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Total No. of Pages : 02

Total No. of Questions : 8

M.Tech. (EE) (2018 Batch) (Sem.–2)

AI TECHNIQUES

Subject Code : MTEE-204C-18

M.Code : 76108

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWELVE marks.**

1. What is biological neuron? How does the artificial neural network based on biological neuron? Explain with neat diagram. What is the difference between bias and activation function? What are the types of neural networks? Explain. (12)

2. How does the fuzzy value differ from crisp value? How the fuzzy logic controller works? Explain with block diagram. What are the advantages of fuzzy logic over conventional logic? Discuss with suitable example. (12)

3. How does hybrid fuzzy neural network systems works? Explain any one algorithm which makes neural network to learn the parameters of the network like genetic algorithms. (12)

4. Explain the following :

   a) Feedback and feed forward network (6)

   b) Single layer and multilayer network (6)

5. What is genetic algorithms? How do they work? How reproduction crossover and mutation occurs in genetic algorithms? Explain with suitable diagram and example. List applications of genetic algorithms. (12)

6. a) What is fuzzification? Why fuzzification is done? What is membership in fuzzy? What does it signify? (4)

   b) How degfuzzification is done? Discuss seven defuzzification methods. (8)

7. How Fuzzy logic, Neural network, fuzzy neural network and genetic algorithm are related to each other or what is the difference in their applications? Elaborate. Also what are evolutionary algorithms? (12)

8. a) What is back propagation algorithm? How does it work? Explain with application. (6)

   b) Develop a temperatue and humidity process control system using fuzzy logic controller and explain the working. (6)

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.