Name:

Enrolment No:

UPES

End Semester Examination, December 2024

Course: Advanced Drug Delivery System **Semester : VII**

Program: Int. (B. Sc. + M. Sc. (Clinical Research) **Time : 03 Hours.**

Course Code: HSCR8008P **Max. Marks: 100**

Instructions: All questions are compulsory.

Section A

Short answer questions/ MCQ/T&F

(20Qx1.5M= 30 Marks)

S. No.		30 Marks	CO
Q 1	Lacrisert is _____ drug delivery system. A. Erodible and ocular B. Non-erodible and ocular C. Erodible and mucosal D. Non-erodible and mucosal	**1.5**	**CO1**
Q 2	_____ is the toughest barrier for transdermal drug delivery. A. Stratum corneum B. Hypodermis C. Dermis D. Mucosa	**1.5**	**CO1**
Q 3	Define gastroretentive drug delivery system.	**1.5**	**CO1**
Q 4	Implants should be sterile and contain no bio-load. A. True B. False	**1.5**	**CO1**
Q 5	Enlist three advantages of nasal drug delivery system.	**1.5**	**CO1**
Q 6	Enlist any three polymers used for transdermal drug delivery system.	**1.5**	**CO1**
Q 7	Define penetration enhancers.	**1.5**	**CO1**
Q 8	Select the theory that describes the mechanism of bioadhesion. A. Molecular weight theory B. Wetting theory C. Vapor pressure theory D. Cohesion theory	**1.5**	**CO2**
Q 9	Give an example of a drug delivery system that has thread-like structure.	**1.5**	**CO2**
Q 10	Superoxide iron can be employed for designing _____ drug delivery system. A. high density B. low density C. magnetic D. floating	**1.5**	**CO2**
Q 11	Classify ocular drug delivery systems.	**1.5**	**CO2**
Q 12	Particles greater than 100 microns can easily be delivered to alveoli in lungs. A. True B. False	**1.5**	**CO2**
Q 13	_____ is used to estimate *in-vitro* drug release from transdermal patches. A. Paddle over disks apparatus B. Disk over Paddle apparatus C. Flow through apparatus D. Basket type apparatus	**1.5**	**CO2**
Q 14	If the drug has good permeability through mucosal membrane but is hydrophobic, then suggest the suitable nanocarrier for drug delivery.	**1.5**	**CO3**
Q 15	Report any three types of delivery systems that are employed to avoid first pass metabolism.	**1.5**	**CO3**

Q 16	_____ can be used for passive targeting of nanoparticles to tumor cells in cancer treatment. A. Particle size B. Penetration enhancers C. Antibodies D. Pore size of capillary endothelium	**1.5**	**CO3**
Q 17	Nebulizers are used to deliver volatile drugs to pulmonary system. A. True B. False	**1.5**	**CO3**
Q 18	Identify and relate its proper use.  A. Mucosal drug delivery B. Nasal drug delivery C. Transdermal drug delivery D. Oral drug delivery	**1.5**	**CO4**
Q 19	Highly branched polymer can enhance bioadhesion. A. True B. False	**1.5**	**CO4**
Q 20	Draw a schematic diagram of Ocusert showing its components.	**1.5**	**CO4**
	Section B **(4Qx5M=20 Marks)**		
Q	**Short Answer Type Question**	**20 Marks**	**CO**
Q 1	Describe any one polymer used for fabricating drug delivery systems.	**5**	**CO1**
Q 2	Summarize the advantages of mucosal drug delivery systems.	**5**	**CO2**
Q 3	Categorize and explain any two types of drug carriers for the targeted drug delivery.	**5**	**CO4**
Q 4	Microneedles can be used for transdermal drug delivery. Justify the statement.	**5**	**CO3**
	Section C **(2Qx15M=30 Marks)**		
Q	**Two case studies 15 marks each subsection**	**30 Marks**	**CO**
Q 1	Demonstrate the use of polymers in formulation of advanced drug delivery systems.	**15**	**CO3**
Q 2	a) Illustrate the anatomy of mucosal membrane and composition of mucus. b) Discuss the significance of mucus in the human body.	**7+8**	**CO4**
	Section D **(2Qx10M=20 Marks)**		
Q	**Long Answer type Questions**	**20 Marks**	**CO**
Q 1	Explain various quality control parameters for transdermal drug delivery systems.	**10**	**CO4**
Q 2	Describe ideal characteristics of the drug for naso-pulmonary drug delivery system.	**10**	**CO2**