

B.Pharm IV Year I Semester (R19) Regular Examinations January 2023  
**NOVEL DRUG DELIVERY SYSTEMS**

Time: 3 hours

Max. Marks: 75

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- |   |    |
|---|----|
| (a) Classify polymers with examples.  | 2M |
| (b) Advantages of controlled drug delivery.                                       | 2M |
| (c) What are depot preparations?  | 2M |
| (d) What are the disadvantages of floating drug delivery systems?                 | 2M |
| (e) Discuss the advantages and disadvantages of transdermal drug delivery system. | 2M |
| (f) Discuss the excipients used in nasal spray formulations.                      | 2M |
| (g) Define bioavailability.   | 2M |
| (h) Write advantages of Metered-dose inhalers.                                    | 2M |
| (i) What are the disadvantages of conventional ocular delivery systems?           | 2M |
| (j) Ideal character of an intraocular drug delivery system.                       | 2M |

**PART – B**

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

- |   |   |     |
|---|---|-----|
| 2 | Explain the factors affecting skin permeation of drugs.                                 | 10M |
| 3 | Write details about the characterization of nanoparticles.                              | 10M |
| 4 | Describe the drug delivery strategies to deliver drugs to the anterior segments of eye. | 10M |

**PART – C**

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

- |    |   |    |
|----|---|----|
| 5  | Write the mechanism of respiratory deposition.                            | 5M |
| 6  | Discuss the limitations of nasopulmonary drug delivery system.            | 5M |
| 7  | Write the advantages and disadvantages of niosomal drug delivery systems. | 5M |
| 8  | Write the properties of ideal targeted drug delivery systems.             | 5M |
| 9  | Write a method of liposome preparation.                                   | 5M |
| 10 | Write a note on Ocusert.  | 5M |
| 11 | Cornea acts as a barrier to ocular drug transport- describe.              | 5M |
| 12 | Describe the mechanism of drug skin permeation.                           | 5M |
| 13 | Enumerate coacervation phase separation technique for microencapsulation. | 5M |

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| (c) What are depot preparations?  | 2M |
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| (e) Discuss the advantages and disadvantages of transdermal drug delivery system. | 2M |
| (f) Discuss the excipients used in nasal spray formulations.                      | 2M |
| (g) Define bioavailability.   | 2M |
| (h) Write advantages of Metered-dose inhalers.                                    | 2M |
| (i) What are the disadvantages of conventional ocular delivery systems?           | 2M |
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**PART – B**  
 (Answer any two questions: 02 X 10 = 20 Marks)

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| 3 Write details about the characterization of nanoparticles.                              | 10M |
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B.Pharm IV Year I Semester (R15) Supplementary Examinations September 2022  
**NOVEL DRUG DELIVERY SYSTEMS**

Time: 3 hours

Max. Marks: 70

**PART - A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) What is the significance of sustained release dosage form?
  - (b) What are the types of controlled drug delivery system?
  - (c) Draw a neat labelled diagram of osmotic pump.
  - (d) Write criteria for drug selection for oral control release drug delivery system.
  - (e) What are the applications of targeted drug delivery system?
  - (f) What are the advantages of nanoparticle?
  - (g) Define transdermal patches.
  - (h) Write the limitation of transdermal drug delivery system.
  - (i) Write the factors influencing mucoadhesion.
  - (j) What are the techniques used to determine mucoadhesion?

**PART - B**  
(Answer all the questions: 05 X 10 = 50 Marks)

- 2 Write a note on pulsatile drug delivery system.
- OR
- 3 Write the principle involved in modified release drug delivery system.
- 4 Write short notes on: (i) Osmotic tablet. (ii) Osmotic pump.
- OR
- 5 Write about pharmaceutical application of polymers in oral controlled release system.
- 6 Write a detailed note on evaluation test of niosomes.
- OR
- 7 Write about mechanical dispersion method & solvent dispersion method for liposomes preparation.
- 8 Write a note on types of transdermal drug delivery system.
- OR
- 9 Write about mechanism involved in the permeation of drug across the skin.
- 10 Write the evaluation test for buccal patch.
- OR
- 11 Write a note on mucoadhesive polymers in nasal drug delivery system.

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B.Pharm IV Year I Semester (R15) Supplementary Examinations January 2023

**NOVEL DRUG DELIVERY SYSTEMS**

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Write any two differences between CR & SR formulations.
  - (b) What are the criteria for selection of drug in CR formulation?
  - (c) What is the role of osmagent in oral osmotic CDDS?
  - (d) Define gastro retentive drug delivery systems.
  - (e) Define liposomes.
  - (f) Define niosomes.
  - (g) Define transdermal drug delivery system.
  - (h) What are the common excipients used in transdermal patch?
  - (i) Define buccal tablets.
  - (j) What are the advantages of mucoadhesive drug delivery systems?

**PART – B**

(Answer all the questions: 05 X 10 = 50 Marks)

- 2 Write a note on:  
(i) Timed release and delayed release formulations.  
(ii) Extended release formulations.
- OR**
- 3 Write a note on factors influencing design of controlled release formulations.
- 4 Write the difference between dissolution controlled and diffusion controlled drug delivery system.
- OR**
- 5 Write a note on osmotic tablets.
- 6 Describe about method of preparation of resealed erythrocytes.
- OR**
- 7 Describe about method of preparation of polymeric nanoparticle.
- 8 What are the types of transdermal patches with suitable diagram?
- OR**
- 9 Write a note on evaluation test of transdermal drug delivery system.
- 10 Describe about theories of mucoadhesion with suitable diagrams.
- OR**
- 11 Write the evaluation test of buccal drug delivery system.

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B.Pharm IV Year I Semester (R15) Regular & Supplementary Examinations February/March 2021  
**NOVEL DRUG DELIVERY SYSTEMS**

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- Define controlled release and delayed release systems.
  - Which type of drugs need extended release pattern?
  - Give a note on PH independent systems.
  - What is the principle in dissolution controlled release system.
  - Write the applications of resealed erythrocytes.
  - Define nanoparticles. Discuss their applications.
  - Write briefly the structure of the skin.
  - Enlist the different types of TDDS.
  - Define mucoadhesive and nasal drug delivery system.
  - What are the polymer materials used in mucoadhesion?

**PART – B**  
(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) Explain the factors influencing of controlled release dosage form.  
(b) What is the rationale for the formulation of controlled release dosage forms?

**OR**

- 3 (a) Give notes on the concept of timed release, extended release and delayed release dosage forms.  
(b) What are the factors influencing the design and performance of sustained release dosage forms.

**UNIT – II**

- 4 (a) Explain how Ion Exchange resins could be utilized in the formulation of CRDF.  
(b) What is the principle of the working of Osmotic pump?

**OR**

- 5 (a) Enlist the oral drug delivery systems and describe the dissolution controlled release system.  
(b) Explain the altered density system in controlled drug delivery.

**UNIT – III**

- 6 What are liposomes? Describe the formulation methods of liposomes.

**OR**

- 7 (a) Define niosomes. Describe the components of niosomes.  
(b) Explain the methods of drug loading in resealed erythrocytes.

**UNIT – IV**

- 8 (a) What are the different possible designs of transdermal drug delivery system?  
(b) How are the transdermal systems tested in vitro for drug delivery absorption?

**OR**

- 9 (a) Describe the basic components of TDDS.  
(b) What are the mechanisms of chemical permeation enhancement?

**UNIT – V**

- 10 (a) Explain the various nasal formulation techniques.  
(b) Write the mechanism of bioadhesion.

**OR**

- 11 (a) What are the different types of Buccal drug delivery formulation?  
(b) Write the different materials used in mucoadhesive delivery systems.

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B.Pharm IV Year I Semester (R15) Supplementary Examinations September 2022  
**NOVEL DRUG DELIVERY SYSTEMS**

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- What is the significance of sustained release dosage form?
  - What are the types of controlled drug delivery system?
  - Draw a neat labelled diagram of osmotic pump.
  - Write criteria for drug selection for oral control release drug delivery system.
  - What are the applications of targeted drug delivery system?
  - What are the advantages of nanoparticle?
  - Define transdermal patches.
  - Write the limitation of transdermal drug delivery system.
  - Write the factors influencing mucoadhesion.
  - What are the techniques used to determine mucoadhesion?

**PART – B**  
(Answer all the questions: 05 X 10 = 50 Marks)

- 2 Write a note on pulsatile drug delivery system.
- OR
- 3 Write the principle involved in modified release drug delivery system.
- 4 Write short notes on: (i) Osmotic tablet. (ii) Osmotic pump.
- OR
- 5 Write about pharmaceutical application of polymers in oral controlled release system.
- 6 Write a detailed note on evaluation test of niosomes.
- OR
- 7 Write about mechanical dispersion method & solvent dispersion method for liposomes preparation.
- 8 Write a note on types of transdermal drug delivery system.
- OR
- 9 Write about mechanism involved in the permeation of drug across the skin.
- 10 Write the evaluation test for buccal patch.
- OR
- 11 Write a note on mucoadhesive polymers in nasal drug delivery system.

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B.Pharm IV Year I Semester (R15) Supplementary Examinations August 2021  
**NOVEL DRUG DELIVERY SYSTEMS**

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- What are sustained release dosage forms?
  - What are the factors influencing of controlled release dosage forms.
  - Write briefly about altered density system.
  - What are the polymers used in the controlled drug delivery systems.
  - Give the applications of targeted drug delivery systems.
  - What are niosomes?
  - Give note on permeation enhancers.
  - Define transdermal drug delivery systems.
  - Write the definition of mucoadhesion and bioadhesion.
  - Write about the mucoadhesive materials in mucoadhesive delivery systems.

**PART – B**  
(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 (a) Describe the factors influencing the design of controlled release dosage forms.  
(b) Write the concept of sustained release and delayed release dosage forms.
- OR**
- 3 (a) Give the concept of timed release dosage forms.  
(b) What is the rationale for the formulation of controlled release dosage forms?

**UNIT – II**

- 4 (a) Explain the principle involved in dissolution controlled release system.  
(b) Describe the osmotic based systems in oral control drug delivery systems.
- OR**
- 5 (a) Write about the Ion exchange resins in oral control drug delivery systems.  
(b) Write in detail about the diffusion controlled release system.

**UNIT – III**

- 6 (a) Define nanoparticles and write the formulation methods of nanoparticles.  
(b) Explain briefly the various methods used to prepare liposomes.
- OR**
- 7 (a) Write the evaluation tests of nanoparticles.  
(b) Explain briefly the various methods used to prepare liposomes.

**UNIT – IV**

- 8 (a) What are the pathways of drug absorption through the skin?  
(b) Describe the different types of transdermal drug delivery system.
- OR**
- 9 (a) Enlist and explain the component of TDDS.  
(b) Write the evaluation of tests of TDDS.

**UNIT – V**

- 10 (a) Describe the mechanism of bioadhesion.  
(b) Write the different formulation techniques of nasal drug delivery systems.
- OR**
- 11 (a) Write the various formulation methods of buccal drug delivery systems.  
(b) Write the evolution tests of buccal drug delivery systems.

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B.Pharm IV Year I Semester (R15) Regular & Supplementary Examinations November/December 2019  
**NOVEL DRUG DELIVERY SYSTEMS**

Time: 3 hours

Max. Marks: 70

**PART – A**  
(Compulsory Question)

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- 1 Answer the following: (10 X 02 = 20 Marks)
- (a) Which type of drugs need extended release pattern?
  - (b) What are the techniques used to control the release of drug from dosage form?
  - (c) Mention the equation dissolved in dissolution process.
  - (d) Give examples for osmogens.
  - (e) Mention the formulation techniques used for preparing resealed erythrocytes.
  - (f) Name the basic ingredients required for formulating niosomes.
  - (g) What are the methods followed for the formulation of matrix type transdermal films?
  - (h) Give examples for film forming polymers.
  - (i) Mention the known mucoadhesive polymers.
  - (j) What are the advantages of nasal drug delivery?

**PART – B**  
(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- 2 Discuss the rationale behind the design of controlled and sustained release delivery system.
- OR**
- 3 Explain the factors influencing the performance of timed and delayed release dosage form.

**UNIT – II**

- 4 Describe the principle involved in osmotic based and pH independent drug delivery system.
- OR**
- 5 Classify polymers. Mention the properties of polymers used in controlled drug delivery with suitable examples.

**UNIT – III**

- 6 Outline the formulation methods for preparing niosomes.
- OR**
- 7 Describe the application of nanoparticles in the treatment of different diseases.

**UNIT – IV**

- 8 How to design a reservoir based transdermal drug delivery system? Mention its application.
- OR**
- 9 Enumerate the evaluation parameters for transdermal drug delivery system.

**UNIT – V**

- 10 Explain the formulation and evaluation techniques for Buccal films.
- OR**
- 11 How to prepare nasal in situ gel? Mention the evaluation methods.

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