3. Mention the concept of drug targeting. Write various strategies of drug targeting. Discuss the composition, classification and preparation (any one method) of liposomes. (2+2+2+2+2)

III. Short answers (Answer seven out of nine questions)
5x7=35

1. Discuss the advantages and disadvantages of microcapsules as a drug delivery system. (3+2)

2. What are polymers? Discuss the applications of polymers in controlled-release drug delivery systems. (1+4)

3. Briefly explain how the osmotic pump drug delivery system work. Mention its advantages and disadvantages. (2+3)

4. What is mucoadhesion? Write about mucoadhesion principles (any four). (1+4)

5. Mention various gastro-retentive drug delivery approaches and elaborate on any four of them. (1+4)

6. Discuss the strategies to improve the bioavailability of drugs administered in the nasal route. Explain the formulation of nasal sprays. (3+2)

7. Mention and discuss any five types of nanoparticles extensively used in pharmacy. (5)

8. Elaborate on different intra-ocular barriers for drug permeation into eye tissues. Mention how to overcome them. (4+1)

9. Explain the development of intra-uterine devices (IUDs). Mention its applications. (4+1)

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UG Odd Semester (CBCS) Examination, March 2023

PHARMACEUTICAL SCIENCES

(7th Semester)

Course No: BP 704T

(Novel Drug Delivery System-Theory)

Full Marks: 75

Time: 3 Hours

The figures in the margin indicate full marks for the questions

I (A). Multiple choice questions
1x10=10

(a) Attributed to Prof. Dale E Wurster, who developed this process, and it is also called Wurster coating method. This process is _____
   (i) Pan coating
   (ii) Air suspension coating
   (iii) Solvent evaporation coating
   (iv) Multiorifice-centrifugal Process

(b) The lower aqueous drug solubility limit for Controlled release formulation has been reported to be _____
   (i) 0.1mg/mL
   (ii) 1 mg/mL
   (iii) 10 mg/mL
   (iv) 100 mg/mL

(c) Which is not a suitable penetration enhancer for buccal patches?
   (i) Menthol

(Turn Over)

(ii) Propylene glycol

(iii) Dimethyl sulfoxide

(iv) Polysorbate 80

(d) Which system is often used for GERD treatment?

(i) Inflatable

(ii) HBS

(iii) Raft-forming

(iv) Hollow microspheres

(e) When the size of particle is greater than 5 μm, the mechanism of deposition in the lungs is ----.

(i) Brownian

(ii) Inertial impaction

(iii) Gravitational sedimentation

(iv) Interception

(f) Which drug does show different rate of skin absorption based on race?

(i) Steroids

(ii) Nitroglycerine

(iii) Benzoic acid

(iv) Caffein

(g) The oral dose of drug suitable for transdermal drug delivery?

(i) 10 mg/day

(ii) Less than 10 mg/day

(iii) More than 10 mg/day

(iv) 100 mg/day

(h) Which is not a disadvantage of Niosomes?

(i) Leaking of the entrapped drug

(ii) Hydrolysis of the encapsulated drugs

(iii) Possibility of formation of toxic metabolites.

(iv) Fusion of colloidal particles

(i) The monoclonal antibody used for the treatment of cancer?

(i) Daclizumab

(ii) Cetoximab

(iii) Muromonab

(iv) Abciximab

(j) Which polymer is used to fabricate Lacrisert?

(i) Ethylene vinyl acetate

(ii) Polymethylmethacrylate

(iii) Hydroxyl propyl cellulose

(iv) Polyvinyl alcohol

I (B). Objective type (Answer the following in brief)

2x5=10

(a) Mention two properties of an ideal drug delivery system

(b) Define the extended-release system and delayed-release system.

(c) What is the degree of polymerization?

(d) Define nanocapsules and nanospheres.

(e) What is MDI? Mention its advantages (any two). 1+1

II. Long answers (Answer two out of three questions)

10x2=20

1. (a) What kinds of drugs are suitable candidates for formulation into controlled-release dosage forms? Discuss.

(b) Write a note on diffusion-based controlled release systems. (5+5)

2. Discuss different mechanisms of drug permeation across the skin. Mention various TDDS approaches and discuss any two of them with diagrams and examples. (4+1+5)