Reg No.										

MANIPAL INSTITUTE OF TECHNOLOGY
(A Constituent Institute of Manipal University)
MANIPAL-576104

VII SEMESTER B.E. (CSE)
END SEMESTER (OLD SCHEME) EXAMINATION –December 2013
SUBJECT: NEURAL NETWORKS AND FUZZY SYSTEMS (CSE 405.1)

TIME: 3 HOUR **Date: 13-12-2013** **MAX.MARKS: 50**

Instruction to Candidates
- **Answer any 5 full questions.**

Q 1 a) List the benefits of artificial neural networks? Explain with an example.

b) What is a biological neuron? Explain it's working.
c) What do you mean by pattern classification? Explain with an example.
(2+ 4+4)

Q 2 a) Explain the working of single layer perceptron, with an example.
b) What are recurrent neural networks? Explain with an example.
c) Explain Hebb's rule with an example.
d) Explain Mc-Culloch Pitt's model with an example. (2 + 5+1 +2)

Q 3 a)Derive Back Propagation algorithm. Explain it's advantages.

b) Formulate XOR gate using Back Propagation algorithm. (5 +5)

Q 4 a)Use Associative learning to get a decision line for w_1= { $(0,0)^t$, $(0,1)^t$ } and w_2= { ($1,0)^t$,$(1,1)^t$}. Explain with all steps involved.

b)What are Competitive learning methods? Explain with an example. (4 +6)

Q 5 a) How do you use fuzzy sets in Neural Networks? Explain with an example.

b) Explain Self Organizing maps, with an example.

c) Differentiate between Supervised and Unsupervised learning methods, and explain with an example. (3+2+5)

Q 6 a) Differentiate between training sets and testing sets? Explain with an example.

b) How do you features features in Neural Networks? Explain with respect to any scientific example.

(5+ 5)