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B.Tech
(SEM VI) THEORY EXAMINATION 2017-18
NEURAL NETWORKS AND FUZZY SYSTEM

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

- a) What do you understand by Neural Networks?
- b) Describe the Nerve structure.
- c) What are Learning Rule of Neural network.
- d) How are Neural Networks related to machine learning?
- e) What are Back propogation networks?
- f) Explain the crisp sets.
- g) Define learning in Neural Networks.
- h) Explain Fuzzy Controller.
- i) Explain the L-R Type fuzzy numbers.
- j) State the various rules for learning.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

- a) Describe the Artificial Neuron and its model. Explain the working of Auto-associative and Hetro-associative memories.
- b) Explain the Linear Max-min composition in fuzzy sets. Describe the Fuzzy Entropy Theorem and describe its applications.
- c) Explain the basic concepts of fuzzy logic. Explain the Fuzzy set theory and its applications.
- d) Explain the Membership functions in fuzzy logic. Describe the Industrial applications of fuzzy logic.
- e) Explain the fuzzy back propagation (BP) algorithm. Also describe the effect of learning rule co-efficient.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

- (a) How do activation functions put affect on artificial neuron? Explain various activation functions.
- (b) Explain the architecture of multilayer feed forward neural network with its working. Compare it from recurrent networks.

4. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Describe single layer artificial neural network and compare it with the multilayer perception model.
- (b) Describe the various methods of back propogation learning. Describe the factors affecting back propogation training.

5. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Describe Fuzzy and Crisp relations. Describe the methods for the conversion from Fuzzy to Crisp.
- (b) Explain the Fuzzy sets and Systems. How they are different from Crisp sets. Describe the Geometry and Properties of fuzzy sets.

6. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Explain the differences between Fuzzyfications & Defuzzificataions. Describe the Fuzzy implications
- (b) What are fuzzy if-then rules? Explain various operations and properties of fuzzy sets.

7. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Explain the function of fuzzy neutron. Describe the applications of Fuzzy Neural Networks.
- (b) Describe the principle of Fuzzy Neural Networks. Describe the architecture of Fuzzy Neural Networks.