

**VIT**Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

REG.NO.:

**SCHOOL OF CHEMICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST - I
WINTER SEMESTER 2025-2026**

SLOT: G2+TG2

Programme Name & Branch : B.Tech & Chemical Engineering
Course Code : BCHE406L
Course Name : AI in Chemical Engineering
Faculty Name(s) : Dr. Bandaru Kiran
Class Number(s) : VL2025260501203
Date of Examination : 02-02-2026
Exam Duration : 90 minutes

Maximum Marks: 50**General instruction(s):** Answer all the questions

- (i) If you feels that data is missing, assume relevant data and continue the calculations

Q. No	Question	Marks															
1.	Discuss about various phases of AI in chemical Engineering	10															
2.	a. Explain the various forms of AI [5M] b. Discuss merits and demerits of AI [5M]	10															
3.	Develop a Mcculloch pitts Neuron model for predicting the flu. Logical AND gate model data: <table><tr><th>Col d</th><th>Coug h</th><th>Flu</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table>	Col d	Coug h	Flu	0	0	0	0	1	1	1	0	1	1	1	1	10
Col d	Coug h	Flu															
0	0	0															
0	1	1															
1	0	1															
1	1	1															
4.	Develop a single layer perceptron for implementing OR gate using the perceptron learning algorithm Date: OR gate <table><tr><th>X1</th><th>X2</th><th>y</th></tr><tr><td>0</td><td>0</td><td>0</td></tr><tr><td>0</td><td>1</td><td>1</td></tr><tr><td>1</td><td>0</td><td>1</td></tr><tr><td>1</td><td>1</td><td>1</td></tr></table> Note: Inputs: X1, X2; Output: y	X1	X2	y	0	0	0	0	1	1	1	0	1	1	1	1	10
X1	X2	y															
0	0	0															
0	1	1															
1	0	1															
1	1	1															
5.	Two input neurons ($x_1=0.35$, $x_2=0.9$) having weights of [0.1, 0.4, 0.8, 0.6] and 1 hidden layer with 2 neurons (H_1 , H_2) having weights [0.3, 0.9] and one output neuron of actual output = 0.5. Redraw the fully connected neural network for with the updated weights using Back Propagation Network.	10															

