Code No. : 5163/M

FACULTY OF ENGINEERING
B.E. 4/4 (ECE) II Semester (Main) Examination, May/June 2012
Neural Networks and Fuzzy Logic
(Elective – II)

Time: 3 Hours] [Max. Marks : 75

***Note**: 1) Answer **all** questions from Part **A**.*
*2) Answer **any five** questions from Part **B**.*

PART – A **(Marks : 25)**

1. What is meant by Dendrite, Soma and Axon in the biological neuron ? **3**
2. List out the different types of Learning rules. **2**
3. What are the merits and demerits of Back Propagation Algorithm ? **3**
4. Write the energy function of continuous Hop field network. **2**
5. Draw the basic topologies for, **3**
   a) Nonrecurrent and
   b) Recurrent Networks and distinguish between them.
6. How can you measure the similarity of two patterns in the input space ? **2**
7. List the operations of fuzzy relations. **3**
8. What are Fuzzy sets ? **3**
9. What are the basic elements of a fuzzy logic control system ? **2**
10. List some of the applications of fuzzy logic control system. **2**

PART – B **(Marks : 50)**

11. Explain in detail how weights are adjusted in the different types of Learning Law. (Both supervised and unsupervised) **10**
12. Draw the biological neuron, name its part and explain the each part of biological neuron. **10**

13. Draw the architecture of RBF network and explain in detail. **10**

14. i) Discuss the industrial commercial applications of neural networks. **6**

    ii) Write the short notes on Robotics. **4**

15. i) Explain how fuzzy logic is different from conventional crisp logic. **7**

    ii) List the properties of fuzzy sets. **3**

16. Let A = $[(x_1, 0.2), (x_2, 0.7), (x_3, 0.4)]$ and B = $\{(y_1, 0.5), (y_2, 0.6)\}$ be two fuzzy sets defind on the universe of discourse X = $\{x_1, x_2, x_3\}$ and Y = $\{y_1, y_2\}$ respectively.
    Find the Cartesian product of the A and B and find the fuzzy relation R. **10**

17. Write a short notes on : **10**

    a) Applications of Fuzzy controllers

    b) Recurrent neural networks.