Code No: D7503 **R09**

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II - Semester Examinations, March/April 2011
NEURAL NETWORKS AND FUZZY SYSTEMS
(CONTROL SYSTEMS)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks
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1. a) Describe the structure and functions of artificial Neuron.
   b) Design the logic circuits for NOR and NAND gates using Mcculloch –Pills model. [12]

2. What are different types of learning mechanism used in training mechanism? Explain each of them with relevant learning rule. [12]

3. a) Explain the supervised and unsupervised training methods of artificial neural networks.
   b) Explain the architecture and training of Kohoner's self organizing network. [12]

4. Explain the concept of back propagation. Derive its weight update algorithm with a Schematic two – layer feed forward neural network. Also explain its learning difficulties and improvements. [12]

5. Differentiate between fuzziness and probability? Explain neural fuzzy systems, fuzzy neural networks fuzzy hybrid systems. [12]

6. a) Define the terms:
      i) Fuzzy sets ii) crisp sets and
      iii) Member ship functions.
   b) Explain neural network based fuzzy systems. [12]

7. Explain how neural network are useful in fault diagnosis and load forecasting. [12]

8. Briefly explain
   a) Defuzzification
   b) Differences between random ness and fuzziness. [12]

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