Exam Date & Time: 21-Feb-2022 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

Novel Drug Delivery Systems [PCE-BP704T]

Marks: 75 **Duration: 180 mins.**

I Multiple Choice Questions (MCQs)

Answer all the questions. Section Duration: 30 mins

1) Microspheres can be prepared by simple coacervation technique .....

1)	By titration		2)	Adding nonsolvents		3)	Controlling pressure		4)	Controlling pH	

(1)

2) The bulk density of hydrodynamically balanced floating drug delivery systems is .....

1)	Less than that of gastric fluid		2)	More than that of gastric fluid		3)	Equal to the gastric fluid		4)	None of the above	

(1)

3) Which of the following characteristics is suitable for selection of drug candidate for gastro-retentive drug delivery systems?

1)	Drug with longer halflife		2)	Drug sensitive to the alkaline pH		3)	Drug with large daily dose		4)	Drug with low aqueous solubility	

(1)

4) Which approach is not useful to increase the gastro-retention time?

(1)

1)	Low density system		2)	High density system		3)	Expendable drug delivery system		4)	Compressing system	

5) Which of the following gastro-retentive drug delivery system is also known as "Plug Type system"?

1)	Pulsatile system		2)	Floating system		3)	Swellable system		4)	High density system	

(1)

6)(1) Which of the following is not a pulmonary drug delivery device?

1)Nebulizer	2) Metered dosing system	3) Dry powder system	4) Raft forming system

7) What is the name of the mechanism by which the peptide is absorbed in nasal cavity?

1)	Follicular		2)	Transcellular		3)	Follicular and Transcellular		4)	Paracellular and Transcellular	

(1)

8) Normal pH of the nasal secretion in adult is .....

1)	2.5 to 3.5		2)	3.5 to 4.5		3)	4.5 to 5.5		4)	5.5 to 6.5	

9) Sodium taurocholate is used as ..... in nasal dosage forms.

1)	Permeation enhancer and surfactant		2)	Preservative and antioxidant		3)	Viscolytic agent and osmolytic agent		4)	Antioxidant and osmolytic agent	

(1)

10) The absorption of drugs can be improved by (choose the wrong one)

1)	formulating prodrugs with reduced lipophilicity		2)	formulating prodrugs with enhanced lipophilicity		3)	disrupting epithelium barrier temporarily		4)	blocking drug efflux	

(1)

11) Of the following statements, one is wrong one, indicate it

1)	In an ideal drugtargeting system the drug must be able to access the target site		2)	In an ideal drug-targeting system the drug should be retained at the site		3)	An ideal drugtargeting system should be nontoxic and therapeutically acceptable		4)	An ideal drugtargeting system should release the drug in a controlled fashion during transit to the target site	

(1)

12) One of the following statements is correct - choose it (1)

1)	PEG coating is commonly used as a hydrophilic coat for a carrier system		2)	Macrophage recognition of carrier system enhanced by adding a hydrophilic coat		3)	Charged particles tend to remain longer in circulation compared to their neutral counterparts		4)	Particles of 1-2 micron are ineffectively cleared by phagocytosis	

13) Choose the correct statement of the following

1)	Polymeric nanoparticles are usually prepared by the lipid hydration method	2)	Solid lipid nanoparticles are colloidal particles dispersed in an organic phase like hexane	3)	Proteins can also be used for the construction of nanoparticles	4)	Solid lipid nanoparticles can be produced by either hot or cold homogenisation		(1)

14)Ocusert is an ocular insert which (choose most relevant one of the following)

1)	has a drug alginate mixture	2)	gives controlled release of pilocarpine	3)	is made from nonporous ethylene vinyl acetate copolymer membrane	4)	is made from microporous ethylene acetate polymer membrane		(1)

15) The main region of drug loss include (choose the wrong one)

1)	Drainage	2)	Dilution by tears	3)	Naso-lachrymal drainage	4)	Conjuctival nonabsorption		(1)

16) Corneal absorption is seen with (choose the correct one)

1)	Only access to small ionic & lipophilic molecules	2)	Only access to small ionic molecules	3)	Only access to small lipophilic molecules	4)	Only access to large ionic & lipophilic molecules		(1)

17) Advantage of Ocular controlled drug delivery systems (Choose the wrong one)

1)	Increased bioavailability of drug by increase in corneal contact time.	2)	Provide targeting within ocular globe	3)	Improves therapeutic performance	4)	Non accurate dosing		(1)

18) Ocular inserts can be (Choose the wrong one)

1)	Insoluble	2)	Soluble	3)	Non-Bioerodible	4)	Bioerodible	

19) Which of the following is a non-medicated intrauterine device? (1)

1)	Mirena	2)	Progestasert	3)	Lippes loop	4)	Para Gard	

20)Which of the following IUDs are known to release the cupper ions?

1)	First Generation IUDs	2)	Second Generation IUDs	3)	Third Generation IUDs	4)	All of the above		(1)

II Long

Answers Answer all the questions.

1) Discuss and explain with examples, figures and graphs, various approaches with which controlled

release formulations can be done. (10)

2) a) Write the advantages and disadvantages of Targeted Drug Delivery systems (5 marks)

b) Write the applications of Monoclonal antibodies with examples (5 marks) (10)

III Short

Answers Answer all the questions.

1) Write briefly on Biodegradable polymers and their uses in novel drug delivery systems. (5)

2) Define the term microencapsulation. Explain centrifugal extrusion method for the preparation of microcapsules. (5)

3) What is the need of mucosal drug delivery systems? Explicate the process of mucoadhesion. (5)

4) Enlist the approaches involved in design of implants. Explain the diffusion process based implants. (5)

5) Enumerate factors affecting absorption of drugs from transdermal drug delivery systems. Discuss physicochemical factors in detail. (5)

6) Discuss on various ocular barriers of drug absorption in Ocular drug delivery. (5)

7) Write a note on membrane controlled reservoir type IUD delivery systems. (5)

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