into SR products and give reasons for their formulation into SR products. (25)

2. Describe the following with examples and their applications in drug delivery systems.

(a) Mucoadhesive polymers

(b) Hydrogels. (25)

3. Describe the design and manufacture of the following :

(a) Spansules

(b) Ocusert

(c) Osmotic pump. (25)

4. What are pro–drugs? Describe with examples the prodrug approach for

(a) enhancing bioavailability and

(b) targeting. (25)

5. (a) Discuss the reasons and approaches for drug targeting with examples.

(b) Describe aqueous film coating with examples. (25)

6. Write notes on : (25)

(a) Regulatory requirements of controlled release medication.

(b) Buccal drug delivery systems

(c) Invivo evaluation of sustained Release products.

[KE 292] NOVEMBER 2001

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

All questions carry equal marks.

1. What are the advantages and disadvantages of direct compression? What are the requirements for a directly compressible filler and how are these achieved? (25)

2. Describe the preparation, evaluation and applications of "resealed erythrocytes" and "nano particles". (25)

3. Write notes on : (25)

(a) Ion activated drug delivery systems.

(b) Chemical approach for improvement in dissolution.

(c) Subcutaneous implants.

4. Explain the concept of controlled drug delivery systems with their merits and demerits. Discuss the influence of drug properties in the design and performance of such systems. (25)

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[KH 292] SEPTEMBER 2002

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEM

Time : Three hours Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Discuss the physics of tablet compression.

(b) Describe the compression coating process in detail.

2. (a) What are the potential advantages and disadvantages of sustained drug therapy?

(b) What are the properties of ideal (candidate) drug for sustained release formulation?

(c) Discuss the parenteral sustained release formulations.

3. Explain the principle and technique of formulation of

(a) Nanoparticles

(b) Magnetic microspheres

(c) Antibodies for drug delivery.

4. Describe the fabrication of C.D.D. Modules for

(a) eye (b) transdermal purpose

— What are their merits and demerits?

— How are they evaluated?

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APRIL 2003

[KI 292] Sub. Code : 1004

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Mention the ideal requirements of directly compressed vehicles. Give examples. (12)

(b) Discuss the formulation of dispersible tablets. Mention their quality control tests and official specifications. (13)

2. Mention the advantages and disadvantages of TTS. Describe various designs used for TTS. Add a note on properties of drugs to be considered in the design of TTS. (25)

3. Describe

(a) Preparation and evaluation of liposomes. (12)

(b) Prodrugs and their applications. (13)

4. (a) Give an account on regulatory considerations related to controlled release medication. (12)

(b) Describe briefly the chemistry and properties of atleast three biodegradable polymers. (13)

OCTOBER 2003

[KJ 292] **Sub. Code : 1004**

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Answer ALL questions.

All questions carry equal marks.

1. (a) Discuss the potential benefits of controlled release drug delivery systems. (13)

(b) Discuss the relevant biological and physicochemical properties of drugs for sustained release formulations. (12)

2. Discuss the regulatory considerations for controlled release formulations. (25)

3. (a) Discuss the design and development of ocuserts. (12)

(b) Explain the transmucosal permeation. Write a note on buccal drug delivery. (13)

4. (a) Discuss the approaches used in the development of transdermal drug delivery systems. (12)

(b) Classify and discuss briefly the parenteral controlled release drug preparations. (13)

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APRIL 2004

[KK 292] Sub. Code : 1004

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 80 marks

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

Answer ALL the questions.

SECTION A

Long Essay. (2 × 15 = 30)

1. Define targetted drug delivery systems. What are the major objectives of such a system? Why liposomes are considered versatile carriers for parenteral targeted delivery? (2 + 5 + 8 = 15)

2. What are the causes of poor drug availability from conventional ophthalmic preparation? Explain design, mechanism and advantages of Ocusert (a controlled drug delivery module for eye) with a diagram. (5 + 10 = 15)

SECTION B

Short notes. (10 × 5 = 50)

3. What are the various objectives behind coating of a tablet?

4. Distinguish between monolithic and membrane controlled transdermal drug delivery system.

5. Write a note on bioadhesive system for controlled drug delivery.

6. What are the various ways by which controlled drug release through injectionable solutions can be attained?

7. Describe briefly five commonly used polymers with relevant properties suitable for making controlled drug delivery modules.

8. Explain pro-drug and its significance in enhancing bioavailability.

9. State the parameters important in evaluating extended release tablet's dissolution rate.

10. What are the advantages of using resealed erythrocytes as targetted drug delivery system?

11. What is bioavailability assurance? Mention its usefulness in regulatory consideration.

12. Write a note on multiplayer tablet as sustained action dosage.

[KL 292] AUGUST 2004 Sub. Code : 1004

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours | Maximum : 100 marks

Sec. A & B : Two hours and forty minutes | Sec. A & B : 80 marks

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

Answer ALL questions.

SECTION A — (2 ×15 = 30 marks)

Give Long Essays on :

1. Enumerate criteria for selection of drugs for making oral sustained release formulation. Discuss two important techniques for such formulation.

2. Explain about liposomal technology for drug targetting. Discuss their merits and demerits.

SECTION B — (10 × 5 = 50 marks)

Give short notes on :

3. Computerisation in process and quality control.

4. Resealed erythrocyte technology for drug targetting.

5. Ocusert formulation.

6. Methods to enhance bioavailability.

7. Prodrug concepts and significance.

8. Evaluation of sustained release formulation.

9. Invitro–Invivo correlation.

10. Formulation of Transdermal patches.

11. Give an account of synthetic biodegradable polymers.

12. Give the legal requirement for approval of a sustained release formulation.

FEBRUARY 2005

[KM 292] **Sub. Code : 1004**

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Sec. A & B : Two hours and forty minutes Sec. A & B : 80 marks

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

Answer ALL questions.

SECTION A — (2 × 15 = 30 marks)

Give Long Essay on :

1. Discuss the technique of direct compression? What are its advantages and limitations?

2. Describe the principles and procedure of microencapsulation by coacervation phase separation technique.

SECTION B — (10 × 5 = 50 marks)

Write short notes on :

3. Cyclodexrin complexes.

4. Solid solutions.

5. Solubilising agents.

6. Prodrugs.

7. Safety and efficiency aspects of controlled release systems.

8. Nanoparticles.

9. Implants.

10. Ion exchange drug delivery system.

11. Antibody based drug delivery systems.

12. Evaluation of Transdermal drug delivery systems.

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AUGUST 2005

[KN 292] **Sub. Code : 1004**

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

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

Answer ALL questions.

I. Give Long Essay on : (2 × 15 = 30)

1. Enumerate the characteristics of drug to be formulated as Transdermal Drug Delivery Systems. Discuss the different methods of formulating Transdermal drug delivery systems.

2. Discuss in detail methods of enhancing bioavailability of drugs giving suitable examples under each method.

II. Give short notes on : (10 × 5 = 50)

1. Explain in detail advantages and disadvantages of sustained drug delivery systems.

2. Give the regulatory requirements in order to demonstrate efficacy and controlled release nature of CDDM.

3. Write a note on ocusert.

4. Give an account of polymers to be used controlled drug delivery systems.

5. Write a note on liposomal drug delivery.

6. Give the characteristics of multilayer tablets and repeat action dosage forms.

7. Giving the principle of microencapsulation, explain briefly different techniques which can be adopted for bringing about microencapsulation.

8. Explain briefly different methods for formulating parenteral sustained delivery systems.

9. Write a note osmotic system.

10. Explain the relevance of phyricochemical properties of drugs in selection of suitable candidates for formulating sustained release dosage forms.

MARCH 2006

[KO 292] Sub. Code : 1004

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I – Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

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

Answer ALL questions.

I. Give Long Essay on : (2 × 15 = 30)

1. Explain the principle and procedure of different micro encapsulation techniques adopted for formulation of sustained release systems.

2. Explain the principle, advantages, disadvantages, methods of manufacture and applications of liposomal drug delivery system.

II. Write short notes on : (10 × 5 = 50)

1. Parenteral controlled delivery systems.

2. Multilayer tablets

3. Biodegradable polymers.

4. Modulation of gastro–intestinal transit time.

5. Nanoparticles.

6. Prodrugs.

7. Direct compression.

8. Computerisation for in–process quality control of tablets.

9. Physicochemical properties of drug relevant to sustained delivery systems.

10. Transdermal drug delivery systems.

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SEPTEMBER 2006

[KP 292] **Sub. Code : 2808**

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

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

Answer ALL questions.

I. Give Long Essay on :

1. (a) What is bioavailability assurance? Give its role in regulatory considerations.

(b) What are the criteria of selecting a drug suitable for Trans dermal delivery systems? (10 + 10 = 20)

2. Define targeted drug delivery systems. What is the rationale for developing such systems? Explain Nanoparticular drug delivery systems. (2 + 4 + 9)

3. Explain different methods of enhancing bioavailability of drugs. (15)

II. Short notes : (6 x 5 = 30)

1. Give the salient features of direct compression of tablets.

2. Give a note on physicochemical properties of drugs relevant of sustained release formulations.

3. Pro drugs.

4. Classify implantable pumps and explain any one of them.

5. Development of resealed erythrocytes.

6. Explain the formulation and in-vitro and in-vivo evaluation of multilayer tablets.

MARCH 2007

[KQ 292] Sub. Code : 2808

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

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

Answer ALL questions.

I. Give Long Essays on :

1. Explain the principle and procedure of different Micro encapsulation techniques adopted for formulation of sustained release systems. (20)

2. Explain the structure of liposomes. How are they classified? Give their applications and any one method of preparation. (15)

3. Explain briefly the characteristics of a mucoadhesive polymer. Describe how transdermal patches are fabricated. (15)

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

1. Matrix materials for sustained drug delivery.

2. Hydrodynamically balanced tablets.

3. Hormone releasing intra-uterine devices.

4. Subdermal implants.

5. Direct compression technology in the production of tablets.

6. Micro encapsulation by spray drying and congealing.

[KQ 318] MARCH 2007 **Sub. Code : 2854**

M.Pharm. DEGREE EXAMINATION.

(Regulations 2006)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours | Maximum : 100 marks

Theory : Two hours and forty minutes | Theory : 80 marks

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

Answer ALL questions.

I. Give Long Essay :

1. What are Liposomes? Discuss the mechanism of Liposome formation and the methods of preparation of various types of Liposomes. How they are evaluated for their performance. (20)

2. Discuss the design, mechanism and evaluation of Nasal drug delivery systems. (15)

3. (a) Explain with examples biodegradable and non biodegradable polymers used for controlled drug delivery systems.

(b) Describe the diffusion controlled systems. (10 + 5)

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

1. Novel insulin preparations.

2. Colon specific drug delivery.

3. Muco adhesive preparations.

4. Monoclonal antibodies.

5. Permeation enhancers in TDDS.

6. Osmotic pump.

SEPTEMBER 2007

[KR 292] **Sub. Code : 2808**

M.Pharm. DEGREE EXAMINATION.

(Revised Regulations)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours Maximum : 100 marks

Theory : Two hours and forty minutes Theory : 80 marks

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

Answer ALL questions.

I. Give Long Essays on :

1. Discuss the techniques for developing different forms of transdermal drug delivery systems. How do you evaluate them. (20)

2. Discuss the entrapment methods of resealed erythrocytes. (15)

3. Explain the design and evaluation of occular drug delivery systems. (15)

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

1. Monoclonal antibodies.

2. Diffusion controlled mechanism.

3. Magnetic microspheres.

4. Basic pharmacokinetic principle involved in the design of controlled release products.

5. Microencapsulation.

6. Methods of enhancing bioavailability of drugs.

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[KR 318] SEPTEMBER 2007 Sub. Code : 2854

M.Pharm. DEGREE EXAMINATION.

(Regulation 2006)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Time : Three hours | Maximum : 100 marks

Theory : Two hours and forty minutes | Theory : 80 marks

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

Answer ALL questions.

I. Long Essay Type :

1. (a) Discuss about formulation and evaluation of long acting penicillin preparations.

(b) How is prolongation of GI retention of oral drug delivery systems achieved? (20)

2. (a) How is drug targeting achieved?

(b) Write in detail about fusogenic liposomes. (15)

3. (a) What are the ideal characteristics of a candidate drug for formulation into a sustained release drug delivery system?

(b) Write notes on choice of polymers used for sustained release drug delivery system. Add a note on hydro-gels. (15)

II. Short Answer type : (6 × 5 = 30)

1. Coacervation phase separation.

2. Implants.

3. Permeation of drug through skin.

4. Occusert.

5. Basic components of a Trans Dermal Drug Delivery System.

6. Dissolution test for evaluating oral sustained release drug delivery system.

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September 2008

[KT 318] **Sub. Code : 2854**

M.Pharm. DEGREE EXAMINATION.

(Regulation 2006)

First Year

Branch I — Pharmaceutics

Paper IV — ADVANCES IN DRUG DELIVERY SYSTEMS

Q.P. Code : 262854

Time : Three hours Maximum : 100 marks

Answer ALL questions.

I. Long Essay : (3 × 20 = 60)

1. (a) What is your understanding of Targeted drug delivery systems? What are their limitations?

(b) Explain the different approaches available for the targeting of drugs to brain.

2. (a) Give the classification of different Transdermal drug delivery system.

(b) What are their relative advantages? Explain the formulation and evaluation of TDDS.

3. Discuss in detail how the physico chemical properties of a drug influences the design and performance of a sustain release drug delivery system?

II. Short notes : (8 × 5 = 40)

1. Biodegradable and natural polymers.

2. Different Micro–encapsulation processes.

3. Permeability Enhancers.

4. Opthalmic inserts.

5. Approaches and applications of Implants.

6. Matrix devices in controlled drug delivery systems.

7. Nasal drug absorption.

8. In–vitro evaluation of controlled release drug delivery.

March 2009

[KU 318] **Sub. Code: 2854**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch I – PHARMACEUTICS

Paper IV – ADVANCES IN DRUG DELIVERY SYSTEMS

Q.P. Code : 262854

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. a) What are liposomes. Describe the structure and classification. What are the different approaches for the stabilization.
   b) What are nanoparticles. How are they different from liposomes and what are their advantages. Enumerate the methods of their preparation.

2. a) What are the major differences in the evaluation between conventional and controlled drug delivery systems. How will you evaluate a oral controlled drug delivery systems.
   b) Give the classification of different mucoadhesive polymers with suitable examples and explain the process of mucoadhesion.

3. Discuss in detail the formulation and evaluation of ocular controlled drug delivery systems.

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

1. Moduled drug delivery systems.
2. Long acting penicillin preparations.
3. Reservoir devices
4. Permeation enhancers
5. Application of polymers and polymer classification in controlled drug delivery systems.
6. Osmotic pressure controlled systems.
7. Mucosal membrane modules.
8. Application of Implantable drug delivery systems.

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September 2009

[KV 318] **Sub. Code: 2854**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch I – PHARMACEUTICS

Paper IV – ADVANCES IN DRUG DELIVERY SYSTEMS

Q.P. Code : 262854

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. Explain the principle, advantages and disadvantages of sustained release drug delivery systems and discuss in detail about physiochemical properties of drug molecule influencing the design and performance of sustained release drug delivery systems.

2. Explain the basic principle of dissolution controlled release in the design of oral controlled release drug delivery systems and write about encapsulation dissolution control products as oral controlled release drug delivery systems.

3. Explain the basic concept of target oriented drug delivery systems and write about liposomes as particulate drug delivery systems in drug targeting to a specific site.

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

1. Biodegradable polymers.
2. Long acting insulin preparations.
3. What is permeation and factors influencing permeation?
4. What are the advantages and disadvantages of buccal drug delivery systems and write a note as buccal strips.
5. In-situ gels as ocular drug delivery system.
6. Pulmonary drug delivery system.
7. Coacervation / phase separation technique.
8. Permeation enhancers.

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September 2010

[KX 318] **Sub. Code: 2854**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch I – PHARMACEUTICS

Paper IV – ADVANCES IN DRUG DELIVERY SYSTEMS

Q.P. Code : 262854

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. Discuss in detail Physiochemical properties of a drug influencing design and performance of SRDDS.

2. Classify Polymers and write the applications of Polymers in CDDS. Discuss in detail Biodegradable and natural polymers.

3. Discuss in detail Invitro and Invivo evaluation of rate controlled dry delivery system.

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

1. Long acting steroid preparations.
2. Factors affecting permeation of TDDS.
3. Ion-exchange controlled drug delivery systems.
4. Formulation of ocular controlled drug delivery systems.
5. Released erythrocytes.
6. Advantages and disadvantages of mucoadhesive drug delivery systems.
7. Applications of polymers in CDDS.
8. Feedback regulated drug delivery systems.

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March 2010

[KW 318] **Sub. Code: 2854**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch I – PHARMACEUTICS

Paper IV – ADVANCES IN DRUG DELIVERY SYSTEMS

Q.P. Code : 262854

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. What are polymers? Classify the polymers in the basis of method of polymerization and write a detail note on biodegradable polymers.

2. Explain the various reasons for the poor drug availability form conventional ophthalmic preparations and write a note on ocular inserts.

3. What are mucoadhesive drug delivery systems and write a detail note on buccal drug delivery systems, with respect to merits, demerits, structure of oral mucosa and buccal absorption.

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

1. Matrix devices as oral controlled release drug delivery systems.
2. Osmotic pressure controlled drug delivery systems.
3. Implantable drug delivery system.
4. Feed-back regulated drug delivery systems.
5. Granule coated products.
6. Ion-exchange resins.
7. Altered density formulations as gastro retensive drug delivery systems.
8. Resealed erythrocytes as targeted drug delivery systems.

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MAY 2011

[KY 318] **Sub. Code: 2854**

M.PHARM. DEGREE EXAMINATION

(Regulations 2006)

Candidates admitted from 2006-2007 onwards

FIRST YEAR

Branch I – PHARMACEUTICS

Paper IV – ADVANCES IN DRUG DELIVERY SYSTEMS

Q.P. Code : 262854

Time : Three hours **Maximum : 100 marks**

Answer All questions

I. Essay Questions : **(3 x 20 = 60)**

1. Discuss in detail about the biological factors influencing design and performance of SRDDS. Add a note on advantages and disadvantages of SRDDS.

2. Explain about the preparation and use of drug carriers in targeted drug delivery systems.

3. Give a detailed account on long acting steroid and contraceptive preparations.

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

1. Natural polymers.

2. Regulated drug delivery system.

3. Factors affecting permeation through skin.

4. Gel diffusion control.

5. Pulmonary drug delivery system.

6. Ophthalmic inserts.

7. Nanoparticles.

8. Prodrug.

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