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INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

M.Tech II Semester End Examinations (Regular) - July, 2018

Regulation: IARE-R16

SOFT COMPUTING

Time: 3 Hours

(CSE)

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

1. (a) Explain the architecture of McCulloch-Pitts Neuron model. [7M]
 (b) Explain the architecture of back propagation network, depicting the direction of information flow for the feed-forward phase. [7M]
2. (a) Briefly discuss basic types of neuron connection architectures in artificial neural networks. [7M]
 (b) Explain different phases in error back propagation learning algorithm. [7M]

UNIT – II

3. (a) What are the activation functions used in discrete bidirectional associative memory two layer network. [7M]
 (b) Explain the general structure of full counter propagation network and discuss different components of instar-outstar model. [7M]
4. (a) Write the algorithm for hetero-associative network with either noisy input or with known input. [7M]
 (b) What is learning vector quantization? Briefly discuss different variants of learning vector quantization. [7M]

UNIT – III

5. (a) Briefly discuss the properties that define classical sets and show their similarity to fuzzy sets. [7M]
 (b) List and describe the properties of Lambda-cuts for fuzzy sets. [7M]
6. (a) List and briefly discuss several ways to assign membership values to fuzzy variables in comparison with the probability density functions to random variables. [7M]
 (b) Write the properties of fuzzy equivalence relation. Explain each. [7M]

UNIT – IV

7. (a) List and briefly discuss the properties that the two fuzzy vectors f and g , both of length n . [7M]
 (b) Explain the construction and working principle of fuzzy inference systems (FIS) with the help of block diagram of FIS. [7M]
8. (a) Give the comparison among mamdani and surgeon fuzzy interface systems. [7M]
 (b) What is fuzzy syllogism? Briefly describe different fuzzy syllogism. [7M]

UNIT – V

9. (a) Discuss the advantages and limitations of genetic algorithms. [7M]
(b) Briefly discuss different stopping conditions for genetic algorithm flow. [7M]
10. (a) What is crossover in genetic algorithm? List and briefly discuss different crossover techniques. [7M]
(b) Explain the process of converting the binary data into hexadecimal, Permutation encoding and octal encoding. [7M]

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