Enrollment No.....

Faculty of Pharmacy

End Sem (Odd) Examination Dec-2022

PY3CO32 Novel Drug Delivery Systems

Programme: B. Pharma Branch/Specialisation: Pharmacy

Duration: 3 Hrs. **Maximum Marks: 75**

Note: All questions are compulsory. Internal choices, if any, are indicated.

Q.1	i.	Give any two suitable properties of drug candidate to be formulated as controlled release drug delivery system.	**2**
	ii.	Give example of any two polymers used for formulating controlled drug delivery system.	**2**
	iii.	Enlist any two techniques which are used for inducing coacervation in microencapsulation.	**2**
	iv.	Give example of any two permeation enhancers which are used in mucosal drug delivery system.	**2**
	v.	What are monolithic devices?	**2**
	vi.	Enlist different layers of skin.	**2**
	vii.	Which types of surfactants are used in formulation of niosomes and give any two examples.	**2**
	viii.	Give full form of HAT medium used for preparation of monoclonal antibodies.	**2**
	ix.	How the contact time of ophthalmic preparations can be improved?	**2**
	x.	What is mechanism of action of copper bearing intra-uterine devices?	**2**
Q.2		Attempt any two:	
	i.	What are controlled drug delivery systems? Elaborate any four approaches used to formulate controlled drug delivery system.	**10**
	ii.	What is microencapsulation? Describe in detail any four techniques employed for microencapsulation.	**10**
	iii.	(a) Describe in details various physiological and biochemical properties of drug candidates suitable for controlled release drug delivery systems.	**5**

		(b) What is the principle of bioadhesion? Explain the mechanism of transmucosal permeation.	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	Elaborate any two formulation approaches of formulating transdermal drug delivery system.	**5**
	ii.	Give classification of gastro-retentive drug delivery system.	**5**
	iii.	Explain any five factors which can effect nasal absorption.	**5**
		Section - B	
	iv.	What are liposomes? Give the advantages and disadvantages of liposomes in detail.	**5**
	v.	What are nanoparticles? Describe the procedure for preparation of nanoparticles.	**5**
	vi.	What is the concept behind targeted drug delivery? Explain the preparation of niosomes.	**5**
		Section - C	
	vii.	Describe any five different types of ocular formulations.	**5**
	viii.	What are intra-uterine devices? Give their advantages and disadvantages.	**5**
	ix.	Describe the intraocular barriers for ocular drug delivery.	**5**

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Marking Scheme
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Q.1	i)	Any two properties of drug candidate to fulfil the criteria to be formulated as controlled release drug delivery system – 2 marks	**2**
	ii)	Example of any two polymers used for formulating controlled drug delivery system – 2 marks	**2**
	iii)	Any two techniques which can induce coacervation during microencapsulation – 2 marks	**2**
	iv)	Any two examples of permeation enhancers used for formulating controlled drug delivery system – 2 marks	**2**
	v)	Definition of monolithic devices / matrix device – 2 marks	**2**
	vi)	Name of all the skin layers – 2 marks	**2**
	vii)	Non-ionic surfactants – 2 marks	**2**
	viii)	Hypoxanthine-Aminopterin-Thymidine medium Hylondoma medium – 2 marks	**2**
	ix)	Any one strategy to prolong the contact time of ophthalmic drug with eye – 2 marks	**2**
	x)	Mechanism of action of copper intra-uterine devices – 2 marks	**2**
Q.2		Attempt any two:	
	i.	Definition of controlled drug delivery system – 2 marks Any four approaches to formulate controlled drug delivery system -8 marks	**10**
	ii.	Definition of microencapsulation – 2 marks Any four techniques employed for microencapsulation – 6 marks Diagram & Example 2 marks	**10**
	iii.	a) Physiological properties of drug candidates suitable for controlled release formulations – 2.5 marks Biochemical properties of drug candidates suitable for controlled release formulations – 2.5 marks	**5**
		b) Principle of bioadhesion – 2 marks Mechanism of transmucosal permeation – 3 marks	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	Any two formulation approaches for transdermal drug delivery system along with diagrams – 2.5 + 2.5	**5**
	ii.	The classification of gastro-retentive drug delivery system in following classes: Any five classes 1 mark for each (1 mark * 5)	**5**
	iii.	Any five parameters which can effect nasal absorption – 5 marks	**5**
		Section - B	
	iv.	Definition of liposome – 2 marks Advantages and disadvatages – 3 marks	**5**
	v.	Definition of nanoparticles – 2 marks Any two Methods of preparation – 3 marks	**5**
	vi.	Concept of targeted drug delivery – 2 marks Any two Preparation of niosomes- 3 marks	**5**
		Section - C	
	vii.	Description of any five ocular drug delivery systems – 5 marks	**5**
	viii.	Definition of intra-uterine devices – 2 marks Advantages and disadvantages of intrauterine devices – 3 marks	**5**
	ix.	Intraocular barriers for drug delivery: Anatomical barriers, Physiological barriers, Blood-Ocular barriers – 5 marks	**5**

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