

Time: 2 ½ Hrs

Total Marks: 75

- N. B.: (1) All questions are compulsory.  
 (2) Make suitable assumptions wherever necessary and state the assumptions made.  
 (3) Answers to the same question must be written together.  
 (4) Numbers to the right indicate marks.  
 (5) Draw neat labelled diagrams wherever necessary.  
 (6) Use of Non-programmable calculators is allowed.

- Q. 1 Attempt three of the following. 15**  
 a. State difference between hard computing and soft computing?  
 b. Write various application of soft computing.  
 c. Define associative memory. Describe its types with neat diagrams.  
 d. What is probabilistic reasoning? Explain.  
 e. Describe Genetic Algorithm.
- Q. 2 Attempt three of the following. 15**  
 a. What is Bidirectional associative memory network?  
 b. Write on detail on about the tree neural networks.  
 c. Explain perceptron learning rule with suitable example.  
 d. List and explain all activation function used in ANN.  
 e. What are Back Propagation networks?
- Q. 3 Attempt three of the following. 15**  
 a. Explain Architecture of a Convolutional Neural Network  
 b. Explain Probabilistic Neural Net.  
 c. What is Mexican hat? Draw and explain its structure.  
 d. Explain the Boltzman machine.  
 e. Discuss about simulated annealing network.
- Q. 4 Attempt three of the following. 15**  
 a. Explain classical sets and fuzzy sets with an example.  
 b. Explain Methods of Membership value assignment.  
 c. What is defuzzification? List and explain any 2 methods of defuzzification.  
 d. Discuss in detail the operations and properties of fuzzy sets.  
 e. Explain tolerance and equivalence relation with suitable example.
- Q. 5 Attempt three of the following. 15**  
 a. Give the outline of genetic algorithm.  
 b. Explain the basic architecture of a fuzzy logic controller system in detail.  
 c. Explain Fuzzy Inference System in detail.  
 d. Differentiate between messy GA and parallel GA  
 e. Write a short note on Neuro-fuzzy hybrid.

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