Total Irregular Labeling of Butterfly Network on Level Two

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Abstract. Previous results related to the concepts of the total irregular labeling of a graph indicate that the butterfly network was one of some graphs which have not been specified in term of the total irregularity strengths. This paper aimed to determine the total vertex irregularity strength, the total edge irregularity strength, and the total irregularity strength of butterfly network on level 2. The assessment of three parameters of butterfly network was conducted by determining the lower bound and the upper bound. The lower bound was analyzed based on the characteristics of the graph and other proponents theorems, while upper bound was analyzed by constructing a function. In this paper we determine that the total vertex irregularity strength, the total edge irregularity strength, and the total irregularity strength of butterfly network are 4, 6, and 6, respectively.