Unit 6 - Week 4

Week 4 Assignment 4

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

Due on 2020-02-26, 23:59 IST.

1) An optimization problem is stated as follows: 1 point

$$maximize\ f(x,y) = \frac{x^2}{2} + \frac{125}{y^2} \text{ where } x, y \in R^+$$

The above optimization problem comes under the category of

a. Unconstrained optimization problem.
b. Linear optimization problem.
c. Integer value optimization problem.
d. Real value optimization problem.

a.
b.
c.
d.

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

2) Which of the following(s) is/are the pre-requisite(s) when Genetic Algorithms are applied to solve problems? 1 point

(i) Encoding of solutions.
(ii) Well-understood search space.
(iii) Method of evaluating the suitability of the solutions.
(iv) Contain only one optimal solution.

a. i & ii only.
b. ii & iii only.
c. i & iii only.
d. iii & iv only.

a.
b.
c.
d.

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

3) Which of the following(s) is/are found in Genetic Algorithms? 1 point

i. Evolution.
ii. Selection.
iii. Reproduction.
iv. Mutation.

a. i & ii only.
b. i, ii & iii only.
c. ii, iii & iv only.
d. All of the above.

a.
b.
c.
d.

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

4) Which statement is true for "Binary encoding" techniques 1 point

a. Representing a sequence of elements.
b. Representing a gene in terms of values or symbols or string.
c. Representing a gene in terms of bits.
d. Representing in the form of a tree of objects.

a.
b.
c.
d.

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

5) Which GA operation is computationally most expensive? 1 point

a. Initial population creation.
b. Selection of sub-population for mating.
c. Reproduction to produce next generation.
d. Convergence testing.

a.
b.
c.
d.

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

6) Which of the following is true for Steady-state Genetic algorithms? 1 point

a. It is applicable when population size is large.
b. Needs smaller length chromosome.
c. Generation gap is small.
d. Evaluation operation is computationally expensive.

a.
b.
c.
d.

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

7) The purpose of the fitness evaluation operation is 1 point

a. To check whether all individual satisfies the constraints given in the problem.
b. To decide the termination point.
c. To select the best individuals.
d. To identify the individual with worst cost function.

a.
b.
c.
d.

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

8) Which one of the following is not necessarily be considered as GA parameters? 1 point

a. N, the population size.
b. ϵ, the obtainable accuracy.
c. μ_p, the mutation probability.
d. f, the average fitness score.

a.
b.
c.
d.

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

9) Which of the following optimization problem(s) can be better solved with Order GA? 1 point

a. 0-1 Knapsack problem.
b. Travelling salesman problem.
c. Job shop scheduling problem.
d. Optimal binary search tree construction problem.

a.
b.
c.
d.

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

10) Which selection strategy is called ordinal based selection? 1 point

a. Roulette Wheel selection.
b. Canonical selection.
c. Tournament selection.
d. Rank-based selection

a.
b.
c.
d.

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

11) Roulette wheel selection scheme is preferable when 1 point

a. Fitness values are uniformly distributed.
b. Fitness values are non-uniformly distributed.
c. Needs low selection pressure.
d. Needs high population diversity.

a.
b.
c.
d.

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

12) What GA encoding scheme suffers from Hamming cliff problem? 1 point

a. Binary coded GA.
b. Real coded GA.
c. Order GA.
d. Tree coded GA.

a.
b.
c.
d.

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

13) An inflection or saddle point is a point, that is 1 point

a. Minimum at that point
b. Maximum at that point
c. Either minimum or maximum
d. Neither minimum nor maximum

a.
b.
c.
d.

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

14) If a function is defined as $y = f(x)$, then it's dual problem can be defined as 1 point

a. $y^* = f(x)$
b. $y^* = e^{f(x)}$
c. $y^* = \frac{1}{f(x)}$
d. $y^* = \frac{1}{f(-x)}$

a.
b.
c.
d.

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

15) 0-1 Knapsack problem can be defined as 1 point

a. Minimum optimization problem
b. Maximum optimization problem
c. The 0-1 Knapsack problem is not an optimization problem
d. None of the above

a.
b.
c.
d.

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