Reg. No. : | | | | | | | | | | |

Question Paper Code: 52954

M.E. DEGREE EXAMINATION, DECEMBER 2015

Elective

Power Electronics and Drives

15PPE604 - SOFT COMPUTING

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

(5 x 20 = 100 Marks)

1. (a) List and explain any six applications of soft computing methods. (20)

Or

(b) (i) Explain with a neat diagram, the neural network architecture of multilayer feed forward network. (10)

(ii) Draw and describe the different activation functions used in ANN. (10)

2. (a) (i) Develop and describe with a neat diagram the counter propagation network learning algorithm. (10)

(ii) Explain the adaptive resonance theory with an example. (10)

Or

(b) Construct an auto associative discrete hopfield network with the given input vector [1 1 1 -1]. Test the network with missing entries in first and second components of the stored vector. (20)

3. (a) (i) With a neat block diagram, explain the various components of a fuzzy logic system. (10)

(ii) Explain any five types of defuzzification techniques. (10)

Or

(b) (i) Explain the self organizing fuzzy logic control scheme with an example. (10)

(ii) Explain the implementation of fuzzy logic control for nonlinear time delay system. (10)

4. (a) (i) Explain the operation of a simple GA with the aid of flow chart. (12)

(ii) Describe the concept of tabu search method for solving optimization problems. (8)

Or

(b) Develop a program using GA to solve the Travelling Salesman Problem (TSP). (20)

5. (a) (i) What are the characteristics of Neuro-Fuzzy hybrid systems? Classify their various types. (8)

(ii) Explain the basic concept of Adaptive Neuro-Fuzzy Inference System (ANFIS) in MATLAB. (12)

Or

(b) Discuss with relevant diagrams and mathematical expressions how a nonlinear system can be identified and controlled using MATLAB neural network tool box. Choose an appropriate example. (20)

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