

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Winter 2022 - 23 Examination

Semester: 7
Subject Code: 203105441
Subject Name: Artificial Intelligence

Date: 08/10/2022
Time: 10:30 am to 01:00 pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 Objective Type Questions - (Fill in the blanks, one word answer, MCQ) (All are compulsory) (15)

(Each of one mark)

1. The total number of proposition symbols in AI is _____.
2. Graph used to represent semantic network is _____.
3. _____ is the first AI programming language.
4. General algorithm applied on game tree for making decision of win/lose is _____.
5. The initial state and the legal moves for each side define the _____ for the game.
6. Who is the inventor of Artificial Intelligence?
7. How many types of quantification are there in AI?
8. What is state space in AI?
9. What is the frame?
10. When will Hill-Climbing algorithm terminate?
11. The component of an Expert system is _____.
a. Knowledge Base b. Inference Engine c. User Interface d. All of these
12. The search algorithm which is similar to the minimax search, but removes the branches that don't affect the final output is known as _____.
a. Depth-first search b. Breadth-first search c. Alpha-beta pruning d. None of these
13. Which of the following are heuristic search algorithms?
a. Best-first search b. A* Search Algorithm c. Both A and B d. None of these
14. What is the name of Artificial Intelligence which allows machines to handle vague information with a deftness that mimics human intuition?
a) Human intelligence b) Boolean logic c) Functional logic d) Fuzzy logic
15. Artificial neural network used for
a) Pattern Recognition b) Classification c) Clustering d) All of these

Q.2 Answer the following questions. (Attempt any three) (15)

- A) Explain the problems of simple hill climbing searching technique?
- B) What is artificial neural network explain with diagram?
- C) Explain the Semantic Nets with Example.
- D) Explain the probabilistic reasoning in AI.

Q.3 A) What is artificial Intelligence? Explain the Major areas of Artificial Intelligence. (07)

B) What do you mean by Game Playing? Explain the minimax algorithm with help of an example. (08)

OR

B) Consider the following sentences: (08)

- a. John likes all kind of food.
- b. Apple and vegetable are food
- c. Anything anyone eats and not killed is food.
- d. Anil eats peanuts and still alive
- e. Harry eats everything that Anil eats.

Use resolution and prove: f. John likes peanuts.

Q.4 A) Discuss the Breadth first search technique with help of an example. (07)

OR

A) What is expert system? Discuss the application of expert system. (07)

B) Write a Short Notes (Any Two): (08)

- i) A* Algorithm
- ii) Rote learning and Induction learning
- iii) Fuzzification and Defuzzification
- iv) Supervised and Unsupervised Learning