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*Cybernetics and Systems Analysis, Vol. 58, No*. *6, November, 2022*

**PROBLEM OF GROUPAGE CARGO**

**ROUTING IN THE MULTICOMMODITY TRANSPORT**

**NETWORK WITH GIVEN TARIFFS**

**AND DELIVERY TIME CONSTRAINTS**

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UDC 519.168; 519.854.3

**Abstract.** *The paper considers the network problem of optimizing the routing of groupage cargo*

*flows in the transportation network with given tariffs for the transportation and handling of flows and constraints on the capacities of arcs, nodes, and the time of delivery of individual goods to a receiver. To compute the delivery time, the authors have proposed the method for generating a reference matrix of the union of flows of individual cargoes and efficient algorithms that allow determining the nodes of union and united flows for all corresponding pairs in a multicommodity network. It is proved that one can transform a network problem with tariffs into an integer linear programming problem with block structure and binding constraints in polynomial time. The peculiarities of solving the transformed problem using well-known methods of integer programming and software packages are presented.*

**Keywords:** *mathematical models of flow distribution and routing in multicommodity networks,*

*optimization problems with discrete flows and parameters.*