FACULTY OF ENGINEERING

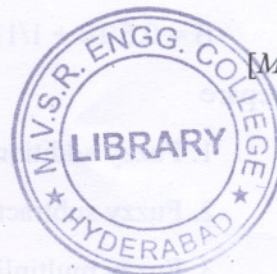## B.E. IV/IV Year (ECE) II Semester (Main) Examination, May/June, 2011

NEURAL NETWORKS & FUZZY LOGIC

(Elective II)

Time : 3 Hours]

[Max. Marks : 75

Answer **all** *questions from Part A.*

Answer any **five** *questions from Part B.*

Part A – (Marks : 25)

1.	Define Sigmoid function.	2
2.	Differentiate between single and multi layer perception.	3
3.	Explain Linear separability in a 2D Vector shape.	3
4.	What is an activation function? Give examples.	2
5.	Define learning rate parameter 'y'.	2
6.	Write the differences between neural network memories and conventional memories.	2
7.	Give an example for a symmetric transitive fuzzy relation.	3
8.	Write the difference between supervised learning ad un-supervised learning.	2
9.	Write the features of membership function.	3
10.	State any 2 properties of fuzzy sets.	3

Part B – (Marks : 50)

11. (a) Single layer perception cannot classify non-lineariy separate vectors – Justify. 5

  (b) Discuss the benefits of Neural networks. 5

12. Mention the sequence of steps required to train on ADALINE network and explain in detail the applicatory of ADALINE and MADALINE networks. 10

13. Explain Hopfield models of Neural network and its applications. 10

14. (a) Define the operations on FUZZY relations and discuss its properties. 5

  (b) State different fuzzy rules. 5

15. (a) Explain how stability is attained in fuzzy control system.   5

    (b) What is fuzzy relation?   5

16. (a) State the properties of fuzzy sets.   4

    (b) Given fuzzy set A & B as

$$A = 0.3/1 + 0.6/2 + 0.7/4 + 0.2/5$$

$$B = 0.5/10 + 1/11 + 0.5/11$$

    Prepare

        1. Fuzzy addition.

        2. Fuzzy subtraction.

        3. Fuzzy multiplication.

        4. Fuzzy division.   6

17. Write short notes on :

    (a) X-OR problem.   3

    (b) Kohenen's network.   3

    (c) Different learning rules used for training neural network.   4