A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 99B07

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2024

Elective

Biomedical Engineering

19UBM907- Drug Delivery Systems

(Regulation 2019)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 2 = 20 Marks)

1.	Define bioavailability of drugs.	CO1- U
2.	Define half -life of a drug.	CO1- U
3.	Define total capacity of ion exchange resins.	CO2- U
4.	Analyze the major routes in which the drug is delivered through muco adhesive systems.	CO3- Ana
5.	Define a parental system.	CO1- U
6.	Mention the application of polymeric microspheres.	CO1- U
7.	Mention the applications of transdermal patches.	CO1- U
8.	Define permeation enhancers.	CO1- U
9.	Analyze the advantages of pulmonary drug- delivery system.	CO3- Ana
10.	Compare targeted drug delivery with conventional drug delivery.	CO3- Ana

PART – C (5 x 16= 80 Marks)

11.	(a)	Analyze the biological and physiochemical properties of drug molecule influencing the design of controlled release drug delivery system.	CO3- Ana	(16)
		Or		
	(b)	You are a scientist and have decided to formulate a controlled drug for a chronic disease. Discuss the considerations and predict the approaches that you will follow in designing a drug and the methods to examine bioavailability.	CO3- Ana	(16)

12.	(a)	Illustrate the role of osmosis in Osmotic controlled oral drug delivery system and elucidate the types, formulation and factors to be considered in designing Osmotic pressure-controlled DDS.	CO2- U	(16)
		Or		
	(b)	Illustrate the mechanism, classification and methods of preparation of diffusion and dissolution controlled oral drug delivery systems.	CO2- U	(16)
13.	(a)	Classify polymers and predict the applications of polymers in controlled drug delivery systems. Elucidate the features of biodegradable and natural polymers.	CO1- U	(16)
		Or		
	(b)	Explain the approaches and applications of implantable drug delivery systems.	CO1- U	(16)
14.	(a)	Sujan is a scientist and he is planning to design a controlled drug whose dosage delivery is not affected even if the person vomits or has diarrhea. Assume yourself as a junior scientist, help him in writing a report analyzing the factors and approaches for designing such drugs.	CO3- Ana	(16)
		Or		
	(b)	Adhithi has designed a drug that be delivered with the aid of electric voltage and ultra sound transdermally. Analyze all possible approaches, mode of action, application, advantage and dis-advantage of the drug that she has formulated.	CO3- Ana	(16)
15	(a)	Illustrate the mechanism and approaches for targeted drug delivery.	CO2- App	(16)
		Or		
	(b)	Illustrate the mechanism and features of targeted drug delivery in liver.	CO2- App	(16)