BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: BPHARM **SEMESTER : VIII**
BRANCH: PHARMACY **SESSION : SP/19**

SUBJECT: PS8403 DRUG DELIVERY SYSTEMS

TIME: 3 HRS **FULL MARKS: 60**

INSTRUCTIONS:
1. The question paper contains 7 questions each of 12 marks and total 84 marks.
2. Candidates may attempt any 5 questions maximum of 60 marks.
3. The missing data, if any, may be assumed suitably.
***4*. Before attempting the question paper, be sure that you have got the correct question paper.**
5. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.

Q.1(a)	Differentiate between Sustained release and conventional release formulations.	[2]
Q.1(b)	What are the criteria used for selection of drugs for sustained release dosage forms? What are the three major parameters for characterizing the drug kinetics of sustained release dosage forms?	[4]
Q.1(c)	Express the relationship between initial loading dose and maintenance dose via equations. Calculate the loading dose Di, of a drug for formulating sustained release formulations, when the maximum drug content Am is 50microgram/litres, fraction of drug "f" at peak level is 0.61 and bioavailability factor F is 0.81.	[2+4=6]
Q.2(a)	Enumerate the advantages of sustained release dosage forms.	[2]
Q.2(b)	Discuss the principle of ion exchange resins in drug delivery	[4]
Q.2(c)	Explain the hydrophilic, hydrophobic and lipid matrices.	[2X3=6]
Q.3(a)	Define cosmetics as per Food Drugs and Cosmetic act.	[2]
Q.3(b)	Discuss the major composition of Sunscreen products and mention their utility.	[4]
Q.3(c)	i. Discuss the various components of Hair cosmeceuticals. ii. Discuss the use of the following along with examples of each: Retinoids, Antioxidants, Hydroxyacids, Lightening agents	[2+4=6]
Q.4(a)	Define smart polymer.	[2]
Q.4(b)	Discuss the different triggers that are used to stimulate smart polymeric devices. Also discuss the different categories of polymeric systems used for exhibiting stimuli responsiveness.	[4]
Q.4(c)	Discuss the hypotonic hemolysis, hypotonic dilution and isotonic osmolysis methods for drug loading in erythrocytes.	[2X3=6]
Q.5(a)	Discuss the major advantages of erythrocytes as drug delivery systems.	[2]
Q.5(b)	What are dendrimers and carbon nanotubes?	[4]
Q.5(c)	Discuss the membrane permeation-controlled delivery with necessary equations and graphs.	[6]
Q.6(a)	Discuss the rationale for polymer-controlled delivery systems.	[2]
Q.6(b)	Define liposomes and advantages of liposomes as drug delivery system	[4]
Q.6(c)	Broadly classify Prodrugs. What are the different types of active targeting?	[3+3=6]
Q.7(a)	Why liposome is always preferred to be prepared with Phospholipids?	[2]
Q.7(b)	Enumerate the important characterization parameters for liposome evaluation.	[4]
Q.7(c)	Explain the emulsion diffusion and salting out method of nanoparticle preparation.	[3+3=6]

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