M.E-I sem -Comp 3015109

V-Ex-I-09-G-Scan-48 Elective -I :- Neural Networking & Fuzzy Syster

Con. 3506-09. (3) **BB-5694**

(3 Hours) **[Total Marks : 100**

N.B. : (1) Question No. **1** .is **compulsory**.
(2) Attempt any **four** out of remaining **six** questions.
(3) Assume **suitable data** wherever **required** but **justify** them.

1. (a) Explain with suitable diagram Error Back Propagation Training algorithm. **10**
   (b) Explain any four defuzzification methods with suitable diagrams. **10**

2. (a) Explain Hopfield Network in detail. **10**
   (b) Explain the architecture of Bidirectional associative memory. How is storage and retrieval performed in BAM ? **10**

3. (a) Explain the concept of linearly separable and linearly non-separable patterns. **10**
   (b) State different properties of fuzzy set. **10**

4. (a) Explain different fuzzy membership functions. **8**
   (b) What do you mean by learning ? List different learning rules and explain any three using suitable diagram. **12**

5. (a) Explain with an example Convex and Non-convex fuzzy sets. **6**
   (b) Explain with neat diagram supervised and unsupervised learning. **6**
   (c) Explain with example fuzzy relations. **8**

6. Design a fuzzy logic controller for a train approaching a station. The inputs are distance from the station and speed of the train. The output is brake power. Use (i) Triangular Membership function. (ii) Four descriptors for each variable, (iii) Appropriate defuzzification method. Prove the condition for which the brake power will be more. **20**

7. Write notes on the following :— **20**
   (a) Neuro-Fuzzy System.
   (b) Character recognition using Neural Network.

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