Name: Enrolment No:	

UPES

End Semester Examination December 2024

Course: Novel Drug Delivery System — **Semester: VII**
Program: B. Pharm — **Duration: 03 Hours**
Course Code: BP704T — **Max. Marks: 75**
Instructions: Attempt all questions.

SECTION A
(20 Q x 1 M = 20 Marks)

S. No.	Attempt all questions from section A.	Marks	COs
Q 1	Controlled drug delivery systems aim to: a) Achieve immediate drug release b) Control the drug release rate c) Reduce drug side effects only d) Avoid systemic circulation	1	CO1
Q 2	Differentiate between controlled and sustained release drug delivery system.	1	CO1
Q 3	Mucoadhesion between hydrogels and mucosal membrane includes a) Wetting and swelling b) Interpenetration of the bioadhesive polymer c) Formation of weak chemical bonds d) All the above	1	CO1
Q 4	_____ kinetics is often preferred in controlled drug delivery systems. a) First-order b) Zero-order c) Second-order d) Burst	1	CO1
Q 5	Drug permeation across the skin follows: a) Fick's first law of diffusion b) Noyes–Whitney equation c) Higuchi's law of diffusion d) None of the above	1	CO2
Q 6	Following polymers is commonly used for mucoadhesion in buccal drug delivery? a) Polyvinyl alcohol b) Chitosan c) Polylactic acid d) Polypropylene	1	CO2
Q 7	Following agent is used to generate a constant positive pressure for zero-order release a) Osmotic agent b) Propellant agent c) Both of the above d) None of the above	1	CO2

Q 8	Property of polymers that directly affects their ability to control drug release is: a) Molecular weight b) Color c) pH level d) Thermal conductivity	**1**	**CO2**
Q 9	Mucoadhesive drug delivery systems can be advantageous because they: a) Are absorbed quickly into the bloodstream b) Avoid the first-pass effect c) Do not require frequent dosing d) Only work on highly soluble drugs	**1**	**CO2**
Q 10	One advantage of microencapsulation in drug delivery is: a) Faster drug release b) Improved stability of the drug c) Easier administration d) Reduced formulation cost	**1**	**CO2**
Q 11	Osmotic pressure-controlled system provide a) Zero order release b) First order release c) Second order release d) None of the above	**1**	**CO2**
Q 12	Mucoadhesive polymers typically contain: a) Hydrophobic groups b) Charged or polar groups c) Metallic groups d) Alkaline buffers	**1**	**CO2**
Q 13	Needle-free Jet Injectors have advantages, EXCEPT a) Pain-free delivery b) Accurate dosing c) Improved bioavailability d) Cause infection from splash back of body fluids	**1**	**CO3**
Q 14	A key advantage of implantable drug delivery systems is that they: a) Are inexpensive to produce b) Offer a prolonged release period c) Provide immediate effects d) Require daily administration	**1**	**CO3**
Q 15	Gastroretentive drug delivery systems aim to: a) Increase drug residence time in the stomach b) Speed up drug transit to the intestines c) Enhance drug solubility in the intestines d) Minimize drug dissolution	**1**	**CO3**
Q 16	Below is commonly used excipient to generate gas in a floating drug delivery system is a) Sodium bicarbonate b) Sodium alginate c) Sodium chloride	**1**	**CO3**

	d) Zinc oxide		
Q 17	Enlist any two advantages of nano-particulate drug delivery systems.	**1**	**CO4**
Q 18	Alzet is a a) Osmotic pressure activated system b) Vapour pressure activated system c) Magnetically activated system d) Hydration activated system	**1**	**CO4**
Q 19	An ion-exchange system releases the drug by: a) Diffusion b) Osmosis c) Ionic interactions d) Chemical degradation	**1**	**CO4**
Q 20	The release rate of a drug from an ocusert is influenced by: a) Size of the ocusert b) Polymers used in the formulation c) Environmental factors such as eye temperature and tear fluid d) All of the above	**1**	**CO4**
SECTION B (20 Marks) (2 Q x 10 M = 20 Marks)			
	Attempt any two questions from section B.	**Marks**	
Q 1	a) Write about various advantages of gastro-retentive drug delivery systems. b) Explain hydrodynamically balanced systems.	**4+6**	**CO1**
Q 2	a) What are the advantages of microencapsulation? b) Explain microencapsulation by coacervation phase separation method.	**2 + 8**	**CO3**
Q 3	a) Explain thin film hydration method for liposome preparation. b) Discuss various evaluation parameters of liposomes.	**4+6**	**CO4**
SECTION-C (35 Marks) (7 Q x 5 M = 30 Marks)			
	Attempt any seven questions from section C.	**Marks**	
Q 1	Classify and explain polymers used in controlled drug delivery with examples based on the source and structure.	**5**	**CO1**
Q 2	a) Explain the basic principle of transdermal drug delivery systems. b) Describe their advantages over traditional oral drug administration.	**2.5+2.5**	**CO1**
Q 3	Discuss the clinical applications and potential benefits of intrauterine drug delivery systems in reproductive health.	**5**	**CO2**
Q 4	Explain various factors affecting bioadhesion.	**5**	**CO2**
Q 5	Describe the main criteria for selecting drug candidates for controlled release.	**5**	**CO2**
Q 6	What are ocuserts? Explain various classes of ocuserts.	**2+3**	**CO3**
Q 7	Describe the biological factors that affect controlled release formulations.	**5**	**CO3**
Q 8	Describe various evaluation parameters for controlled release drug delivery systems.	**5**	**CO4**
Q 9	a) Classify niosomes based on nature of lamellarity and vesicle size. b) Enlist various formulation approaches for niosomes.	**2.5+2.5**	**CO4**