Total No. of Questions: 3 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Pharmacy
End Sem Examination Dec-2023
PY3CO32 Novel Drug Delivery Systems

Programme: B. Pharm. Branch/Specialisation: Pharmacy

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

Note: All questions are compulsory. Internal choices, if any, are indicated. Assume suitable data if necessary. Notations and symbols have their usual meaning.

Q.1	i.	Write and explain Noyes Whitney equation.	**2**
	ii.	Give two examples each of water soluble and synthetic polymers.	**2**
	iii.	What is mucoadhesion?	**2**
	iv.	Name ingredients used in formulation of mucosal drug delivery systems.	**2**
	v.	How do skin permeation enhancers act?	**2**
	vi.	Give two examples each of drugs and polymers suitable for nasal drug delivery.	**2**
	vii.	Give two advantages and disadvantages of niosomes as drug delivery system	**2**
	viii.	Give four applications of monoclonal antibodies as DDS.	**2**
	ix.	What are ocuserts?	**2**
	x.	Mention advantages of intrauterine drug delivery systems.	**2**
Q.2		Attempt any two:	
	i.	Discuss the approaches to design of controlled drug delivery systems.	**10**
	ii.	Discuss the role of transmucosal permeability in designing/ formulation of buccal or mucosal drug delivery systems.	**10**
	iii.	(a) Classify polymers with examples.	**5**
		(b) Give the applications of microencapsulation technique.	**5**
Q.3		Attempt any seven: Two questions from each section is compulsory.	
		Section - A	
	i.	Discuss basic components of transdermal drug delivery systems.	**5**
	ii.	Elaborate on floating systems for gastro retention of drugs.	**5**

P.T.O.

	iii.	Write a note on inhalers.	**5**
		Section - B	
	iv.	Classify liposomes with it's applications in drug delivery.	**5**
	v.	Explain niosomes with it's preparation methods.	**5**
	vi.	Discuss any two methods of preparation of nanoparticles with suitable diagrams.	**5**
		Section - C	
	vii.	What are intra-ocular barriers and how are they overcome?	**5**
	viii.	Write about different ocular formulations.	**5**
	ix.	Discuss applications and development of intrauterine devices.	**5**

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Marking Scheme

PY3CO32 - Novel drug Delivery systems

Q.1	i)	Equation- and full form of terms-	1 Mark 1 Mark	**2**
	ii)	for one example.	0.5 marks each	**2**
	iii)	Definition of mucoadhesion		**2**
	iv)	Any four ingredients used in formulation of mucosal drug delivery systems with examples.		**2**
	v)	Mechanism of action of skin permeation enhancers.		**2**
	vi)	0.5 marks for examples each of drugs and polymers suitable for nasal drug delivery		**2**
	vii)	0.5 marks each for advantages and disadvantages of niosomes as drug delivery system		**2**
	viii)	for applications of monoclonal antibodies as DDS. 0.5 Marks each		**2**
	ix)	Definition of ocuserts.		**2**
	x)	Two advantages.		**2**

Q.2 Attempt any two:

i.	Two approaches with equations, explanation and diagrams- 05 Mark each	**10**
ii.	Transmucosal permeability – 02 marks Example of permeation enhancers- 01 marks Formulation considerations and ingredients- 07 marks	**10**
iii.	(a) Classification with examples- 05 marks.	**5**
	(b) Each application of microencapsulation technique – 01 mark	**5**

Q.3 Attempt any seven: Two questions from each section is compulsory.

Section - A

i.	Any 5 components with examples- 05 marks	**5**
ii.	Floating drug delivery system- definition, formulation, ingredients, classification and diagram- (01 Mark each)	**5**
iii.	Definition, examples, advantages and disadvantages and applications of inhalers.	**5**

Section – B

iv.	Classification (any two type) with diagrams.	**5**
v.	Each comparison between liposomes and niosomes with suitable	**5**

P.T.O.

	explanation- 1.0 Mark	
vi.	One method of preparation of nanoparticles with suitable diagrams- 2.5 Marks	**5**

Section – C

vii.	Intra-ocular barriers- 2.5 Marks Methods to overcome- 2.5 Marks	**5**
viii.	Ocular formulations- explanation, classification, examples, applications and diagrams if any.	**5**
ix.	Applications of intrauterine device- 2.5 Marks. Development of intrauterine devices- 2.5 Marks	**5**

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