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APPLICATION ARTICLE



## Bottleneck capacitated transportation problem with bounds on rim conditions

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**Abstract** This paper develops a technique for minimizing time in a capacitated transportation problem with bounds on rim conditions. An algorithm in which a related transportation problem is formed minimizes the total time necessary for transporting goods from the suppliers to the consumers in a special class of capacitated transportation problems with bounds on total availabilities at sources and total destination requirements. The procedure involves finite iterations and is based on movement from one extreme point to another extreme point till we get an optimal solution that is with minimum time and further reduction in amount in the pipeline is not possible. A numerical example illustrating the algorithm is also included.

**Keywords** Bottleneck transportation problem · Capacitated transportation problem · Related transportation problem · Optimality condition

### 1 Introduction

The time minimizing or bottleneck transportation problem is a special case of transportation problem in which the objective is to minimize the maximum time of transporting all the supplies to the destinations under certain conditions. Many researchers such as P.L. Hammer [1–3], Garfinkel and Rao [4], Szwarc [2], Bhatia et al. [5–7], Sharma and Swarup [6], Xie et al. [8], Jain et al. [9] developed various

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