Unit 9 - Week 8

Week 8 Assignment 8

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) Simulated Annealing is a hill climbing method that:
   i. Allows uphill movement only
   ii. Allows both uphill and downhill movements
   iii. Allows downhill movement only
   iv. None of the above
   
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   ii.

2) Simulated Annealing is used to minimize a function $f(x)$. For the initial point, the function value was $f_1$. After 1$^{st}$ iteration, the function value for the new point is $f_2$. It is found that is greater than $f_1$.
   i. The new point should be accepted readily
   ii. The new point should be rejected readily
   iii. Metropolis criterion is required to accept or reject the new point
   iv. Newton's criterion is required to accept or reject the new point

   No, the answer is incorrect.
The value of Boltzmann’s Constant K in Simulated Annealing is usually taken as:

i.  K = 0
ii.  K = 1
iii. K = 2
iv.  K is function of Temperature T

No, the answer is incorrect.
Score: 0
Accepted Answers:

iii.

4)
Three main strategies in the Tabu Search technique are:

i.  Forbidding strategy, Freeing strategy, and Short-term strategy
ii.  Forbidding strategy, Freeing strategy, and Aspiration level strategy
iii. Freeing strategy, Short-term strategy and Aspiration level strategy
iv.  None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:

iv.

5)
A set of activities are to be sequenced so as to maximize total utility of the activities. Starting from an initial sequence, the activities are being swapped repeatedly to arrive at the best possible solution with the help of Tabu search. Some swaps are kept in the Tabu from time to time. This is done to ensure that:

i.  Neighbourhood search is possible
ii.  Sequential search is possible
iii. Problem size is manageable
iv.  Reversal to previous solution and being trapped in local optimum is prevented

No, the answer is incorrect.
Score: 0
Accepted Answers:

iv.
6) A set of activities are to be sequenced so as to maximize total utility of the activities. Starting from an initial sequence, the activities are being swapped repeatedly to arrive at the best possible solution with the help of Tabu search. Some swaps are kept in the Tabu list from time to time. Now:

   i. The Tabu list is permanent
   ii. The Tabu list is temporary and only for the next iteration
   iii. The moves in Tabu list usually have a Tabu tenure of a number of iterations
   iv. The Tabu list keeps changing within a given iteration

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   iii.

7) In Particle Swarm Optimization, each particle accelerates towards:

   i. Best position found by it so far (pbest)
   ii. Global best position found so far (gbest)
   iii. Either pbest or gbest
   iv. Both pbest and gbest

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   iv.

8) In Particle Swarm Optimization, a number of particles are considered. These particles are

   i. Initially dispersed, with every iteration they converge
   ii. Initially converged, with every iteration they disperse further
   iii. Initially dispersed, with every iteration they disperse further
   iv. Initially converged, with every iteration they remain converged

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   i.
In Particle Swarm Optimization, which of the following is a control parameter?

i. Position of the particle
ii. Velocity of the particle
iii. Maximum number of iteration
iv. Acceleration coefficient (C1 & C2)

No, the answer is incorrect.
Score: 0
Accepted Answers: iv.
10)

A set of Pareto optimal solution are generated in a multi-objective optimization problem because of:

i. Similar nature of objective functions
ii. Conflicting nature of objective functions
iii. Nature of objective functions not important
iv. None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers: ii.
11)

Six Project Options are considered for completing a project in minimum possible time a minimum possible cost. Find the non-dominated solutions from the list given below:

<table>
<thead>
<tr>
<th>Project Options</th>
<th>Time</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90</td>
<td>60</td>
</tr>
<tr>
<td>B</td>
<td>87</td>
<td>60</td>
</tr>
<tr>
<td>C</td>
<td>85</td>
<td>70</td>
</tr>
<tr>
<td>D</td>
<td>78</td>
<td>75</td>
</tr>
<tr>
<td>E</td>
<td>78</td>
<td>80</td>
</tr>
<tr>
<td>F</td>
<td>72</td>
<td>86</td>
</tr>
</tbody>
</table>

i. A, B, C, F
ii. A, C, E, F
iii. B, C, E, F
iv. B, C, D, F

No, the answer is incorrect.
Score: 0
Accepted Answers: i.
12) Consider Question 11. Which of the following is true?
   
   i. A dominates B and E dominates D
   ii. B dominates A and D dominates E
   iii. A dominates B and D dominates E
   iv. B dominates A and E dominates D

   No, the answer is incorrect.
   Score: 0
   Accepted Answers: iv.

13) The process of preserving some parent solutions for next generation is called

   i. Diversity preserving mechanism
   ii. Elitism principle
   iii. Crowding comparison
   iv. None of the above

   No, the answer is incorrect.
   Score: 0
   Accepted Answers: ii.

14) In NSGA-II, demarcation of same rank solutions is done with the consideration of:

   i. Higher crowding distance
   ii. Lower crowding distance
   iii. Medium crowding distance
   iv. Elitism principle

   No, the answer is incorrect.
15) In NSGA-II, crowding distance of the extreme solutions will be:

- i. 0
- ii. 1
- iii. Infinity
- iv. Cannot be predicted

No, the answer is incorrect.
Score: 0
Accepted Answers:
ii.