

Please check whether you have got the right question paper.

- N.B:
1. Question No. 1 is **compulsory**.
 2. Attempt any **Three** questions out of remaining Five questions.
 3. **Figures** to the **right** indicate **full marks**.
 4. Assume suitable data if **necessary**.

- Q.1 Answer the following: 20
- A) List different operators in GA. Explain any one in detail.
 - B) Define defuzzification? Discuss any two methods of assigning membership value.
 - C) Explain how ANN, Fuzzy Logic and GA can be combined for certain application.
 - D) Explain max-min and max-product composition with example.
- Q.2 A) Design Hebb net to implement logical AND function? Use bipolar inputs and targets. 10
- B) How hybrid system is useful? Explain the concept of Neuro Fuzzy Hybrid system. 10
- Q.3 A) Explain error back propagation training algorithm with the help of flowchart. 10
- B) Explain McCulloch Pitts neuron model with example. 10
- A) What is neural network architecture? Explain logistic sigmoid function with example. 10
- B) What is associative memory? Explain its types. 10
- Q.5 A) The characteristics of the laundry load (inputs) include: The actual weight, fabric types and amount of dirt. The washing parameters (outputs) include: amount of detergent, washing time, agitation, water level and temperature. The cleaner laundry, conserving water, and saving detergent, electricity, time and money needs controlling the above different parameters. Give the initial stage of designing a fuzzy control for a hypothetical washing machine. 10
- B) Explain perceptron model with suitable examples. 10
- Q.6 Answer the following: 20
- A. Delta Learning Rule
 - B. Binary Hopfield Network
 - C. GA-Fuzzy system approach
 - D. Competitive Learning

