Roll No……..….. **Total No. of Printed Pages: 1**

Total No. of Questions: [09]

B. Tech. (CSE) (Semester – 7th/8th)
NEURAL NETWORK & FUZZY LOGIC
Subject Code: BECEO1007
Paper ID: 18OE111128

Time: 03 Hours **Maximum Marks: 60**

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:

a) What are fuzzy set operations? Illustrate with examples.
b) What is the delta learning rule?
c) What is a backpropagation network?
d) What is Hopfield neural model?
e) How Artificial Neural Network (ANN) resembles brain?
f) What is the need of defuzzification process in fuzzy logic systems?
g) How fuzzy sets are different from crisp sets.
h) State Hebb's learning law.
i) What is the role of activation function in neural behavior?
j) What is Competitive learning in ANN?

Section – B **(5 marks each)**

Q2. Discuss the architecture and working of Radial Basis Function neural network.
Q3. Explain the working of an FLS using block diagram representation.
Q4. How does multi-layer perceptron better advantages than single-layer perceptron?
Q5. What is ART? Discuss fast and slow training approaches.
Q6. How do self-organizing maps work? Explain.

Section – C **(10 marks each)**

Q7. What are supervised, unsupervised, and reinforced learning algorithms used in artificial neural networks? Give examples.
Q8. Illustrate mathematically the expressions of various learning laws useful in ANN.
Q9. What is Genetic Algorithms? Discuss various steps/operations using flow chart.