

论文

一个Bottleneck问题及其算法

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摘要:

在文[1]中,提出了下面的数学模型:模型II.求 $X=(x_1, x_2, \dots, x_n)$ 满足下列约束条件 $\sum_{j=1}^n x_j = m$ ($m \geq n$ 且为整数), $x_j \geq 1$ 且为整数, $j=1, 2, \dots, n$,

关键词:

A BOTTLENECK PROBLEM AND ITS ALGORITHM

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Abstract:

In this paper we discuss the following mathematical model I: Find an $X=(x_1, x_2, \dots, x_n)$ satisfying the constraint $\sum_{j=1}^n x_j = m$ ($m \geq n$ integer) $x_j \geq 1$ integer, $j=1, 2, \dots, n$ such that the objective function $y = \min_{1 \leq j \leq n} \{C_j x_j\}$ achieves the maximum, where C_j ($j=1, 2, \dots, n$) are positive constants. Without loss of generality, we may assume that $c_1 \leq c_2 \leq \dots \leq c_n$. The main result is: Theorem 1. For the model I there exists necessarily an optimal solution $X=(x_1, x_2, \dots, x_n)$ satisfying the following condition $c_k(x_{k-1}) \leq \min_{1 \leq j \leq n} \{C_j x_j\}$ $k=1, 2, \dots, n$. (1) Moreover, every feasible solution satisfying condition (1) is necessarily an optimal solution. A procedure of the quasi-polynomial algorithm is established for finding an optimal solution to the model I.

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