12/12/2024 EXTC SEM-VI C SCHEME ANN & FL QP CODE: 10066993

Time- 3 Hours **Total Marks: 80**

N.B. : (1) Questions No.**1** is **compulsory**.
(2) Solve any **three** questions out of **remaining**
(3) Draw neat labeled diagram whenever necessary
(4) Assume suitable data if necessary

Q1 Answer any four questions

	a.	What do you mean by unsupervised learning? Give one real world example of it.	**05**
	b.	What are the various stopping criteria for neural network training?	**05**
	c.	Discuss the steps involved in K-Means clustering Algorithm	**05**
	d.	What are the activation functions used in convolution neural networks?	**05**
	e.	Explain membership value assignment using intuition method.	**05**
Q2	a.	Design AND gate using MP neuron.	**10**
	b.	What do you mean by linearly separable and linearly non-separable pattern systems? Give examples for both.	**10**
Q3	a.	Analyze the training steps of Perceptron with neat flow chart.	**10**
	b.	What are the various defuzzification methods used in Fuzzy Logic system? Explain any two in detail.	**10**
Q4	a.	Draw the architecture of Discrete Hopfield Network. What are the properties of weight matrix? Find the weight matrix to store the pattern [1 1 0 0 1]	**10**
	b.	Discuss the following learning rules with necessary equations i. Delta learning rule ii. Kohonen Learning Rule	**10**
Q5	a.	With neat diagram, discuss the operations involved in the layers of convolution neural network.	**10**
	b.	Discuss the basic concept of Machine learning. Explain LMS Algorithm.	**10**
Q6	a.	Design a fuzzy controller to decide the speed of a DC motor. Resistance and current are input variables. Consider three descriptors for inputs and output.	**10**
	b.	Discuss fuzzy inference system with reference to Mamdani Model.	**10**
