Assignment 6

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

1) A solution space for a 2-objective optimization problem is shown in the following graph.

![Graph showing solution space for optimization problem]

All trade-off solutions lie in the front

- a. AB
- b. CD
- c. AB + AD
- d. BC + CD

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

2) Which of the following solution is non-Pareto based a posteriori technique?

- a. SOEA.
- b. MOGA.
- c. VEGA.
- d. Lexicographic ordering.

No, the answer is incorrect.
A three-objective optimizations are solved using a MOEA algorithm and a few objective vec are listed below. (Assume all objectives are to be minimized)

\[ [3, 5, 10], [5, 3, 10], [3, 10, 5], [10, 5, 3], [10, 3, 5]. \] Which of the following is true?

a. All are non-dominating solutions.
b. Solution\([3, 5, 10]\) dominates all other solution.
c. Solution\([10, 5, 3]\) dominated by the solution\([3, 5, 10]\).
d. Solution\([3, 10, 5]\) dominates solution\([5, 3, 10]\).

No, the answer is incorrect. Score: 0

Accepted Answers:

Which of the following Pareto-based techniques to solve a MOOP follows ranking followed fitness averaging?

a. MOGA.
b. NPGA.
c. NSGA.
d. VEGA.

No, the answer is incorrect. Score: 0

Accepted Answers:

Which of the following MOEA techniques follows Tournament selection strategy?

a. Lexicographic ordering.
b. MOGA.
c. NPGA.
d. NSGA.

No, the answer is incorrect. Score: 0

Accepted Answers:

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Niche counts of two solutions $x_1$ and $x_2$ are 10, 20. This means that

a. $x_1$ is surrounded by more neighbors than that of $x_2$.
b. $x_1$ is surrounded by less neighbors than that of $x_2$.
c. $x_1$ would be less desirable to provide population diversity.
d. $x_2$ would be more preferable to provide population diversity.

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

Which of the following statement is not correct?

a. A set of solutions is called trade-off solutions, which lie on the Pareto optimal front.
b. A solution is called a trade-off solution, if it is not dominated by any other solution in solution space.
c. A front is called Pareto-optimal front on which all optimal solutions lie.
d. A front containing a non-dominated set of solutions obtained over an exhaustive search space is called Pareto optimal front.

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

In the following, only one statement is correct. Select the correct statement.

a. Stochastic selection with remainder supports low selection pressure.
b. Crowding tournament selection scheme supports low population diversity.
c. There is no selection scheme in NPGA.
d. In MOGA, Rank based selection can be applied to select parent chromosome for mating pool creation.

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

a. MOGA uses the concept of ranking whereas NSGA uses the concept of niching to assign fitness values to parent chromosomes.
b. MOGA assigns different fitness values to all solutions with the same rank whereas NSGA assigns the same fitness value to all solutions belonging to the same front.
c. MOGA assigns the same fitness values to all solutions with the same rank whereas NSGA assigns different fitness value to all solutions belonging to the same front.
d. MOGA yields more accurate Pareto front than NSGA.

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

10) To create mating pool, NSGA follows

a. Stochastic remainder selection
   b. Crowding Tournament selection
   c. Roulette wheel selection
   d. Canonical Selection

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

11) A similarity between NPGA and NSGA is that

a. Both are based on the concept of ranking.
b. Both assign fitness values to the parent chromosomes prior to their selection into the mating pool.
c. Both calculates niched count to maintain population diversity.
d. Both are computationally very expensive.

No, the answer is incorrect.
Score: 0
Accepted Answers:
c
If $c_1$ and $c_2$ are two offspring chromosomes, then according to NPGA, $c_1$ will be preferable selected for mating pool if

a. if $c_1$’s niche count is higher than that of $c_2$.
b. if $c_1$’s niche count is equal to niche count of $c_2$.
c. if $c_1$’s niche count is lower than that of $c_2$.
d. None of the above

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

13) A priori high level information that is required in Lexicographicordering is

a. the scalar weights of each objective function.
b. the descending ordering of the rank of the importance of objective functions.
c. Independent of objective function
d. None of the above

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

14) A solution $x_i$ is said to dominate another solution $x_j$ if

a. $x_j$ is worse than $x_i$ and $x_i$ is strictly better than $x_j$.
b. $x_i$ is no worse than $x_j$ and $x_i$ is strictly better than $x_j$ in at least one objective.
c. $x_j$ is no worse than $x_i$ and $x_i$ is lesser than $x_j$ in at least one objective.
d. $x_j$ is worse than $x_i$ and $x_i$ is lesser than $x_j$ in at least one objective.

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

15)
VEGA follows which selection strategy to select sub-population?

- a. Rank-based selection
- b. Tournament selection
- c. Steady-state selection
- d. Roulette wheel selection

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

Which of the following technique suffers from *speciation* problem?

- a. MOEA
- b. VEGA
- c. NPGA
- d. NSGA

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

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