Total No. of Questions : 12]

SEAT No. :

P3889

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B.E. (Electronics)

SOFT COMPUTING TOOLS

(2008 Pattern)

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

Instructions to the candidates:

1) ***Answers to the two sections must be written in separate answer papers.***
2) ***Answer any three questions from each sections.***
3) ***Figure to the right indicates full marks.***
4) ***Assume suitable data if necessary.***

SECTION - I

Q1) a) Explain following fuzzy operations with examples: **[8]**

i) Fuzzy Union

ii) Fuzzy Complement

iii) Fuzzy Aggregation

iv) Sub Normal Fuzzy set

b) Sketch and define the following membership functions mathematically. **[8]**

i) Bell Membership function

ii) Trapezoidal Membership function

OR

Q2) a) Explain the difference between fuzzy set and classical set. **[6]**

b) Explain the characteristics of neural network, fuzzy and Genetic systems. **[10]**

P.T.O.

Q3) a) Explain how to find relation between two fuzzy sets with example. **[8]**

b) Explain Fuzzy Associative memory with suitable example. **[8]**

OR

Q4) a) Explain Fuzzy lambda cut set. **[8]**

b) Explain extension principle with suitable example. **[8]**

Q5) a) Explain three different methods of fuzzification. **[9]**

b) Explain various blocks of Fuzzy Inference System. **[9]**

OR

Q6) a) With example explain Tsukamoto Inference system. **[10]**

b) Explain difference between Mamdani and Sugeno system with example. **[8]**

SECTION -II

Q7) a) Train perceptron network for two input bipolar 'AND' gate patterns for four iterations with learning rate of 0.4 . Assume initial weights and bias of 0.6. **[10]**

b) Explain the need for multilayer networks. **[8]**

OR

Q8) a) Explain Perceptron, its architecture and training algorithm used for it. **[10]**

b) Explain the architecture of SOM and training steps involved in training of SOM. **[8]**

Q9) Explain in detail neural network application for any classification task. **[16]**

OR

Q10) Explain in detail application of neural network in image processing for classification. What are the limitations of ANN for classification? **[16]**

Q11) Explain the architecture and training algorithm used in ANFIS . What are the advantages and disadvantages of neuro fuzzy systems? **[16]**

OR

Q12) a) Define and explain various RBF functions. How RBF are used for classification? Explain the training algorithm used in RBF networks. **[10]**

b) Explain Neuro fuzzy control. **[6]**

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