

Registration No:

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Total Number of Pages : 02

M.TECH

M.TECH 2ND SEMESTER REGULAR EXAMINATIONS, MAY 2018
SOFT COMPUTING TECHNIQUES

Branch: PE, Subject Code:MPEPE2043

Time: 3 Hours

Max Marks : 70

PART-A

(10 X 2=20 MARKS)

1. Answer the following questions.

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|---|------|
| a. Compare soft computing vs hard computing | CO-1 |
| b. Explain a single layer net and multi-layer net | CO-1 |
| c. Draw an Artificial Neural Network | CO-2 |
| d. What is auto associative memory | CO-3 |
| e. What is adaptive resonance theory | CO-3 |
| f. What is a Boltzmann machine and application of Boltzmann machine | CO-3 |
| g. What is fuzzification | CO-4 |
| h. What is alpha or lambda cut set and What is cardinality of a Fuzzy set | CO-4 |
| i. Define mutation. | CO-5 |
| j. Suggest a suitable evolutionary computing technique for finding optimized Economic load dispatch | CO-5 |

PART-B

(5 X 10=50 MARKS)

Answer any five questions from the following.

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|---|---------|
| 2. a. Describe hoe self-organizing maps are different from other artificial neural networks and discuss the algorithm and features of Kohonen's map | [5]CO-1 |
| b. Can a two input Adaline compute the XOR function? How will you solve the same by using Madaline? | [5]CO-1 |
| 3. a. Sketch a typical self-organizing network which preserve the topology and write the principle behind the same | [5]CO-2 |
| b. With a neat sketch explain the operation (Training and Testing) of a Recurrent Neural Network | [5]CO-2 |
| 4. a. Describe briefly the architecture of Hopfield Network | [5]CO-3 |
| b. Explain the algorithmic steps involved to solve any one of the optimization problem using Hopfield neural network | [5]CO-3 |

5. a. Give the general scheme for a Fuzzy controller. How different modules are interconnected [5]CO-4
- b. Explain different membership function with diagram [5]CO-4
6. a. Given a conditional and qualified Fuzzy proposition 'P' of the form [5M]
P: If x is A, then y is B is S where 'S' is fuzzy truth qualifier and a fact is in the form "x is A" We want to make an inference in the form "y is B" Develop a method based on the truth- value restrictions for getting the inference [5]CO-4
- b. Give step by step procedure for GA [5]CO-5
7. a. Summarize the sequential p [procedures involved in the crossover and reproduction phase of GA with typical examples [5] CO-5
- b. Discuss how GA can be used for classification problem? How to choose inputs, GA parameters and fitness function [5] CO-5
- 8 Answer any
- a. Using Matlab Neural Network tool box discuss how will you identify and control the linear and nonlinear dynamic system [5] CO-2
- b. How Fuzzy logic controller is implemented using Fuzzy logic Matlab Tool Box [5] CO-4

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