BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – M.Tech.(CSE)-2018/M.Tech.(CSE)-2020/M.Tech.(CSE)-2021
Course Name – Computational Intelligence
Course Code - PCC-MCS202
(Semester II)

Full Marks : 60 **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question) 1 x 15=15

1. *Choose the correct alternative from the following :*

(i) Define the logic that is associated with fuzzy concept

a) a. Many-valued logic
b) b. Crisp set logic
c) c. Binary set logic
d) d. Two-valued logic

(ii) Discover the correct statement from the following

a) a. Natural language is normal
b) b. Natural languages are context-oriented free
c) c. Not all formal languages are context-free
d) d. All formal languages are like natural language

(iii) Choose the concept which is not counted in different learning method.

a) a. Memorization
b) b. Introduction
c) c. Analogy
d) d. Deduction

(iv) Select the evolutionary computation?

a) a. Combining different types of method or information
b) b. Approach to the design of learning algorithms that is structured along the lines of the theory of evolution.
c) c. Decision support systems that contain an information base filled with the knowledge of an expert formulated in terms of if-then rules.
d) d. None of these

(v) Select which of the following belongs to Search space.

a) a. The large set of candidate solutions possible for a problem
b) b. The information stored in a database that can be, retrieved with a single query
c) c. Worth of the output of a machine learning program that makes it understandable for humans
d) d. None of these

(vi) Identify the Shallow knowledge

a) a. The large set of candidate solutions possible for a problem
b) b. The information stored in a database that can be, retrieved with a single query
c) c. Worth of the output of a machine learning program that makes it understandable for humans
d) d. None of these

(vii) Identify the meaning of Quantitative attributes?

a) a. A reference to the speed of an algorithm, which is quadratically dependent on the size of the data
b) b. Attributes of a database table that can take only numerical values
c) c. Tools designed to query a database
d) d. None of the above

(viii) Identify the correct answer for Vector.

a) a. It do not need the control of the human operator during their execution
b) b. An arrow in a multi-dimensional space. It is a quantity usually characterized by an ordered set of scalars
c) c. The validation of a theory on the basis of a finite number of examples
d) d. None of these

(ix) Identify the reason of artificial neural network used for

a) a. Pattern Recognition
b) b. Classification
c) c. Clustering
d) d. All of these

(x) Identify the feature of ANN in which ANN creates its own organization or representation of information it receives during learning time is

a) a. Adaptive Learning
b) b. Self-Organization
c) c. What-If Analysis
d) d. Supervised Learning

(xi) Identify the suitable fundamental unit of network is

a) a. brain
b) b. nucleus
c) c. neuron
d) d. axon

(xii) Choose the parameter that is not counted in various learning methods?

a) a. Deduction
b) b. Introduction
c) c. Memorisation
d) d. Analogy

(xiii) Apply the feature of ANN in which the ANN would create its own organisation for the representation of all the information that it receives during its learning time?

a) a. Supervised Learning
b) b. Self-Organisation
c) c. What-if Analysis
d) d. Adaptive Learning

(xiv) Choose the correct parameter: Every connection link present in ANN gets linked to the _____ that consists of various statics about an input signal.

a) a. Activation function
b) b. Neurons
c) c. Bias
d) d. Weights

(xv) Choose the appropriate domain that is offered by the Bayesian network?

a) a. A complete description of the domain
b) b. A complete description of the problem
c) c. Partial description of the domain
d) d. None

Group-B

(Short Answer Type Questions) 3 x 5=15

2. Describe the operations fuzzy set? (3)
3. State genetic algorithm. (3)
4. Explain the various phases of GA to control a nonlinear time delay system (3)
5. Describe the stability analysis method for neural network (3)
6. Explain the solution of typical control problems using Genetic Algorithm (3)

OR

Illustrate detail about the stability analysis of fuzzy control systems (3)

Group-C

(Long Answer Type Questions) 5 x 6=30

7. Illustrate the factors affecting the back propagation training (5)
8. Analyze the basic steps of Genetic Algorithm used for solving optimization problems (5)
9. Define the concept about biological neuron and artificial neuron (5)
10. State the Tabu Search (5)
11. Describe the Ant-Colony Optimization (5)
12. Illustrate the advantages of GA over conventional algorithm? (5)

OR

Explain the single perceptron with its learning algorithm and its separability and convergence property (5)

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