DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE –

RAIGAD -402 103

First Sessional Examination – October - 2017

Branch: M. Pharm. (Pharmaceutics) **Sem.:- I**

Subject with Subject Code: Modified Release Drug Delivery System (**MPH101T)** **Marks: 30**

Date:- 10/10/2017 **Time:-1.30Hr.**

==========

Q.No.1 Attempt any five of the following (5 X 2) (10)

a) What is spatial placement and temporal delivery of a drug?

Explanation of spatial placement **1 Mark**

Explanation of temporal delivery **1 Mark**

b) Enlist any four disadvantages of conventional drug delivery system

Enlisting any four disadvantages of conventional drug delivery system **2 Marks**

(Each limitation 0.5 Mark)

c) Explain in brief homopolymers and co-polymers with one example of each. **1 Mark**

Explanation of homopolymers with example **1 Mark**

Explanation of copolymers with example

d) What is telepharmacy?

Brief information of telepharmacy **2 Marks**

e) What is a personalized medicine?

Brief information about personalized medicine **2 Marks**

f) Define pharmacogenetics.

Definition of pharmacogenetics. **2 Marks**

g) Give advantages of a 3 D printing of pharmaceuticals.

Enlisting any four advantages of 3 D printing of pharmaceuticals **2 Marks**

Each advantage **0.5 Mark**

Q.No. 2 Attempt any two of the following: (2 X 5) (10)

a) **Give an account of pH activated drug delivery systems.**

Enlisting different types of pH activated drug delivery systems. **1 Mark**

Explanation in detail any two (2) pH activated drug delivery systems. **4 Marks**

- pH dependant solubility systems

- pH dependant erosion/degradation systems
- pH dependant swelling systems

b) **Describe in detail pharmacokinetic characteristics of a drug in the design of a controlled release drug delivery system.** **5 Marks**

Explanation of all four pharmacokinetic characteristics of a drug in the design of a controlled release drug delivery system. **1.25 Marks each**

- Absorption rate
- Elimination half life
- Rate of metabolism
- Dosage form index

c) **Describe in detail enzyme activated drug delivery systems.**

Explanation of concept of enzyme activated drug delivery systems **1 Mark**

Enlisting different types **1 Mark**

Explanation of –

- Urea responsive drug delivery system **1.5Marks**
- Glucose responsive drug delivery system **1.5Marks**

Q.No. 3. Attempt any one of the following. (1 X 10) (10)

a) **Explain in detail biopharmaceutic characteristics of a drug to be selected for the design of a controlled release drug delivery system.**

Enlisting all 8 biopharmaceutic characteristics of a drug to be selected for the design of a controlled release drug delivery system. **2 marks**

(Each Characteristic 0.25 Mark)

Explanation of each parameter **8 Marks**

- Molecular weight of drug
- Aqueous solubility of drug
- Apparent partition co-efficient
- Drug pKa and ionization at physiologic pH
- Drug permeability
- Drug stability
- Mechanism and site of absorption
- Route of administration
  (1 Mark each)

b) **What is physical process activated drug delivery system? Enlist them. Explain any four physical process activated drug delivery systems.**

Physical process activated drug delivery system-

Explanation of concept with enlisting all the types **2 marks**

Explanation of any four (4) physical process activated drug delivery systems **8 Marks**

(2 Marks each)

- Osmotic pressure activated drug delivery systems
- Hydrodynamic pressure activated drug delivery systems
- Vapour pressure activated drug delivery systems
- Mechanical force activated drug delivery systems
- Magnetically activated drug delivery systems
- Thermally activated / Temperature responsive drug delivery systems
- Photo- activated drug delivery systems
- Photomechanical waves activated drug delivery systems
- Phonophoresis/ sonophoresis- activated / ultrasound activated drug delivery systems
- Electrically - activated drug delivery systems-iontophoresis and Electroporation