Total No. of Questions :12]

SEAT No. :

P3442

[Total No. of Pages :3

[4959]-217
B.E. (Computer)
NEURAL NETWORKS
(2008 Course) (Elective - III) (410450) (Semester - II)

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) Draw a McCulloch Pitts Neuron model. Define the firing rule and explain how it performs the basic logic operations for NOR Gate. **[8]**

b) Compare the features and performance of computer to that of a biological neural network w.r.t. different parameters. **[8]**

OR

Q2) a) What is the significance of learning laws in ANN training? Discuss ADALINE computing model of a neuron. **[8]**

b) Explain with example the task of pattern analysis as Classification and Clustering. Give examples of ANNs used for the same. **[8]**

Q3) a) What is error back propagation training? Discuss in brief the significance of learning constant, activation function and momentum term in back propagation training. **[10]**

b) Draw and explain the architecture of RBFN (Radial Basis Function Network). How it act as classifier? **[8]**

OR

P.T.O.

Q4) a) Draw a 3-layer FeedForward Neural Network. Explain the Back propagation training algorithm in detail. **[10]**

b) With example discuss the pattern classification problem and explain how it can be solved using Perceptron Model. **[8]**

Q5) a) Explain the architecture of Boltzmann machine. **[8]**

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

OR

Q6) a) What is meant by capacity of a feedback network? What is the significance of hidden units? **[8]**

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

SECTION-II

Q7) a) What is self-organizing feature map? Discuss the features and advantages of SOM. **[10]**

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

OR

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

b) Explain how Support Vector Machine (SVM) can be used for pattern classification. **[8]**

Q9) a) Compare and Discuss the learning of SVM and RBFN. **[8]**

b) Explain with architecture and algorithms the use of ANN in hand written digit recognition. **[8]**

OR

Q10)a) How can we solve the optimization problem by ANN? Discuss the practical difficulty in solving the travelling salesman problem by means of ANN. **[8]**

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

Q11)a) What is Soft Computing? What are the application areas of Soft Computing? Compare the Neural Networks and Fuzzy Logic as important tools of Soft computing. **[8]**

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

OR

Q12)a) What do you mean by Fuzzy Logic? What is the use of membership function? Give any Two examples. **[8]**

b) Explain the architecture of any suitable Neuro Fuzzy system designed for pattern recognition task. **[8]**

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