

Register No.: Name:

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

**SEVENTH SEMESTER B.TECH DEGREE EXAMINATION (R), DECEMBER 2023
COMPUTER SCIENCE AND ENGINEERING**

(2020 SCHEME)

Course Code : 20CST493

Course Name: Advanced Topics in Artificial Intelligence

Max. Marks : 100

Duration: 3 Hours

PART A

(Answer all questions. Each question carries 3 marks)

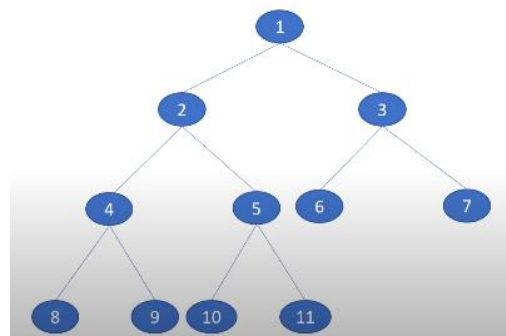
1. Demonstrate uniform cost search.
2. Discuss the history of Artificial Intelligence.
3. Define ANN. Explain the basic working principle of ANN.
4. Convert the following statement to semantic net;
Bill is taller than John
5. List the applications of robotics.
6. What is Inverse reinforcement learning (IRL)?
7. Differentiate supervised and unsupervised learning.
8. Explain Loss function in deep learning.
9. What is Tool concerns in AI games?
10. Explain speed and memory constraints in AI games.

PART B

(Answer one full question from each module, each question carries 14 marks)

MODULE I

11. a) With a neat sketch explain Learning agent. (4)
- b) Write an algorithm for performing iterative deepening depth-first search. Obtain the search sequence of the following graph.(Hint: consider 11 as goal node)



(10)

OR

12. a) Define agents. With suitable examples explain different types of agents. (10)
b) With an example, explain Depth-limit search. (4)

MODULE II

13. a) Define semantic networks. With suitable diagrams explain different types of semantic networks. (9)
b) With neat sketches explain ANN topologies (5)

OR

14. a) With necessary examples explain different Brain recording techniques. (7)
b) With an example explain Back propagation. (7)

MODULE III

15. a) Explain Robotics perception. (7)
b) Define reinforcement learning. Explain different types of Reinforcement learning (7)

OR

16. a) Explain generalization in reinforcement learning. (7)
b) Explain different components of reinforcement learning. (7)

MODULE IV

17. a) Explain Gradient-descent algorithm. (7)
b) What you mean by Perceptron? Explain different types of Perceptron models. (7)

OR

18. a) With an example explain Linear regression. (9)
b) Write a note on artificial neurons. (5)

MODULE V

19. a) With suitable examples explain different kinds of AI games. (7)
b) Draw the movement algorithm structure and explain the basics of movement algorithm. (7)

OR

20. a) Explain kinematic movement algorithm. (7)
b) With sketches explain AI engine (7)
