Total No. of Questions : 12]

SEAT No. :

P3423

[Total No. of Pages : 3

[4959]-198

B.E. (Information Technology)

b:NEURAL NETWORK AND EXPERT SYSTEMS

(2008 Pattern) (Semester - II) (Elective - IV) (414451)

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

Instructions to the candidates:

1) ***Answers to the two sections should be written in separate answer - books.***
2) ***Figures to the right indicate full marks.***
3) ***Assume suitable data, if necessary.***

SECTION - I

Q1) a) Describe features of MP neuron Model with reference to biological neural Networks. **[9]**

b) What is activation function? Explain soft activation function in detail. **[7]**

OR

Q2) a) Discuss functioning of a simple artificial neuron. Explain how the functionality is affected if two such neuron are connected in series. **[8]**

b) Explain, with examples, differences between the following pattern recognition tasks: **[8]**

i) Classification Vs. Grouping

ii) Classification Vs. Clustering

Q3) a) Distinguish between linearly separable and linearly non-separable problems. Why a single layer of perceptron cannot be used to solve linearly non-separable problems. **[8]**

b) Explain and compare learning paradigms in detail. **[8]**

OR

P.T.O.

Q4) a) Explain models of artificial neurons namely, Perception and ADALINE. **[8]**

b) What are feed forward neural networks? Explain pattern regression using Multi-layer feed forward neural network. **[8]**

Q5) a) What is basic concept of Relevance Vector Machines? Explain how it is used in classification problems? **[9]**

b) Write a short note on optimal hyperplane for non-separable patterns. **[9]**

OR

Q6) a) Explain how Support Vector Machine is used for pattern classification? **[9]**

b) What are radial basis function networks? How it is used to perform complex pattern classification task? **[9]**

SECTION - II

Q7) a) Explain principal goal of self - organization map (SOM). Explain its three essential processes involved in the formation of SOM. **[9]**

b) Write a short note on "Bayesian neural Networks". **[8]**

OR

Q8) a) Explain architecture of a Boltzmann Machine. Illustration learning in BM. **[9]**

b) What is Hopefield Model? What is meant by capacity of Hopefield Network. **[8]**

Q9) a) What are the advantages in keeping knowledge base separate from control module in knowledge based system? **[8]**

b) What is uncertainty? Explain two approaches that deal with uncertainty problem. **[8]**

OR

Q10)a) What is blackboard system architecture? Draw diagram to explain three functional components of blackboard system. **[8]**

b) Identify and describe an application area for an expert system within an University area. **[8]**

Q11)a) List programming languages for solving AI problems. Comment on language constructs in LISP. **[9]**

b) Write a short note on E-MYCIN. **[8]**

OR

Q12)a) What do you mean by knowledge Engineering? Explain various stages of knowledge acquisition. **[9]**

b) Write a short note on DENTRYL. **[8]**

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