Total No. of Questions : 12]

SEAT No. :

P2804

[Total No. of Pages : 3

[5154]-186
B.E. (Computer)
NEURAL NETWORKS
(2008 Pattern) (Semester - II) (Elective - III) (410450)

Time : 3 Hours] *[Max. Marks :100*

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer books.***
2) ***Attempt Q1 or Q2, Q3 or Q4, Q5 or Q6 from section I and Q7 or Q8, Q9 or Q10, Q11 or Q12 from Section II.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***
5) ***Use of Calculator is allowed.***
6) ***Assume Suitable data, if necessary.***

SECTION-I

Q1) a) Discuss the basic architecture of a Biological Neural Net and compare it with Artificial Neural Net. **[8]**

b) What is Linear Separability? Illustrate with example. Can single perceptron classify linear separable patterns? **[8]**

OR

Q2) a) Explain the McCulloch-Pitts (MP) model and its implementation for the realization of NOR gate. What is the importance of bias term? **[8]**

b) Compare LMS, Perceptron and delta learning laws. **[8]**

Q3) a) Draw and explain the architecture of RBFN (Radial Basis function) Network? How it act as classifier? **[10]**

b) What is the use of activation functions in ANN training? Discuss any 2 activation functions. **[8]**

OR

P.T.O.

Q4) a) What is linearly Non-separable classification problem? Can single Perceptron solve such problem? Discuss ADALINE computing model of a neuron. **[10]**

b) Discuss in brief the significance of learning constant, learning law and momentum term in back propagation training. **[8]**

Q5) a) How associative memory models classified? With diagram explain the working of Auto-associative Neural Network. **[8]**

b) What is meant by simulated annealing? What is annealing schedule? **[8]**

OR

Q6) a) With example illustrate the concept of stochastic update and thermal equilibrium. **[8]**

b) Explain the architecture of Boltzmann machine. **[8]**

SECTION-II

Q7) a) How the self-organizing network is trained? Illustrate the Kohonen's learning with suitable example. **[10]**

b) Compare between competitive learning and vector quantization. Why it is called as unsupervised learning? **[8]**

OR

Q8) a) What is plasticity-stability dilemma problem? Explain the ART Training algorithm used for pattern clustering. **[10]**

b) Discuss the architecture of Recurrent Neural Network. **[8]**

Q9) a) How an optimization problem is formulated for a solution using a neural network model? Explain with example. **[8]**

b) Draw and explain the architecture of Bidirectional Associative Memory. **[8]**

OR

Q10)a) Explain with architecture and algorithms, the use of ANN in handwritten digit recognition. **[8]**

b) Discuss in brief auto-association and hetero-association process used for neural processing. **[8]**

Q11)a) How Fuzzy sets are different than traditional set? How Fuzzy logic can be used with Neural Networks for supervised or unsupervised learning? **[8]**

b) What do you understand by Soft Computing? Explain and compare its different components/ tools with features. **[8]**

OR

Q12)a) Compare Neuro Fuzzy systems with traditional Neural systems. State the advantages and disadvantages. **[8]**

b) Explain the Neuro-Fuzzy architecture of Fuzzy Back propagation training. How the architecture is different than traditional Feed Forward Network? **[8]**