

Roll No _____

END-TERM EXAMINATION
Odd Semester 2024-25

Course Code : BP704T

Course Name: Novel Drug Delivery System

Programme Name: B.Pharma

Sem: VII



Time: 3 Hours

Maximum Marks: 75

Instructions: The question paper consists of 32 questions divided into three-part A, B and C. Attempt all questions from section-A comprises 20 MCQs, Any two questions out of three from section-B and Any seven questions out of Nine from section-C

Section-A (20 X 1 = 20 Marks)

1	Which method is based on diffusion principles in controlled release formulations? a) Erosion b) Osmosis c) Ion exchange d) Reservoir systems	CO-1	L-2
2	Which of the following is a biodegradable polymer used in controlled release? a) Polyvinyl chloride (PVC) b) Polylactic acid (PLA) c) Polytetrafluoroethylene (PTFE) d) Polyethylene (PE)	CO-1	L-1
3	One disadvantage of microencapsulation is: a) Increased drug stability b) Reduced drug potency c) High production cost d) Enhanced taste masking	CO-4	L-4
4	Which is a disadvantage of implantable drug delivery systems? a) short duration of drug action b) Invasive procedure required c) Rapid drug absorption d) Limited stability of the implant	CO-4	L-5
5	Microspheres are commonly used for: a) Immediate release b) Controlled release applications c) Instant pain relief d) Surface sterilization	CO-1	L-2
6	Which is a factor affecting transdermal permeation? a) Muscle mass b) Skin hydration c) Bone density d) Air temperature	CO-1	L-4
7	What are common disadvantages of controlled drug delivery systems? a) Reduced patient adherence b) Increased dosing frequency c) Inconsistent drug release d) Complex manufacturing	CO-4	L-5
8	What is bioadhesion in mucosal drug delivery? a) Bonding of drug molecules to each other b) Drug's resistance to degradation c) Adherence of drug to mucus layer d) Passage through the skin barrier	CO-1	L-2
9	Permeation enhancers are used in TDDS to: a) Increase the stability of the drug b) Reduce drug release rate c) Facilitate drug passage through the skin d) Improve taste masking.	CO-2	L-3
10	Mucosal drug delivery systems are most effective for which route? a) Buccal b) Oral c) Transdermal d) Intravenous	CO-1	L-2
11	Gastroretentive drug delivery systems are designed to: a) Release drugs immediately upon ingestion	CO-1	L-2

	b) Extend drug release in the stomach c) Prevent absorption in the intestine d) Improve hepatic drug metabolism		
12	The main barrier for drug permeation in transdermal delivery is: a) Stratum corneum layer of the skin b) Muscle Tissue c) Gastric lining d) Pulmonary mucosa	CO-1	L-2
13	Microparticles are often used in drug delivery systems for: a) Fast drug release b) Delayed or controlled release c) Increasing drug toxicity d) Immediate dissolution	CO-1	L-2
14	The primary function of ion exchange in drug delivery is to: a) Bind drugs to ions for gradual release b) Increase drug degradation rate c) Decrease solubility of drugs d) Deliver drugs to the brain only	CO-1	L-2
15	Hydrophilic polymers in controlled release systems: a) Form a gel layer on contact with water b) Are insoluble in bodily fluids c) Have minimal impact on drug release d) Act as preservatives	CO-2	L-3
16	High-density gastroretentive systems are designed to: a) Float on gastric fluids b) Sink and remain in the stomach c) Be absorbed immediately in the intestine d) Enhance systemic distribution	CO-1	L-2
17	One key factor in selecting drug candidates for controlled drug delivery is: a) High solubility and short half-life b) Low molecular weight and non-toxic profile c) long half-life and predictable absorption d) Immediate therapeutic effect requirements	CO-4	L-5
18	One of the main considerations in buccal delivery formulations is to: a) Avoid direct drug absorption through the stomach b) Maintain drug stability in acidic environments c) Enhance drug absorption through the mucosal tissues d) Increase degradation in the liver	CO-1	L-2
19	Nasal drug delivery is ideal for: a) Local and systemic effects b) Only local effects c) Drugs requiring hepatic metabolism d) Minimizing mucosal absorption	CO-1	L-2
20	In the microencapsulation process, coating materials are chosen based on their ability to: a) Increase drug degradation b) Control release rate and protect drug stability c) Reduce drug bioavailability d) Absorb water quickly	CO-2	L-3

Section B (2 X 10 = 20 Marks)

1	Explain the rationale behind controlled drug delivery systems and write the key advantages and disadvantages of these systems. Discuss the criteria for selecting drug candidates for controlled release formulations.	CO-1, CO-4	L-2
2	a) Give classification of Polymers. Add a note on properties of polymers. b) Explain the pharmaceutical applications of polymers.	CO-3	L-2
3	Outline the key principles of transdermal drug delivery systems, including factors affecting skin permeation and the role of permeation enhancers.	CO-2	L-2

Section C (7 X 5 = 35 Marks)

1	Explain the differences between microspheres, microcapsules, and microparticles used in microencapsulation.	CO-1	L-2
2	Explain the principles of bioadhesion and mucoadhesion in mucosal drug delivery and describe how these properties benefit drug formulations.	CO-1	L-2
3	Describe the concept of implantable drug delivery systems and explain the purpose of osmotic pumps in these systems.	CO-4	L-2
4	Define transdermal drug delivery systems (TDDS) and outline the key factors that affect drug permeation through the skin.	CO-2	L-1, L-2
5	Explain the importance of nasopulmonary drug delivery systems and outline the different types of formulations	CO-2	L-2
6	Discuss the formulation considerations for buccal delivery systems and outline their main advantages and disadvantages.	CO-4	L-4
7	Outline the main characteristics of liposomes, niosomes, and nanoparticles, and describe one specific application for each in targeted drug delivery.	CO-3	L-2
8	Summarize the intraocular barriers in ocular drug delivery systems and describe the methods used to overcome these barriers in order to achieve effective drug delivery.	CO-1, CO-4	L-2
9	Give the principles of controlled release formulations based on diffusion, dissolution.	CO-1	L-4