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SET-THEORETICAL PROPERTIES OF EXTREME COMBINATORIAL PROBLEMS

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Abstract. Concepts of constructive combinatorial problem and, in particular, of extreme combinatorial problem (ECP) are defined. It is announced a sequential principle of construction of the constructive combinatorial problems' solution. This principle leads to necessity to consider ECP as system of independence with weighted elements. Auxiliary sets, which are connected to the solution of optimization problem, are defined. Concept of a normal form of the ECP is introduced. It is established that representation of a problem in normal form in some cases permits essentially to simplify an initial problem. It is introduced concepts of dual and self-dual problems. Two classes of combinatorial optimization problems, which are discerned by method of search of the admissible solution, are considered. Concept of the canonical form the ECP is introduced. It is shown that the problem in canonical form – new problem which is equivalent to initial, i.e. all optimum solutions of a problem in canonical form are the optimum solutions of an initial problem as well. The fulfilled researches in some cases simplify the search of the optimization problem solution.

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