UKA TARSADIA UNIVERSITY

M.Pharm. (Pharmaceutics) (3rd Semester)

Subject :040040302 **-** Drug Delivery System II

Duration: 3 Hours **Max. Marks: 70.**

Instructions:

1. Attempt all questions.
2. Write each section in a separate answer book.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks allocated to that question.
5. Draw diagrams/figures whenever necessary.

Section-1

Q-1 (A) Do as directed. **[07]**

I) What is the rational to prepare micro emulsion?

II) Which cross-linking agents are used in preparation of microsphere?

III) Enlist the commonly used polymers to prepare nanoparticles

IV) How liposome and modified liposomes can be differentiated?

V) Which polymers are used in formulation of solid lipid nanoparticle?

VI) Which surfactant and co-surfactant are used in preparation of microemulsion?

VII) Which type of emulsion is used to retard the drug release?

Q-1 (B) Answer the following in brief. (Any 4) **[08]**

I) Advantages of self micro emulsifying drug delivery system

II) Enlist evaluation parameters for prepared microsphere

III) Describe in brief the structure of Niosomes

IV) Enlist method of preparation of solid lipid nanoparticles

V) Give classification of liposome

VI) Formulation composition of multiple emulsion

Q-2 Answer the following. **[10]**

A) Explain factors affecting drug entrapment efficiency in formulation of microsphere

OR

A) Enlist methods of preparation of multiple emulsions. Discuss evaluation parameters of multiple emulsion

B) Discuss any one method of preparation of nanoparticle

OR

B) Discuss characterization parameters of liposomes.

Q-3 Answer the following in detail. (Any 2) **[10]**

A) Explain role of dendrimers as a vesicular carrier system

B) Describe importance of monoclonal antibody in drug delivery system

C) Write a note on resealed erythrocytes

(P.T.O)

Section-2

Q-4 (A) Do as directed. **[07]**

I) In fluid bed process for which purpose top spray and bottom spray are used?

II) Which drug candidates are suitable to cross BBB?

III) How to protect acid-labile drugs from degradation in stomach?

IV) Define extrusion and spheronization process

V) Which excipients are used to prepare placebo pellets?

VI) Enlist different route for delivery of proteins and peptides

VII) What is rational of gastro retentive drug delivery system?

Q-4 (B) Answer the following in brief. (Any 4) **[08]**

I) Write advantages of targeting drug delivery system

II) Briefly discuss steps to coat enteric layer on pellets in fluid bed process

III) Write examples of paracellular and Transcellular permeation enhancers in oral delivery of protein and peptide

IV) Briefly discuss extrusion and spheronization process for preparation of pellets

V) Enlist *in-vivo* and *in-vitro* techniques for measurement of drug concentration in brain

VI) Which endogenous agents are known to increase blood brain barrier permeability?

Q-5 Answer the following. **[10]**

A) Explain barriers in delivery of protein and peptide

OR

A) Discuss factors influencing delivery of drugs to brain

B) Explain wurster process with importance of each process parameter

OR

B) Explain gas generating approach to formulate floating drug delivery system

Q-6 Answer the following in detail. (Any 2) **[10]**

A) Discuss delivery of protein and peptide via pulmonary route

B) Explain process parameters for preparation of enteric coating pellets

C) Describe the importance of drug delivery to the central nervous system

End of Paper