1128
M.E. (Electronics and Communication Engineering)
Third Semester
ECE-1301: Neural Networks and Fuzzy Logic

Time allowed: 3 Hours   Max. Marks: 50

NOTE: *Attempt* <u>five</u> *questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I.   Answer in brief:

   a)   Relate biological and artificial neural networks.

   b)   What is McCulloch-Pitts neural model?

   c)   What is knowledge representation?

   d)   What are associative memories?

   e)   List advantages and applications of artificial neural networks.

   f)   Why do we need defuzzification?

   g)   What is delta learning law?

   h)   Differentiate between Sugeno & Mamdani inference techniques

   i)   What is reinforced learning?

   j)   What are fuzzy sets & fuzzy operation?   (10x1)

UNIT – I

II.   a) Explain structure and working of Hopfield neural model.

       b) What are multi-layer perceptron networks? Give their advantages over single layer
          perceptron networks?   (5,5)

III.   a) Explain structure and working of Radial Basis Function neural networks?

       b) Explain learning strategies used in RBF networks?   (5,5)

IV.   a) Discuss probability and possibility theories in reference to fuzzy set shapes?

       b) Describe fuzzy logic system with the help of block diagram.   (5,5)

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UNIT – II

V. a) What are associative memories? Explain its distinct types.

b) What is the Hebbian learning? (5,5)

VI. a) What is the importance training in artificial neural networks? Explain various learning taws.

b) Differentiate feed forward and back propagation neural networks? (5,5)

VII. a) Differentiate supervised, unsupervised, and reinforced learning algorithms.

b) Explain working of self-organizing maps. (5,5)

x-x-x