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NPTEL

Unit 8 - Week 7

Week 7 Assignment 7

The due date for submitting this assignment has passed. **Due on 2018-09-26, 23:59 IST.**
As per our records you have not submitted this assignment.

1) *1 point*

Which of the following is not true for Metaheuristics?

i. Metaheuristics are nature-inspired
ii. Metaheuristics are iterative
iii. Metaheuristics only offer near-optimal solutions
iv. Metaheuristics are calculus-based

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
iv.

2) *1 point*

Which of the following statement is false?

i. Genetic Algorithms are Evolutionary Algorithms
ii. Dynamic Programming in an Enermerative Technique
iii. Simulated Annealing is a Guided Random Search Technique
iv. Tabu Search is a Calculus-Based Technique

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:

Genetic Algorithms are intelligent search techniques. They search the solution space:

i. One point at a time
ii. Two points at a time
iii. From a population of points
iv. None of the above

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
iii.

4) ***1 point***

In Genetic Algorithm:

i. A Gene is a bit in a Chromosome and the value of a given Gene are Alleles
ii. An Allele is a bit in a Chromosome and the value of the bit is a Gene
iii. A Chromosome is a bit in a Gene and the value of a given Gene are Alleles
iv. A Chromosome is a bit in an Allele and the value of the bit is a Gene

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
i.

5) ***1 point***

Which encoding is most suitable for a combinatorial optimization problem such as Quad Assignment Problem?

i. Binary encoding
ii. Value encoding
iii. Real encoding
iv. Permutation encoding

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
iv.

6) ***1 point***

For Single point crossover with crossover point in the middle, what will be the Child Chromosomes for the following two Parent Chromosomes: 110111 and 100011

i. 110011 and 100111
ii. 111100 and 011110
iii. 110100 and 111011
iv. 100110 and 011111

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
i.

7) ***1 point***

For Two point crossover with crossover points after 2nd and 4th bit, what will be the Child Chromosomes for the following two Parent Chromosomes: 110111 and 100011

i. 111100 and 101101
ii. 110011 and 100111
iii. 110111 and 100011
iv. 111110 and 011100

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
ii.

8) ***1 point***

In Roulette wheel selection, the survival probability of a chromosome is proportional to t following:

i. Rank of the Chromosome
ii. A randomization function
iii. Fitness value of the Chromosome
iv. None of the above

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
iii.

9) ***1 point***

In Genetic Algorithm, Elitism as a selection scheme involves

i. Passing on some high fitness chromosomes directly to next generation
ii. Deleting some low fitness chromosomes from the current generation
iii. Selecting some high fitness chromosomes directly for crossover
iv. Assigning high survival probability to some high fitness chromosomes

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
i.

10) ***1 point***

In Genetic Algorithm, it is usual to have: crossover probability and mutation probability should be:

i. High crossover probability and high mutation probability
ii. Low crossover probability and high mutation probability
iii. Low crossover probability and low mutation probability
iv. High crossover probability and low mutation probability

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
iv.

11) ***1 point***

For solving Travelling Salesman Problem using Genetic Algorithm, it is usual to have:

i. Permutation encoding, Single point crossover, and order changing mutation
ii. Binary encoding, Single point crossover, and Bit inversion mutation
iii. Permutation encoding, Two point crossover, and Bit inversion mutation
iv. Binary encoding, Two point crossover, and order changing mutation

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
i.

12) ***1 point***

In a Travelling Salesman Problem, the available data include only the distances between cities. While solving the problem using Genetic Algorithm, the fitness function will be:

i. Minimization of the inverse of total distance travelled
ii. Maximization of the inverse of total distance travelled
iii. Maximization of the total distance travelled
iv. Minimization of the total distance travelled

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
ii.

13) ***1 point***

For 0-1 Knapsack Problem being solved by Genetic Algorithm, Following encoding is recommended:

i. Permutation encoding
ii. Binary encoding
iii. Real encoding
iv. Value encoding

- i.
- ii.
- iii.
- iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
ii.

14) ***1 point***

A Knapsack can carry total weight of 10 kg. 5 items are available in different numbers, weights, and values. We need to fill the knapsack with as many number of each item so a to maximize the value. Genetic Algorithm is being used. We may have:

i. Binary encoding and Single Point crossover
ii. Binary encoding and Two Point crossover
iii. Real encoding and Single Point crossover
iv. Real encoding and Two Point crossover

- i.

ii.

iii.

iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
iii.

15) ***1 point***

Input and output values are given. The task is to find a function that will give the best (closest desired) outputs for all inputs. While using Genetic Algorithm, we may go for:

i. Binary encoding and Single Point crossover
ii. Binary encoding and Two Point crossover
iii. Tree encoding and Tree crossover
iv. Real encoding and Single Point crossover

i.

ii.

iii.

iv.

No, the answer is incorrect.
Score: 0

Accepted Answers:
iii.

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