



B.E DEGREE EXAMINATIONS: NOV 2015

(Regulation 2009)

Seventh Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE116: Applied Soft Computing

Time: Three Hours

Maximum Marks: 100

**Answer all the Questions:-
PART A (10 x 1 = 10 Marks)**

- In ANN information processing occurs between simple elements called
 - Neurons
 - Dendrites
 - Axon
 - Soma
- Each neuron applies an activation function to its net input which is usually.....
 - linear
 - Non linear
 - sigmoidal
 - planar
- The alternative name for logistic sigmoid is
 - Binary sigmoid
 - bipolar sigmoid
 - binary step
 - identity
- Activation function of binary sigmoid is
 - $1/1+\exp(-\sigma x)$
 - $1/1-\exp(\sigma x)$
 - $1/1+\exp(2x)$
 - $1/1-\exp(-2x)$
- Which one of the following set has unique membership function?
 - Crisp set
 - Fuzzy set
 - Both Crisp and Fuzzy set
 - Boolean
- What is the formula for union in fuzzy set operation?
 - $A \cup B = \{x/x \in A \text{ OR } x \in B\}$
 - $A \cup B = \{x/x \in A \text{ AND } x \in B\}$
 - $\mu_{A \cup B} = \max [\mu_A(x), \mu_B(x)]$
 - $\mu_{A \cup B} = \min [\mu_A(x), \mu_B(x)]$
- $Z^* = (A+B)/2$ is the function of
 - weighted average method
 - centroid
 - center of sums
 - mean-max membership.
- _____ controls physical value to universe of discourse.
 - Normalization
 - Fuzzification
 - Defuzzification
 - Renormalizations

23. a) Two fuzzy sets $\underline{A} = \left\{ \frac{1}{2} + \frac{0.5}{3} + \frac{0.3}{4} + \frac{0.2}{5} \right\}$ and $\underline{B} = \left\{ \frac{0.5}{2} + \frac{0.7}{3} + \frac{0.2}{4} + \frac{0.4}{5} \right\}$. Find Complement, Union, Intersection, Difference, Demorgan's law and Excluded middle laws.

(OR)

- b) What is meant by fuzzy relation? Explain the operations on fuzzy relations? Describe about fuzzy Cartesian product and composition with its expressions.

24. a) What is defuzzification? Explain the defuzzification methods available in fuzzy system.

(OR)

- b) Draw the block diagram of fuzzy logic control system and describe the function of each block. Also list the features of fuzzy logic control.

25. a) Discuss about the classification of optimization techniques and classes of search techniques with a flow chart.

(OR)

- b) Illustrate the methods of selecting chromosomes for parents to cross over with necessary diagrams.
