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ECS088

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : **110858**

Roll No.

B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15

SOFT COMPUTING

Time : **3** Hours] [Total Marks : **100**

1 Attempt any four parts of the following. [5×4=20]

(a) What is an artificial neuron? How is it different then biological neurons?

(b) State the characteristics of an artificial neural network (ANN).

(c) Differentiate between supervised and unsupervised learning.

(d) Differentiate between single layer feedforward and Multilayer feedforward neural network.

(e) What is the necessity of activation functions?

(f) What is linear severability? Explain your answer with an example.

2 Attempt any two parts of the following. [10×2=20]

(a) Explain Rosenblatt's perceptron model. Differentiate between linearly separable patterns and non-linearly separable patterns.

(b) Why perceptron is not able to handle the tasks which are not linearly separable. Justify your answer using XOR Problem.

(c) Write short notes on the following:

(i) Recurrent Networks

(ii) Over fitting and under fitting

3 Attempt any two parts of the following. [10×2=20]

(a) What are fuzzy sets? Discuss the operations of fuzzy sets.

(b) Write short notes on the following:

(i) Fuzzy relations

(ii) Fuzzy membership functions

(c) What is Defuzzification? Explain all the three methods which are used in Defuzzification with an example.

4 Attempt any two parts of the following. [10×2=20]

(a) What is fuzzy quantifier? Differentiate between absolute and relative quantifiers.

(b) Translate the following statements into logical expressions using predicate logic.

(i) Every ship has a captain.

(ii) Raj likes those which Sita and Ram both like.

(iii) Some mushrooms are poisonous.

(iv) Not everyone is perfect.

(c) Write short notes on the following:

(i) Fuzzy Controllers

(ii) Fuzzy Inference

5 Attempt any two parts of the following. [10×2=20]

(a) What is encoding. Explain all the encoding methods.

(b) Write short notes on the following

(i) Genetic algorithm

(ii) Evolutionary Computing

(c) List the State-of-the-art applications of soft computing.