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**Noura Yassine\*** (noura.yassein@bau.edu.lb), P.O.Box 11 - 50 - 20 Riad El Solh, Beirut, 1107 2809, Lebanon. *An Economic Order Quantity Model for Bundled Items with Imperfect Quality Components and Probabilistic Lead Times.*

A mathematical model is developed for an inventory situation that considers a bundled item consisting of  $N$  components each of which is obtained from a supplier. Each lot of components of type  $j$ ,  $1 \leq j \leq N$ , received is assumed to contain a percentage  $\gamma_j$  of perfect quality components, a random variable having a known probability distribution. The lead times,  $L_j$ ,  $1 \leq j \leq N$ , between placing the  $N$  orders and receiving them are also assumed to be random variables with known probability distributions. Using the mathematical model, an expression for the optimal solution is derived by maximizing the total profit function. Both the mathematical model and the optimal solution are shown to depend on the minimum of the random variables  $\gamma_1, \gamma_2, \dots, \gamma_N$  and the maximum of the random variables  $L_1, L_2, \dots, L_N$ . The minimum of the percentages of the quality of the components and the maximum of the lead times are investigated using various probability density functions identified by the extent literature in the area. (Received September 25, 2018)