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MPH 102 T

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2021

M.Pharm 1st Semester (Regular) Examination

Pharmaceutics

DRUG DELIVERY SYSTEM

(New Regulation w.e.f. 2017-18)

Full Marks – 75

Time – Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following (MCQ/Very short answer type questions/Fill in the blanks):
(20 × 1 = 20)
- (i) Define controlled release drug delivery system.
 - (ii) Name the essential requirements for 3D printing technology.
 - (iii) Why the dose size of a drug is an important factor in the design of SR formulation?
 - (iv) What do you mean by type 1A polymer erosion?
 - (v) What are environment responsive polymers?
 - (vi) In _____ gene therapy, the effects are not inherited.
 - (vii) _____ are the chemical substances used to increase transdermal absorption of drugs.
 - (viii) The pH of saliva is in the range _____.
 - (ix) _____ drug delivery system increases the residence time of drug in stomach.
 - (x) Proteins are polymer of _____.
 - (xi) When two different types of monomers are joined in the same polymer chain
 - (a) Copolymer
 - (b) Homopolymer
 - (c) Polymer complex
 - (d) None of the above

[Turn over

- (xii) Pulmonary MDI is
- (a) Hydrodynamic pressure activated drug delivery
 - (b) Mechanically activated drug delivery
 - (c) Vapour pressure activated drug delivery
 - (d) Osmotic pressure activated drug delivery
- (xiii) The cycle of MMC during which strong housekeeping waves operate
- (a) Phase I
 - (b) Phase II
 - (c) Phase III
 - (d) Phase IV
- (xiv) Progestasert IUD falls under the class of
- (a) Activation modulated drug delivery
 - (b) Feedback regulated drug delivery
 - (c) Site targeting drug delivery
 - (d) Rate preprogrammed drug delivery
- (xv) The molecular weight of drugs, for buccal drug delivery
- (a) Should not be more than 100 da
 - (b) Should be less than 600 da
 - (c) Should not be more than 1000 da
 - (d) Should not be more than 10000 da
- (xvi) Lowest first pass metabolism is found in
- (a) Pulmonary route
 - (b) Oral route
 - (c) Buccal route
 - (d) Transdermal route
- (xvii) Which theory states that polymer with positive spreading co-efficient will have good binding and hence good mucoadhesion
- (a) Fracture theory
 - (b) Diffusion theory
 - (c) Adsorption theory
 - (d) Wetting theory
- (xviii) Remolding is not possible with
- (a) Thermosetting polymers
 - (b) Thermoplastic polymers
 - (c) Both (a) and (b)
 - (d) None of (a) and (b)
- (xix) Ocular absorption of drug through cornea takes place by
- (a) Transcellular
 - (b) Paracellular
 - (c) Pore transport
 - (d) Active transport

- (xx) A discrete inherited trait related to drug absorption, disposition as well as response falls under
- (a) Pharmacogenomics (b) Pharmacogenetics
(c) Pharmacoepidemiology (d) All of the above

2. Answer any SEVEN questions:

(7 × 5 = 35)

- (a) Discuss the influence of physiochemical properties of a drug in sustained/controlled release product design and performance.
- (b) Explain molecular weight and molecular weight distribution of polymer.
- (c) Explain the principle involved in the design of micro reservoir partition controlled drug delivery system.
- (d) Discuss the novel approaches in delivery of peptide based pharmaceuticals.
- (e) What are the recent developments in drug delivery system of vaccine?
- (f) Discuss the low density and high density approaches of gastro retentive drug delivery system.
- (g) What are the drug absorption mechanisms in ocular drug delivery?
- (h) What are the advantages, disadvantages and methods in buccal drug delivery?
- (i) Discuss the principles involved in in vitro and in vivo gene delivery.

3. Answer any TWO of the following:

(2 × 10 = 20)

- (a) Explain various types of transdermal drug delivery system with neat diagram. What are the quality control tests of transdermal patch. (5+5)
- (b) What are the scopes of personalized medicine? Discuss the principles behind development of personalized medicine. Write the general methodology of 3D printing. (2+4+4)
- (c) Discuss mucoadhesion and mucoadhesive drug delivery system. Write some applications of mucoadhesives in novel drug delivery. (6+4)