

**UKA TARSADIA UNIVERSITY**

**M.Pharm 2<sup>nd</sup> Semester Examination  
040040202- Drug Delivery Systems-I**

**Max. Marks: 70**

**Instructions:**

- All questions are **compulsory**.
- Make suitable assumption whenever necessary.
- Figures to the right indicate full marks.

**Section 1**

**08**

- Q.1** (a) Answer the following:
- 1 Write the equation, applications and disadvantage of Wagner Nelson model and Loo-Reigalman model for oral controlled release systems.
  - 2 Osmogens and pore forming agents.

OR

- (a) Answer the following:
- 1 What do you mean by open loop and closed loop system? Enlist the intelligent drug delivery systems employing enzymes. Explain any of them in detail.
  - 2 Various grades and applications of polymethacrylates.

- (b) Describe in brief:
- 1 Oligomer, degree of polymerization and glass transition temperature with reference to polymers. **03**

- Q.2** (a) Describe in detail various timed release systems for colon specific drug delivery. **06**

OR

- (a) Polymers are employed in the range of 1-70 % in the dosage forms. As a formulator, classify the various polymers based on their functionalities and discuss the properties of polymers.
- (b) Mr. Pinkesh wants to formulate PPOP. As a formulator, suggest him the merits, formulation and evaluation aspects of the dosage form. **06**

- Q.3** Answer the following: (any three) **12**

- (a) Enumerate advantages of intelligent drug delivery systems. Explain electrically and ultrasonically modulated drug delivery systems.
- (b) Floating drug delivery systems.
- (c) Discuss zero order and first order drug release patterns of controlled release systems with equations.
- (d) Enlist their advantages & factors affecting biodegradation. Explain mechanisms of biodegradation.

**Section 2**

- Q.4** (a) Answer the following: **08**  
1 Factors influencing drug transport across buccal mucosa.  
2 Approaches employed to develop parenteral controlled release formulations.

OR

- (a) Answer the following:  
1 What do you mean by mucoadhesion and bioadhesion? Discuss physicochemical characteristics of polymer affecting mucoadhesion.  
2 Write a short note on sonophoresis.

- (b) Describe in brief: **03**  
1 Methods for preparing liposomes.

- Q.5** (a) Describe the formulation and evaluation of rectal mucoadhesive drug delivery. **06**

OR

- (a) Mr. Raheja wants to formulate parenteral implantable drug delivery system. Enlist the criteria for the drug to be formulated as implantable drug delivery system. Describe in detail the formulation and evaluation aspects of implants.

- (b) Describe iontophoretic drug delivery. **06**

- Q.6** Answer the following: (any two) **12**

- (a) Explain Membrane permeation-controlled transdermal systems.  
(b) Discuss the approaches used to develop parenteral controlled release formulations based on diffusion mechanism.  
(c) What are the advantages of mucoadhesive dosage forms? Enlist the potential sites for mucoadhesion. Explain the various theories involved in mucoadhesion.
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