

**Code No: D4901, D0708, D4304**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**M.TECH II - SEMESTER EXAMINATIONS, APRIL/MAY-2012**

**NEURAL AND FUZZY SYSTEMS**

**(COMMON TO ELECTRICAL POWER ENGINEERING, ELECTRICAL POWER SYSTEMS, POWER ELECTRONICS)**

**Time: 3hours**

**Max. Marks: 60**

**Answer any five questions  
All questions carry equal marks**

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- 1.a) Distinguish between biological and artificial neuron models and explain the characteristics of ANNs.  
b) Explain the Mcculloch-Pitts model and potential applications of ANNs.
- 2.a) Explain the different types of neuron activation function and ANNs architectures.  
b) Distinguish between supervised and unsupervised learning strategy.
- 3.a) Explain the perceptron convergence theorem and limitations of the perceptron model.  
b) What is credit assignment problem and explain the back propagation algorithm.
- 4.a) What are the general concepts of associative memory and explain BAM architecture?  
b) Discuss storage and recall algorithm.
- 5.a) What is vector quantization? Explain competitive learning.  
b) Explain stability-plasticity dilemma and feed forward competition.
- 6.a) What are the properties of classical sets and fuzzy sets? Explain different fuzzy relations.  
b) What is uncertainty? How is it expressed using membership functions?
- 7.a) What is Fuzzification? Explain rule base and decision making systems?  
b) Discuss defuzzification.
- 8.a) Explain ANN applications for fault diagnosis.  
b) Briefly explain fuzzy logic control.

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