

Exam : Heuristic

Master ADEO 2

Duration 1h30

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First name:

Last name:

Question 1: What is the taboo list for?

- Remember the n worst solution
- Remember the n solution visited
- Retain the n best solutions
- Remember selected n neighbors

Question 2: Set too high a temperature in simulated annealing, the algorithm

- Starts with a random search behavior
- Converge towards a local optimum
- Never improve a solution
- Converge faster

Question 3: The particle swarm optimization algorithm is an algorithm adapted to the problem with

- mixed variables
- continuous variables
- linear variables
- discrete variable

Question 4: In the particle swarm optimization algorithm, a neighborhood composed of all the particles of the swarm

- Diverts the algorithm
- Promotes a slow convergence
- Promotes rapid convergence, even premature
- Promotes the aspiration of all the particles

Question 5: At each iteration of PSO, the particle is displaced according to three components; what are they and what is the impact of each on the convergence of the algorithm?

Question 6: what are the advantages and disadvantages of storing in the taboo list, the transformations rather than the solutions (one sentence for each)

Disadvantage:

Advantage:

Question 7: Explain the difference between exploration and exploitation strategies. Illustrate the subject with an example from one of the studied metaheuristics

Question 8: Can the simulated annealing algorithm apply to the continuous case? if so how, and if not why ?

Question 9: Why choose a heuristic method instead of a deterministic method ?

Question 10: What is the metropolis criterion?

Question 11: When is the Metropolis Criterion Requested in the Simulated Annealing Algorithm?

Question 12: In the taboo algorithm, what is the aspiration criterion, when is it used?

Question 13: propose a pseudo code of the simulated annealing algorithm (the main steps)

