

Avinashilingam Institute for Home Science and Higher Education for Women
Coimbatore-641 043

Master's Degree Examination- November 2017
V Semester

Class: III M.C.A.
Major: Computer Applications

Max. Marks: 60
Time: 3 Hours

12MCACO29 Soft Computing

PART – A (10 * 0.5 = 5)
Answer the following

Choose the correct answer:

- 1) _____ are simplified models of the biological nervous system and therefore have drawn their motivation from the kind of computing performed by a human brain.
a) Genetic Algorithms b) Fuzzy Logics c) Set Theory d) Neural Networks
- 2) A neuron is composed of a nucleus- a cell body known as ____.
a) soma b) dendrites c) membrane d) synapse
- 3) _____ is a systematic method of training multilayer artificial neural networks.
a) ART b) Backpropagation c) Learning d) Perceptron
- 4) ART stands for _____.
a) Adaptive Resonance Theory b) Active Resonance Theory
c) Adaptive Resource Theory d) Adaptive Resonance Theory
- 5) A simple proposition is also known as _____.
a) Logic b) Atom c) Crisp d) Formula
- 6) _____ method is also known as the center of gravity or the center of area method, it obtains the center of area occupied by the fuzzy set.
a) Center of sums b) Centroid c) Mean of maxima d) Medium of maxima
- 7) Complete set of genetic material is called _____.
a) alleles b) chromosome c) genome d) mutation
- 8) In a _____ cross over, a cross-site is selected randomly along the length of the mated strings and bits next to the cross-sites are exchanged.
a) Two-point b) Single-site c) Multi-point d) Uniform
- 9) Each string represented by a schema is called an _____ of the schema.
a) Bit b) instance c) Mutation d) Cross over
- 10) A _____ is a similarity template describing a subset of strings with similarities at certain positions.
a) Instance b) Grouping c) Schema d) Convergence

PART – B

(5 *4 =20)

Answer all the Questions

Each Answer should not exceed 200 words or one page

- 11) a) Define: Neural Network. What are the characteristics of Neural networks? Explain.
(or)
b) Describe the model of an artificial neuron.
- 12) a) Explain the selection of various parameters in BPN?
(or)
b) Explain applications of ART1.
- 13) a) Write down any four properties of fuzzy sets.
(or)
b) Write predicate logic statements for
i) Ram likes all kinds of food.
ii) Sita likes anything which Ram likes.
iii) Raj likes those which Sita and Ram both like.
iv) All likes some of which Ram likes.
- 14) a) What are the three most important aspects of using Genetic Algorithm? Explain.
(or)
b) Explain about the Roulette-wheel selection.
- 15) a) Write a brief note on Genetic Algorithm cycle.
(or)
b) What are the characteristics of multi-level optimization? Describe.

PART – C

(5 *7 =35)

Answer all the Questions

Each Answer should not exceed 600 words or six pages

- 16) a) Discuss the single layer feedforward network and multilayer feedforward network architectures.
(or)
b) What are the three basic types of learning methods? Explain.
- 17) a) Write the Backpropagation Learning algorithm and explain it.
(or)
b) Explain the architecture of ART1.
- 18) a) What is defuzzification? Explain any two methods of defuzzification.
(or)
b) What are fuzzy set operations? Explain with examples.
- 19) a) Explain about the mutation operator.
(or)
b) What are the types of cross over operations? Explain.
- 20) a) Explain the classification of hybrid systems.
(or)
b) When to use GA? Explain the benefits and issues for GA.
