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**B. E. (Eighth Semester) Examination,
Nov.-Dec. 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. Attempt any two parts from (b), (c) and (d) of each question.

Unit-I

1. (a) Define topology in neural network. 2

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- (b) Compare the performance of a computer and that of a biological neural network in terms of speed of processing, size and complexity, storage, fault tolerance and control mechanism. 7
- (c) Differentiate between Single layer and Multilayer Feed Forward Neural Network. 7
- (d) What are the main differences among three models of artificial neuron, namely, McCulloch-Pitts, perceptron and adaline. 7

Unit-II

- 2. (a) What is Recall in neural networks? 2
- (b) Compare & Contrast the difference between supervised & Unsupervised Learning strategies. 7
- (c) Explain Hebbian Learning. Derive an expression for weight change in case of Widrow and Hoff L.M.S. learning law. 7
- (d) What is the noise-saturation dilemma in activation dynamics? 7

Unit-III

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- 3. (a) Define generalized Delta rule. 2
- (b) What is back propagation? Derive its learning algorithm with a schematic two Layer feed forward network. 7
- (c) State & prove perception convergence theorem. 7
- (d) Compare & Contrast Adaline and Madaline. 7

Unit-IV

- 4. (a) Define pattern recognition. 2
- (b) What are some direct applications of the principles of neural networks? Why are they called direct applications? 7
- (c) What is the significance of neural networks in the NETtalk application? 7
- (d) What is the problem in the recognition of hand written digits? 7

Unit-V

- 5. (a) Describe membership function. 2

- (b) Explain the operation of fuzzy sets with a suitable example. 7
- (c) What are the components of fuzzy logic control and explain them in detail with block diagram. 7
- (d) Define Defuzzification. Explain different methods of defuzzification. 7