Reg. No ..... Name **24U628**

B. Sc. DEGREE END SEMESTER EXAMINATION - MARCH 2024

SEMESTER 6 - COMPUTER APPLICATION

COURSE : **19U6CRCAP12 - ARTIFICIAL INTELLIGENCE (EL)**

(For Regular 2021 Admission and Supplementary 2020/2019 Admissions)

Time : Three Hours Max. Marks: 75

PART A
Answer All (1 mark each)

1. Define compound proposition.
2. ---------- is an adaptive heuristic search algorithm inspired by "Darwin's theory of evolution in Nature."
3. ---------- is viewed as a collection of disconnected facts.
4. STRIPS stands for ----------.
5. Name the type of problems that supervised learning deals with.
6. Give two examples of Swarm Intelligence algorithm.
7. CSP stands for ----------.
8. AI programming focuses on three cognitive aspects. Which are they?
9. Define categorical dataset.
10. Define facet and its use on frame.

(1 x 10 = 10)

PART B
Answer any 8 (2 marks each)

11. What are the steps of 'PUTDOWN(A)' performed by the robotic arm?
12. What is the objective of the swarm intelligence algorithm?
13. What are the steps of 'UNSTACK(A,B)' performed by the robotic arm?
14. How does AI use in entertainment?
15. Which are the applications of soft computing?
16. What are the applications of the best-first search algorithm?
17. How predicate logic is used in AI?
18. Define regression method and list out examples.
19. Explain different learning techniques in Machine Learning.
20. Define instance predicate.

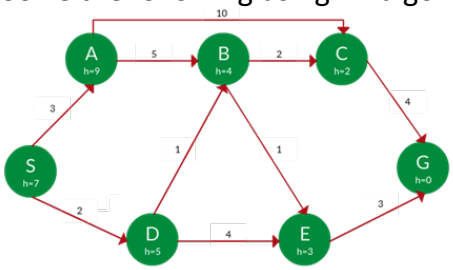
(2 x 8 = 16)

PART C
Answer any 5 (5 marks each)

21. Define about three operators in means-ends analysis.
22. Define STRIPS in detail.
23. Explain the principle of ant colony optimization.
24. Distinguish between supervised and unsupervised learning.
25. Illustrate the perceptron and explain its components.

26. Convert into FOL:
    a. Every man respects his parent.
    b. Only one student failed in Mathematics.
    c. All purple Mushrooms are poisonous.
    d. Every man loves God.
    e. There exists a smart student.

27. Solve the following using A* algorithm.



(5 x 5 = 25)

PART D
Answer any 2 (12 marks each)

28. Explain K-means clustering algorithm in detail.
29. Define the Best-First Search algorithm and solve a problem.
30. Explain Ant colony optimization, its objective and pseudocode.
31. Define hierarchical plan and construct an example of Hierarchical Plan for building a house in detail.

(12 x 2 = 24)