BRAINWARE UNIVERSITY

Term End Examination 2023
Programme – M.Tech.(CSE)-AIML-2022
Course Name – Soft Computing
Course Code - PCC-MCSM202
(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)   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

(ii)   Choose the appropriate method that is involved in inductive learning

a) a. Consistent Hypothesis

b) b. Irregular Hypothesis

c) c. Estimated Hypothesis

d) d. Inconsistent Hypothesis

(iii) Choose the suitable rule that represents the fuzzy logic.

a) a. IF-THEN-ELSE rules

b) b. IF-THEN rules

c) c. All of these

d) d. None

(iv)   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

(v)   Select an appropriate tool of a genetic operator in a genetic algorithm?

a) a. Selection

b) b. Crossover

c) c. Mutation

d) d. All of the above

(vi)   Select a real time commonly used selection operator in genetic algorithms?

a) a. Tournament selection

b) b. Roulette wheel selection

c) c. Rank selection

d) d. All of the above

(vii) Choose delta (error) in perceptron model of neuron

a) a. error due to environmental condition

b) b. difference between desired & target output

c) c. can be both due to difference in target output or environmental condition

d) d. none of the mentioned

(viii) Identify the meaning of Perceptron

a) a. General class of approaches to a problem.

b) b. Performing several computations simultaneously

c) c. Structures in a database those are statistically relevant

d) d. Simple forerunner of modern neural networks, without hidden layers

(ix) Select the proper reason about cell that is said to be fired?

a) a. if potential of body reaches a steady threshold values

b) b. if there is impulse reaction

c) c. during upbeat of heart

d) d. none of the mentioned

(x) State meaning of a robot?

a) a. Computer-controlled machine that mimics the motor activities of living things

b) b. Computer-controlled machine that mimics the motor activities of living things

c) c. Machine that thinks like a human

d) d. Machine that thinks like a human

(xi) All of the following are suitable problems for genetic algorithms EXCEPT - Select the proper pattern

a) a. Dynamic process control

b) b. Pattern recognition with complex patterns

c) c. Simulation of biological models

d) d. Simple optimization with few variables

(xii) Identify the name of a network that includes backward links from a given output to its inputs along with the hidden layers?

a) a. Recurrent neural network

b) b. Multi-layered perceptron

c) c. Self-organising maps

d) d. Perceptron

(xiii) Choose the application an automated vehicle refers to

a) a. Reinforcement learning

b) b. Unsupervised learning

c) c. Active learning

d) d. Supervised learning

(xiv) Examine which is not the promise of an artificial neural network

a) a. It can handle noise

b) b. It can survive the failure of some nodes

c) c. It can explain the result

d) d. It has inherent parallelism

(xv) A perceptron can be illustrated as _____

a) a. A neural network with feedback

b) b. An auto-associative neural network

c) c. A double layer auto-associative neural network

d) d. A single layer feed-forward neural network with pre-processing

Group-B
(Short Answer Type Questions)   3 x 5=15

2. Explain significance of Artificial Bee Colony   (3)
3. Define fuzzy normal and subnormal set with example.   (3)
4. Explain different types of defuzzification with suitable example   (3)
5. Explain important issues in knowledge representation   (3)
6. Explain the reason of recurrent neural network about Hopfield network with example.   (3)

OR

Analyze the properties of adaptive resonance theory?   (3)

Group-C

7. State the Tabu Search   (5)
8. Analyze perceptron? Explain different layers of perceptron?   (5)
9. Distinguish the structure and algorithm of ADALINE and MADALINE net.   (5)
10. Explain the concept of hebbian learning?   (5)
11. Illustrate the architecture of an auto associative Network.   (5)
12. Estimate activations used in Back Propagation Network Algorithm.   (5)

OR

Illustrate the commonly used Activation functions.   (5)

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