Seat No.: _____   *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY
M. E. - SEMESTER – I • EXAMINATION – SUMMER • 2014

Subject code: 710423   **Date: 24-06-2014**
Subject Name: Neuro Computing and Applications
Time: 02:30 pm - 05:00 pm   **Total Marks: 70**
Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full mark.**

Q.1 **(a)** Enlist different parameters to be selected in back propagation neural network. **07** Explain in brief, selection procedure for any two of such parameters.

(b) Enlist fundamentally different classes of neural Network architectures. Explain any **07** two of them in details.

Q.2 **(a)** Explain Hebbian learning algorithm with clearly mentioning all assumed **07** parameters.

(b) Enlist various activation functions used in single and multilayer neural **07** networks. Explain any two of them in brief.

OR

(b) Describe in brief following factors affecting the performance of artificial neural **07** network models: 1) Type of training 2) Selection of initial weights

Q.3 **(a)** What is stability plasticity dilemma? Explain basic ART network architecture. **07**

(b) Explain with the help of necessary block diagram MADLINE as a network. Also **07** explain how it solves XOR problem.

OR

Q.3 **(a)** Explain in brief the necessary steps for Back Propagation Learning algorithm. **07** Clearly mentions all assumptions made.

(b) An Auto associative network is given. Use hebb rule to store input vector= (1 - **07** 1 1 -1).
a) Find the weight matrix.
b) Test the neural net with one bit error in input vector.
c) Test the neural net with two bit errors in input vector.
d) Comment on the results of b) and c).

Q.4 **(a)** Explain following properties and capabilities offered by neural networks: **07**
i) Fault Tolerance ii) adaptivity

(b) Discuss application of neural networks in image processing problem, in brief. **07**

OR

Q.4 **(a)** Explain any two models for associate memory with necessary details. **07**
Q.4 **(b)** Discuss application of neural networks in any finance/weather forecasting **07** application in brief.

Q.5 **(a)** Explain with necessary details Radial Basis Function networks. Give any three **07** differences between RBF and multi layer Perceptron.

(b) Explain KOHONEN model architecture for Self Organization Map (SOFM). **07**

OR

Q.5 **(a)** Explain with necessary details abilities of RBF networks to solve EXOR **07** problem.

(b) Explain State-Space model for recurrent network architectures in brief. **07**
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