

**M. PHARMA.**  
**THEORY EXAMINATION (SEM-II) 2016-17**  
**COMPUTER AIDED DRUG DELIVERY SYSTEM**

*Time : 3 Hours*

*Max. Marks : 70*

*Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.*

**SECTION- A**

- 1. Attempt all parts of this Section :** **7×2=14**
- (a) What do you mean by 'population modeling'?
  - (b) Name two major active drug transporters and their functions.
  - (c) What do you mean by computational modeling of ADMET?
  - (d) Name two softwares used in the computer aided formulation development of microemulsion drug carriers.
  - (e) Mention the biowaiver considerations.
  - (f) Mention the applications of robotics in pharmacy.
  - (g) Define 'artificial intelligence'.

**SECTION- B**

- 2. Attempt any three parts of the following :** **3×7=21**
- (a) Write a brief note on descriptive versus mechanistic modelling.
  - (b) Describe the role of active transporters in drug absorption and distribution in the body.
  - (c) Mention the use of computers in formulation development of pharmaceutical emulsion carriers.
  - (d) Write a brief note on the use of computers in clinical data collection and management.
  - (e) Mention the various fields of pharmaceutical automation.

**SECTION- C**

- 3. Attempt all questions in this section :** **5×7=35**
- (a) Explain the significance of using statistical modelling in pharmaceutical research and development.

**OR**

How sensitivity analysis can be done with the help of computers?

- (b) Write a brief note on computational modelling techniques on any one of the following:
  - (i) Nucleoside transporters
  - (ii) Drug absorption in the body.
- (c) Write a brief note on any one of the following:
  - (i) Legal protection of innovative uses of computers in R & D.
  - (ii) Ethics of computing in pharmaceutical research.
- (d) How virtual trials are conducted in biopharmaceutical characterization using computers?

**OR**

Describe the role of computers in IVIVC.

- (e) Mention the advantages and disadvantages of pharmaceutical automation.

**OR**

How robotics is implied in pharmacy?