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322840(22)

B. E. (Eighth Semester) Examination, April-May 2018

(New Scheme)

(CSE, IT Engg. Branch)

NEURAL NETWORK and FUZZY LOGIC

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note :** Attempt all questions. Part (a) of each question is compulsory and carrying 2 marks each and attempt two parts from (b), (c) and (d) carrying 7 marks each.*

Unit-I

1. (a) Define Neuron. 2

(b) Explain Neural Network topology in detail (Draw figure of each kind of topologies). 7

(c) Explain Mcculloch Pitts neuron model and generate the O/P of logic AND function by Mcculloch Pitts neuron model. 7

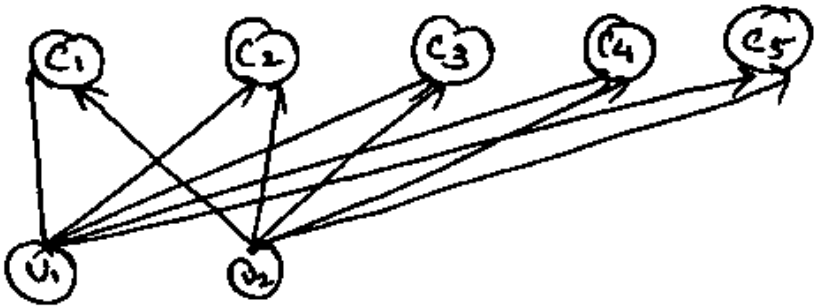
(d) What is biological neural network. Compare it with Artificial Neural Network Model. 7

Unit-II

2. (a) What is learning and training? 2

(b) Explain hebbian learning algorithm. Generate the Hebbnet for the AND function with bipolar input and target. 7

(c) What is competitive learning algorithm solve it for the following graph. 7



	c_1	c_2	c_3	c_4	c_5
v_1	0·3	0·5	0·7	0·6	0·8
v_2	0·2	0·6	0·4	0·9	0·2

(d) Write short notes : (any two) 7

(i) Stability and convergence

(ii) Activation and synaptic dynamics

(iii) Memory based learning

Unit-III

3. (a) What is single layer perceptron? 2

(b) Explain back propogation algorithm. Also explain its advantages and disadvantages. 7

(c) Explain single layer perceptron algorithm. Design a perceptron for the OR function with binary input and bipolar target. 7

(d) Write LMS algorithm for single layer perceptron. 7

Unit-IV

4. (a) What is character recognition? 2

(b) Explain handwritten digit recognition system in detail. 7

(c) Explain pattern recognition application in detail considering face (Human face) as a case. 7

(d) Write short notes on : 7

(i) Talking network (Net Talk)

(ii) Speech Recognition

Unit-V

5. (a) What is fuzzy set? 2

(b) Explain the methods of defuzzification in detail. 7

(c) Explain the Fuzzy set operation and solve it for following fuzzy set given below : 7

$$\tilde{A} = \{(x_1, 0\cdot5), (x_2, 0\cdot7), (x_3, 0)\}$$

$$\tilde{B} = \{(x_1, 0\cdot9), (x_2, 0\cdot3), (x_3, 1)\}$$

(d) Explain Fuzzy Associative memories with example. 7