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Question Paper Code: 56T04

M.E. DEGREE EXAMINATION, NOV 2019

Elective

Power electronics and Drives

15PPE604 - SOFT COMPUTING

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) (i) Explain in detail the algorithm for Hebb rule used in pattern association. CO1- U (15)
- (ii) Draw the basic model of a MADALINE network. CO1- U (5)
- Or
- (b) (i) Compare soft computing and hard computing. CO1- U (10)
- (ii) Determine the weights of a single layer perception for implementing the AND function. Consider the inputs and targets to be bipolar and $\alpha = 10$. CO1- U (10)
2. (a) (i) Give the limitations and applications of Hopfield network and Boltzmann machine. CO2- U (10)
- (ii) Explain counter propagation network. CO2- U (10)
- Or
- (b) (i) Explain the working of Associative memory. CO2- U (10)
- (ii) With a neat sketch explain the operation (training and testing) of recurrent neural network. CO2- U (10)
3. (a) (i) Explain with neat block diagram the various components of a fuzzy logic controller. CO3- U (15)
- (ii) Describe shortly on Centroid method. CO3- U (5)

Or

(b) Explain the different types of membership function used in fuzzification process. CO3- U (20)

4. (a) Explain the significance of adjustment of free parameters when implementing Genetic Algorithm. CO4- U (20)

Or

(b) Summarize the sequential procedures involved in the cross over and reproduction phase of GA with typical examples CO4- U (20)

5. (a) (i) Using Matlab neural network tool box discuss how will you identify and control the linear and non- linear dynamic system. CO5- U (10)

(ii) Describe integration of neural networks and fuzzy systems. CO5- U (10)

Or

(b) Discuss with relevant diagrams and mathematical expressions how a nonlinear system can be identified and controlled using MATLAB Fuzzy Logic Tool box. Choose appropriate example. CO5- U (20)