

# **Solution of stochastic transportation problem involving multi-choice random parameter using Newton's divided difference interpolation**

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## **Abstract-**

**This paper presents the methodology of finding out the optimal solution of random multi-choice transportation problems. The problem states that the parameters supply and demand are multi-choice in which alternative choices are considered as the independent random variable, which follows the normal distribution with mean ( $\mu$ ) and variance ( $\sigma^2$ ). The decision variable and cost coefficients are assumed to be deterministic. For the optimal choice of a multi-choice parameter, Newton's Divided Difference Interpolating polynomial used, and the probabilistic constraints with their significance level transformed into deterministic form by applying chance-constrained techniques. To better understand the methodology, an illustration is presented.**

**Index Terms- Multi-choice random programming; Newton's Divided Difference Interpolation; Normal Distribution; Stochastic Programming; Transportation Problem**

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