

YMCA UNIVERSITY OF SCIENCE AND TECHNOLOGY, FARIDABAD
M.Tech. IInd Semester Examination (Under CBS) May: 2018
Artificial Intelligence Techniques in Power System (Reappear)
Paper: EL-606

Time: - Three Hours

Maximum Marks:-60

Note: - (i) Question no. 1 is compulsory from Part-I.
(ii) Attempt any four questions from Part-II.

PART-I – (2x10 = 20 Marks)

- Q.1a) What is “Artificial Intelligence and Artificial Technique”?
b) Discuss the role of activation function in ANN model
c) Define sigmoidal function. Explain how this function exhibits a graceful balance between linear and nonlinear behavior.
d) Explain membership function in fuzzy logic. Draw a membership function of your choice that quantifies the statement “the number x is near four”.
e) What is meant by epoch in training process?
f) Define Defuzzification Process.
g) Mention the importance of fitness function in genetic algorithm.
h) Compare speed control of DC separately excited motor using PI and ANN.
i) Explain Hill climbing and problems associated with it.
j) What is the importance of threshold in perceptron network?

PART-II – (4x10 = 40 Marks)

- Q2 a) Explain the significance of reproduction operator in genetic algorithm. (5)
b) Discuss Hebb's unsupervised learning and draw the flow chart of Hebb training algorithm. (5)
- Q3) Explain with examples the following main features of Genetic Algorithm.
i)Encoding ii) Mutation iii) Crossover iv) Selection (10)
- Q4 a) Describe learning in context of neural network. What are the different types of learning rules? Discuss Widrow-Hoff rule. (5)
b) Draw and explain the architecture of McCulloch- Pitts Neuron. (5)
- Q5 a) Write the algorithm for testing Back Propagation network. (5)
b) Draw the flow chart for the training process of RBF. (5)
- Q6 a) What are the classification of neuro-fuzzy hybrid systems? Explain in detail any one of the neuro-fuzzy hybrid systems. (5)
b) Explain in detail the concepts of fuzzy genetic hybrid systems. (5)

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- Q7)a) Write a brief note on application of AI techniques in load forecasting and load flow study. (5)
- b) List at least five advantages which suggests the use of ANN for voltage security monitoring and control. (5)

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