

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (Sem-3)
ARTIFICIAL INTELLIGENCE & SOFT COMPUTING

Subject Code : PGCA1926

M.Code : 90799

Date of Examination : 20-06-2023

Time : 3 Hrs.

Max. Marks : 70

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION - B & C have FOUR questions each.
3. Attempt any FIVE questions from SECTION B & C carrying TEN marks each.
4. Select atleast TWO questions from SECTION - B & C.

SECTION-A

1. Write short notes on :

- a) What are horn clauses and how are they used in propositional logic?
- b) Write a brief note on forward chaining.
- c) Explain the working of simulated annealing.
- d) Discuss the applications of soft computing.
- e) Differentiate between artificial narrow intelligence and general intelligence.
- f) Discuss the adaptive resonance theory.
- g) Write a brief note on fuzzy control systems.
- h) What are the various operators used in the genetic algorithm?
- i) Differentiate between supervised learning and unsupervised learning networks.
- j) What is memory bounded heuristic search?

SECTION-B

2. How do you define artificial intelligence? Discuss the history of artificial intelligence. Explain how 8-puzzle can be formulated and solved as an artificial intelligence problem?
3. Explain the working of greedy best first search with the help of an example. How is it different from A* search?
4. Write a detailed note on natural language processing. Explain the process of semantic analysis.
5. Discuss the salient features of propositional logic. Consider the following axioms and prove by resolution that "Scrooge is not a child."
 - a) Every child loves Santa.
 - b) Everyone who loves Santa loves any reindeer.
 - c) Rudolph is a reindeer and Rudolph has a red nose.
 - d) Anything which has a red nose is weird or is a clown.
 - e) No reindeer is a clown.
 - f) Scrooge does not love anything which is weird.

SECTION-C

6. What is soft computing? List the differences between hard computing and soft computing.
7. Write a detailed note on neural networks. What is the role of activation functions? Draw and explain a single layer perceptron in detail.
8. What is fuzzy composition? Define fuzzy Max-Min composition. Explain the process of defuzzification.
9. Explain the working principle of genetic algorithm. Discuss the significance of fitness function. Also write about multi-level optimization.

NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.