Total No. of Printed Pages:02

SUBJECT CODE NO:- H-494
FACULTY OF SCIENCE AND TECHNOLOGY
BE(EEP/EE/EEE) (Sem-I)
Elective-I: Neural Network and Fuzzy Logic
[OLD]

[Time: Three Hours] **[Max. Marks:80]**

Please check whether you have got the right question paper.

N.B.: 1) Q. No. 1 and Q. No. 6 are compulsory.
2) Solve any two question from remaining Section A &Section B.
3) Assume suitable data if necessary.

Section A

Q.1 Answer any FIVE. 10

a) Define supervised training.
b) What are the different types of Learning rules?
c) Define artificial neural network. (ANN)
d) List out different types of training.
e) Define feedback networks.
f) What are the four main steps in back propagation algorithm?

Q.2 a) Distinguish between supervised & unsupervised learning. 08
b) Explain briefly the back propagation algorithm. 07

Q.3 a) Discuss the step by step procedure of back propagation learning algorithm in detail. 07
b) Classify & explain different types of learning. 08

Q.4 Explain multi-layer feed forward model of ANN & describe the function & structure of each unit. 15

Q.5 Write the algorithm of generalized delta rule [Back propagation algorithm]. 15

Section B

Q.6 Answer any FIVE. 10

a) What are fuzzy relations?
b) Write De Morgan's Law.
c) Define Classical Set.
d) List the properties of Crisp Sets.
e) Differentiate fuzzification & defuzzification.
f) List the defuzzification methods.

Q.7 a) A linguistic variable X which measures the academic excellence is taken from universe of 08

discourse U={1 2 3 4 5 6 7 8 9 10 }. The membership functions are defined as follows

$$\mu(Excellent) = \{(8,0.2)(9,0.6)(10,1)\},$$

$$\mu(good) = \{(6,0.1)(7,0.5)(8,0.9)(9,1)(10,1)\}$$

Construct the membership function of Good but not excellent.

b) Explain the types of different membership functions. 07

Q.8

a) A=[0.6,0.3,0.9,1,1] and B=[0.8,0.4,0.9,0.7,1] 07
Perform Union, Intersection, Complement and Demorgan's operation on these fuzzy sets.

b) Explain the terms. 08
1. Fuzziness
2. Power Set
3. Union of two sets
4. Complement of two sets.

Q.9 With a neat sketch discuss the major components of fuzzy controller. 15

Q.10 Write short notes on 15

a) Lambda- cut
b) Knowledge base
c) Rule Base