

**M. PHARMACY FIRST YEAR, SECOND SEMESTER EXAMINATION, 2025
COMPUTER AIDED DRUG DEVELOPMENT**

Time: Three hours

Full Marks: 75

Answer any five questions taking at least one from each group

Group A

1. Discuss the process of traditional drug discovery and development. Describe the computational modeling approaches used to predict solubility and intestinal permeability.

5+10=15

2. Discuss the role of P-glycoprotein (P-gp), breast cancer resistance protein (BCRP), and nucleoside transporter for the active transport of drug molecules through the GIT.

5+5+5=15

Group B

3. Write down the functions and responsibilities of CDM.

15

4. Explain the critical attributes of CPP.

15

Group C

5. What is CFD? Write the steps in performing CFD, explain with an example., write their practical application in pharmacy.

2+5+8=15

6. Define robotics. Write the objective of robotics. What is the difference between robot system and other AI program? Applications of robot in pharmaceutical industry.

2+5+4+4=15

Group D

7. What is IVIVC? What are the various levels of IVIVC? Discuss about the various parameters to get a good IVIVC correlation.

2+5+8=15

8. a) Discuss about artificial neural networks. How artificial neural networks can be used for drug delivery?

b) Write any 4 criteria for BCS based biowaiver application.

c) Formula of a tablet dosage form containing a BCS class III drug is given below (Reference and test product)

Reference Product	Test Product
Drug 150 mg	Drug 150 mg
Lactose 90 mg	Lactose 85 mg
Sorbitol 12 mg	Sorbitol 15 mg
Croscarmellose Na 9 mg	Croscarmellose Na 12 mg
Mg. Stearate 3 mg	Mg. Stearate 3 mg
Total 264 mg	Total 265 mg

Discuss whether the test product will be eligible for BCS based biowaiver.

2+3+4+6=15