BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: M.PHARM **SEMESTER: II**
BRANCH: PHARMACY **SESSION:SP2023**
SUBJECT: MPH203T COMPUTER AIDED DRUG DELIVERY SYSTEMS
TIME: 3.00 Hours **FULL MARK: 75**

INSTRUCTIONS:
1. The missing data, if any, may be assumed suitably.
2. Before attempting the question paper, be sure that you have got the correct question paper.
3. Tables/Data hand book/Graph paper etc. to be supplied to the candidates in the examination hall.
5. Answer any five questions.

1a. Explain with a case study "Q_bD application in pharmaceutical product development "as per ICH Q8 guideline. [7]

1b. Discuss relation in Q8, Q9 and Q10 for improving pharmaceutical industry practices. [8]

2a. Discuss importance of statistical modelling in pharmaceutical research. How descriptive and mechanistic modelling can be used for this purpose? [7]

2b. Elaborate history and progress computer aided drug design in pharmaceutical R and D. [8]

3a. Explain the role of solubility and Intestinal permeability in computational modelling of drug disposition. [7]

3b. Draw and explain ACAT model in computational drug delivery system. [8]

4a. Discuss the following: [7]
- i. Neuron in ANN
- ii. Basic components of ANN.

4b. i. Identify the equivalent terms of neural network in statistics. [8]

Statistical term	Neural network term
Model	
Independent variables	
Dependent Variables	
Parameters	

ii. Discuss the generalized regression neural network (GRNN).

5a. Discuss in detail the role of AI in biomedical applications and Tissue engineering. [7]

5b. Discuss the role of Computational fluid dynamics in Pharmaceutical Industry. Also discuss the role of ANN in optimizing drug release from matrix tablet. What do you mean by Dynamic neural network and state some important limitations of ANN. [8]

6a. Describe the first order polynomial model used in RSM. [7]

6b. Demonstrate various design of experiments for second order model. [8]

7a. Demonstrate various design of experiments for first order model. [7]

7b. Describe the second order polynomial model used in RSM. [8]

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