Name: **Enrolment No:**	

UPES

End Semester Examination, May 2025

Course: Pharmaceutical Compounds **Semester: II**

Program: BSc (H) Chemistry **Time: 03 hrs.**

Course Code: CHEM1026 **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 C have internal choice questions.**
3. **Use of Calculator is allowed.**

SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q1	How will you distinguish between tinctures and infusions ? What are the preferred solvents for preparing these formulations ?	**4**	**CO1**
Q2	State and explain whether the following statement is true or false: "Potency and Efficacy of a drug are complementary to each other".	**4**	**CO2**
Q3	What are the different routes of administration of a drug? Which is the best route considering patient compliance?	**4**	**CO2**
Q4	Explain why concentration-response curves cannot be used for direct estimation of the affinity of the agonist to the receptor ?	**4**	**CO3**
Q5	Classify the pharmaceutical compounds based on geographical, marine, and mineral sources.	**4**	**CO1**
	SECTION B **(4Qx10M=40Marks)**		
Q6	Compare the biological effect of 'n' number of drug formulations with dose response curves with suitable examples.	**10**	**CO3**
Q7	Differentiate between the 'affinity' and 'occupancy' of a compound towards its receptor site. State the various factors that determine these two parameters.	**10**	**CO2**
Q8	Define therapeutic window for a pharmaceutical compound. How will you determine the desired therapeutic effect of a molecule graphically?	**10**	**CO2**
Q9	Justify why it's recommended to use the log of a drug's concentration instead of using the concentration value itself for constructing the agonist concentration curves?	**10**	**CO3**

	OR Explain why a uniform rate of flow (percolation rate) is important. What are the consequences if the rate is too fast or too slow?		
SECTION C (2Qx20M=40Marks)			
Q10	What are 'Full agonist' and 'Partial agonist' drugs ? Differentiate these from the 'Inverse agonist' and 'Antagonist drugs.	**20**	**CO2**
Q11	A herbalist prepares a tincture by macerating dried chamomile flowers in ethanol for 14 days. What factors influence the efficiency of maceration, and why is ethanol chosen as the solvent in this case? **OR** A chemist has two solutions: one containing 30% alcohol and the other containing 60% alcohol. How many liters of each solution must be mixed to obtain 20 liters of a solution containing 50% alcohol? Use the allegation method to solve this.	**20**	**CO2**