Assignment 4

Due on 2020-02-27, 23:59 IST.

The data for this assignment is as below. As per our records you have not submitted this assignment.

1. Hill-climbing can get stuck due to which of the following phenomena?
- Local Maxima
- Suboptimal Sequences
- Heuristic
- Random

No, the answer is incorrect.

Assessment Answers:
- Local Maxima
- Random

1 point

2. Which of the following is not eventually find the optimal solution?
- Random Walk
- Greedy Hill Climbing
- Stochastic Hill Climbing with random restarts
- Local Beam Search

No, the answer is incorrect.

Assessment Answers:
- Greedy Hill Climbing
- Stochastic Hill Climbing with random restarts
- Local Beam Search

1 point

3. What happens to the probability of making a move that leads to a state worse than the current state as we reduce the temperature in simulated annealing?
- Increases
- Decreases
- Remains the same

No, the answer is incorrect.

Assessment Answers:
- Decreases

1 point

4. Suppose a hill-climbing procedure has a probability \( p = 0.2 \) of getting successful in a particular run. What is the expected number of runs required for hill-climbing with random restarts to be successful?

No, the answer is incorrect.

Assessment Answers:
- Open Answer

1 point

5. Genetic algorithms are said to jump from one hill to another. Which of the following is responsible for such behavior?
- Selection
- Chaos over
- Fitness function
- Natural Selection

No, the answer is incorrect.

Assessment Answers:
- Natural Selection

1 point

6. Which of the following pair of algorithms tolerate exploitation?
- Tabu Search, Hill-Climbing
- Simulated Annealing with initial temperature, Random Walk
- Local Beam Search with initial beam size, Width-Height Search
- Genetic Algorithm with population size, Random Sampling

No, the answer is incorrect.

Assessment Answers:
- Tabu Search, Hill-Climbing

1 point

7. Find the set of steps taken by the Greedy Hill Climbing Search to go from state A to state B in which hop = 1, no of expanded states in state B is state A.

No, the answer is incorrect.

Assessment Answers:
- Open Answer

1 point

8. Which of the following statement(s) are correct about Local Beam Search?
- It will find the optimal solution for a beam size of 1 if it does not find the optimal solution for any beam size
- It might find the optimal solution for a beam size of 4 even if it does not find the optimal solution for any beam size > 4
- It has a better chance of finding the optimal solution for higher values of beam size
- It is the same as Greedy Hill Climbing with \( k = 1 \)

No, the answer is incorrect.

Assessment Answers:
- It might find the optimal solution for a beam size of 4 even if it does not find the optimal solution for any beam size > 4
- It has a better chance of finding the optimal solution for higher values of beam size
- It is the same as Greedy Hill Climbing with \( k = 1 \)

1 point

9. What is the heuristic of hill-climbing to find the minimum of the function \( f(x, y) = x^2 + 2y^2 + x + y + 2 \) at \( x = 0, y = 1 \)?

No, the answer is incorrect.

Assessment Answers:
- \( -2, -1 \)
- \( -2, -1 \)
- \( -2, -1 \)
- Random

1 point

10. Which of the following statements are not correct about Tabu Search?
- It never visits the same state more than once.
- It uses past experience to explore unvisited areas of the search space.
- The transition from global to local optimisation is marked by increasing the length of tabu list.
- It always reaches a local optimum.

No, the answer is incorrect.

Assessment Answers:
- It never visits the same state more than once.

1 point