Name: **Enrolment No:**	

UPES

End Semester Examination, May 2024

Course: Medicinal Chemistry **Semester: II**

Program: MSc Hons Chemistry **Time: 03 hrs.**

Course Code: CHEM7055 **Max. Marks: 100**

Instructions:

1. **Read all the questions carefully and attempt questions of one section in one place.**
2. **Question 9 in Section B and Question 11 in Section Chave internal choice questions.**
3. **Use of Calculator is allowed.**

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q1	Discuss in brief Phase I and Phase II metabolism of a drug.	**4**	**CO1**
Q2	Explain the role of the following in a pharmaceutical industry: a. Process development. b. R&D c. Quality assurance.	**4**	**CO2**
Q3	What are the different routes of administration of a drug? Which is the best route considering patient compliance?	**4**	**CO2**
Q4	Justify the statement "Enzyme stimulation manifests chronic diseases" in context of inflammation and related disorders.	**4**	**CO3**
Q5	How will you differentiate the following from Lineweaver Burk Plots: a. Competitive inhibition. b. Non-competitive inhibition	**4**	**CO1**
SECTION B **(4Qx10M=40Marks)**			
Q6	Write a note on the role of Biotransformation of xenobiotics in contemporary drug discovery process.	**10**	**CO3**
Q7	Explain the following: (i) Receptor Theory and Drug Behavior (ii) Types of Reversible Enzyme Inhibitors.	**10**	**CO2**
Q8	Define an LD50 dose. How it is different from the IC50 and EC50 values? Explain with suitable examples.	**10**	**CO2**

Q9	What is the role of compartmental models in the quantitative evaluation of drug pharmacokinetics? Explain with examples in context of a three-compartment model. **OR** Under what conditions is the 'Lipinski's Rule of 5' relaxed in a drug discovery process? Discuss in detail.	**10** **10**	**CO3** **CO3**
SECTION C (2Qx20M=40Marks)			
Q10	Schematically discuss the steps involved in a typical drug discovery process starting from the fragment-based analysis to the lead optimization. As a medicinal chemist, how will you determine the precision of the results obtained from the various *in silico* analysis during this process.	**20**	**CO2**
Q11	Write a detailed account on the various Theories of Drug Action based on the Drug-Receptor interactions. **OR** Write the synthesis and uses of the following drugs: a. Salbutamol b. Penicillin c. Melphalan d. Acetaminophen	**20** **20**	**CO2** **CO2**