

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer 2018 - 19 Examination

Semester: 7**Subject Code: 03105431****Subject Name: Artificial Intelligence****Date: 13/05/2019****Time: 10:30am to 1:00pm****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-not more than Five in case (15) of MCQ) (All are compulsory) (Each of one mark)

1. An algorithm is complete if?
2. Translate the following statement into FOL:
"For every a, if a is a philosopher, then a is a scholar"
3. What is Artificial intelligence?
4. Define heuristic function?
5. List out advantages of artificial intelligence.
6. A* is optimal if h(n) is an admissible heuristic-that is, provided that h(n) never underestimates the cost to reach the goal. **a) False b) True**
7. Knowledge may be
 - I. Declarative. II. Procedural. III. Non-procedural.
 - a) Only (I) above
 - b) Only (II) above
 - c) Only (III) above
 - d) Both (I) and (II) above
8. A heuristic is a way of trying
 - a) To discover something or an idea embedded in a program
 - b) To search and measure how far a node in a search tree seems to be from a goal
 - c) To compare two nodes in a search tree to see if one is better than the other is
 - d) All of the mentioned
9. One of the main cons of hill-climbing search is
 - a) Terminates at local optimum & Does not find optimum solution
 - b) Terminates at global optimum & Does not find optimum solution
 - c) Does not find optimum solution & Fail to find a solution
 - d) Fail to find a solution
10. Which search method takes less memory?
 - a) Depth-First Search b) Breadth-First search c) Linear Search d) Optimal search
11. A game can be formally defined as a kind of search problem with the following components:
 - a) Initial State b) Successor Function
 - c) Terminal Test d) All of the mentioned
12. _____ form is called as conjunction of disjunction of literals.

13. _____ search uses the problem specific knowledge beyond the definition of the problem.

14. The field that investigates the mechanics of human intelligence is _____.

15. Hill-Climbing algorithm terminates when, _____.

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

A) Explain following Terms in Brief:

1) Fuzzification 2) Bayes Nets

B) What are major areas of Artificial Intelligence? Explain briefly.

C) Write difference between forward and backward reasoning.

D) Why Simulated Annealing search method has been introduced? Justify your answer.

Q.3 A) Explain semantic net with example. **(07)**

B) Describe Depth First Search. Comment on the optimality of this method. Also explain difference between DFS & BFS. **(08)**

OR

B) Explain issues in knowledge representation. **(08)**

Q.4 A) Write short note on Expert System. **(07)**

OR

A) Explain the rules of inference with example. **(07)**

B) Explain A* algorithm in detail. **(08)**