(8,5

# CP - Quiz2

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**Instructions**

- Each question has one and only one correct answer. Circle the corresponding letter.
- Grading: correct answer (1 pt), incorrect answer (-0.5 pt), no answer (0 pt).

1. What is the key addition in optimization problems in CP?
   A. Adding more variables
   (B) An objective function to optimize
   C. Using only global constraints
   D. Removing constraints
2. What does the auxiliary variable $c$ represent in optimization?
   A. The sum of all constraints
   B. The domain of variables
   (C) The value of the objective function
   D. The number of variables
3. In the Branch-and-Bound algorithm, what is the purpose of the bestCost variable?
   A. It stores the number of constraints satisfied
   (B) It tracks the best objective value found so far
   C. It counts the number of explored solutions
   D. It defines the total number of variables
4. Which of the following is **not** an advantage of global constraints?
   (A) They guarantee polynomial-time solving for all problems
   B. They simplify modeling by capturing high-level properties
   C. They enhance domain pruning using advanced filtering techniques
   D. They promote reusability across problem domains
5. What does the `alldifferent` global constraint enforce?
   A. Variables have the same values

(B.) Variables take distinct values

C. Variables have a sum equal to a constant

D. Variables belong to the same domain

6. Which algorithm is commonly used to enforce arc-consistency for the `alldifferent` constraint?

A. Dijkstra's algorithm

B. Floyd-Warshall algorithm

(C) Hopcroft-Karp algorithm

D. Bellman-Ford algorithm

7. What is the primary trade-off of using partial propagators in CP?

A. They provide complete solutions at the cost of runtime

B. They increase complexity but decrease pruning

(C.) They prioritize efficiency over full domain pruning

D. They ignore some constraints to improve speed

8. Which of the following global constraints enforces resource capacity limits in scheduling problems?

A. `alldifferent`

B. `sum`

C. `cumulative`

(D). `regular`

9. What is the term for rewriting a global constraint into simpler constraints while maintaining arc-consistency?

(A) Decomposition

B. Consistency enforcement

C. Constraint reduction

D. Filtering

10. What does active research in global constraints focus on?

A. Simplifying all global constraints into binary constraints

B. Avoiding the use of filtering algorithms

(C). Developing efficient propagators for emerging constraints

D. Replacing constraint programming with linear programming