An edge irregular total $k$-labelling $\alpha$ of a graph $G = (V, E)$ with a non-empty set $V$ of vertices and a set $E$ of edges is an assignment of positive integer labels $\{1, 2, \ldots, k\}$ to both vertices and edges so that the weights calculated at each edge are distinct. Here, the weight of an edge $e = uv; u, v \in V$ is $wt(e) = \alpha(e) + \alpha(u) + \alpha(v)$, i.e. sum of labels of vertices $u, v$ and the edge $e$.

In this paper, we study an edge irregular total $k$-labelling of an expan graph of a path with a bipartite graph and determine the total edge irregularity strength, denoted by $tes(G)$.

**Keywords:** irregular total labelling, total edge irregularity strength, expan graph.

**AMS Subject Classification:** 05C69, 05C05.

### References


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1Research supported by Lembaga Pengelola Dana Pendidikan LPDP