DE SC

SOMAIYA VIDYAVIHAR UNIVERSITY

Semester: Aug 2022 – Dec 2022 **Examination: Mid Term Examination**		
Programme code: 01 **Programme: BTech in Computer Engineering**	**Class: BTech**	**Semester: V (SVU2020)**
Name of the Constituent College: **K. J. Somaiya College of Engineering**	**Name of the department:** COMP	
Course Code: 116U01E514	**Name of the Course: Soft Computing**	

Q No.		Max. Marks	CO	BT Level
Q1	Explain linearly non separable pattern classification with XOR logic with multi-layer perceptron **OR** Explain McCulloch-Pitts model neuron and elementary logic networks: NOR gate and NAND gate.	7	CO1	AP
Q2	Update the weights using Delta learning Rule with continuous bipolar activation function with λ=1.2 . The learning constant c=1 Given below the three input vectors as X_1, X_2 and X_3 and initial weights w_1 $w_1 = \begin{bmatrix}1\\-1\\0\\0.5\end{bmatrix}$ and $X_1 = \begin{bmatrix}1\\-1\\1.5\\0\end{bmatrix}$, d1 = 1; $X_2 = \begin{bmatrix}1\\-0.5\\1\\1\end{bmatrix}$, d2 = -1; $X_3 = \begin{bmatrix}0\\-1\\1\\0\end{bmatrix}$, d3 = 1	8	CO1, CO2	AP
Q3	Explain Error Back Propagation Training algorithm (EBPTA) with a help of flow chart **OR** Given below are 2 input vectors and 2 initial weight vectors for a 2 neuron competitive layers. Calculate the resulting weights after training competitive layer with winner-take-all learning rule. Consider learning rate c=1. The input pattern are applied is P1, P2, P1 P1=.$\begin{bmatrix}-1\\0\end{bmatrix}$ P2=.$\begin{bmatrix}0\\1\end{bmatrix}$ W_1=.$\begin{bmatrix}0\\-1\end{bmatrix}$ W_2=.$\begin{bmatrix}-2/\sqrt{5}\\1/\sqrt{5}\end{bmatrix}$	7	CO2	AP
Q.4	Design OR Logic function with binary inputs and bipolar output using perceptron training algorithm. Show the weight updates up to 2 epochs.	8	CO2	AP