In survey sampling, ratio-type and exponential-type estimators play a curial contribution in improving the efficiency of population mean estimation by focusing on auxiliary information. Ratio-type estimators are commonly used when the relationship between the study variable and auxiliary variable is positive, while exponential type estimators offer additional robustness, particularly when the linear relationship is weak. Over the years, researchers have proposed various modifications to these estimators to improve their efficiency under different sampling schemes. By adapting the idea of Iqbal et al., (2024) in the current study, we proposed an exponential ratio type estimator for estimating the population mean, incorporating both auxiliary variables and auxiliary attributes under simple and stratified random sampling. The proposed estimator seeks to overcome the limitations of traditional methods by introducing a generalized framework that adapts to various sampling conditions. Mathematical expression of the bias, mean square error (MSE) and minimum mean square error (MMSE) of the proposed estimators are obtained. The theoretical results are encouraging by numerical illustration. The results are showing the superiority of the proposed estimators compared to the existing estimators in term of MSE and percentage relative efficiency (PRE). This further confirming their improved performance in both simple and stratified random sampling settings compared to other commonly used estimators, emphasizing their efficiency in practical applications.