M 164/015

Enrolment Number										

Total No. of printed pages = 02

Monsoon, 2023

M. Pharm (Pharmaceutics) Semester Examinations

DRUG DELIVERY SYSTEM

Course Code: MPH102T

Full Marks – 75 **Time – 3 hours**

The figure in the margin indicates full marks for the questions.

1. Answer the following: **(15×1=15)**

i. Define dose dumping.

ii. Enlist some factors that can affect the penetration of drugs through the skin.

iii. Subcutaneous (SC) injection is the most common route of vaccine administration. (True/False)

iv. Protein and peptide drug delivery systems are always more effective than traditional small-molecule drug delivery systems. (True/False)

v. In dissolution, _____ migrate from high to low concentration.
   a) Solute
   b) Solvent
   c) Both solute & solvent
   d) Neither solute nor solvent

vi. Weakly acidic drugs exist as _____ form in the stomach.
   a) Ionized
   b) Unionized
   c) Zwitterionic
   d) None of the above

vii. Which one of the following is not a drug release mechanism from CRDDS?
   a) Diffusion
   b) Corrosion
   c) Dissolution
   d) Chemical degradation

viii. What is the main disadvantage of transdermal drug delivery systems?
   a) They can be difficult to formulate.
   b) They can be expensive to manufacture.
   c) They can be difficult to control the rate of drug release.
   d) All the above.

ix. Syncro-Mate-C is an example of
   a) Polymer membrane permeation-controlled drug delivery
   b) Polymer matrix diffusion-controlled drug delivery system
   c) Micro-reservoir partition-controlled drug delivery system
   d) All the above

x. Vaccines provides _____ type of immunity.
   a) Active acquired.
   b) Passive acquired.
   c) Active innate

d) Passive innate

xi. The first ever vaccine was developed against _____.
   a) Smallpox
   b) Hepatitis B
   c) Malaria
   d) Gonorrhoea

xii. Which of the following is NOT a challenge associated with using protein and peptide drug delivery systems?
   a) Large size
   b) Short half-life
   c) High cost
   d) Immunogenicity

xiii. Which property is not ideal for ocular DDS?
   a) Sterility
   b) Isotonicity
   c) Less drainage tendency
   d) Maximum protein binding

xiv. What is the main advantage of using liposomes as a drug delivery system?
   a) They are small and can easily pass through cell membranes.
   b) They can be designed to target specific tissues or cells.
   c) They can control the release of drugs.
   d) All the above.

xv. Unfolding of a protein can be termed as
   a) Renaturation
   b) Denaturation
   c) Oxidation
   d) Reduction

2. Answer any eight questions (8×5=40)

i. Discuss the different types of rate-controlled drug delivery systems.
ii. Explain the advantages of SR and CR formulations over IR formulations.
iii. Discuss the different mechanisms employed to achieve SR/CR drug delivery.
iv. Explain the advantages and disadvantages of GRDDS compared to conventional drug delivery systems.
v. Define buccal drug delivery systems (BDDS) and explain their advantages.
vi. Define ocular drug delivery systems (ODDS) and explain their challenges.
vii. Explain the factors affecting transdermal drug permeation.
viii. Explain the factors affecting the efficacy of protein and peptide delivery systems.
ix. Discuss the different types of vaccine delivery systems.
x. Outline the stability problems of protein and their causes.

3. Answer any two questions. (2x10=20)

i. Describe the structure of the skin and explain its role as a barrier to drug penetration.Discuss the different mechanisms employed by penetration enhancers to improve drug delivery through the skin. (5+5)
ii. Define bioelectronic medicines and explain their potential to revolutionize healthcare. (10)
iii. Discuss the significance of polymers in developing drug delivery systems.Explain the different classes of polymers used in DDS and their applications. (5+5)