Abstract

Let $\mathbb{N}_0$ be the set of all non-negative integers and $\mathcal{P}(\mathbb{N}_0)$ be its power set. An integer additive set-indexer (IASI) of a graph $G$ is an injective function $f : V(G) \to \mathcal{P}(\mathbb{N}_0)$ such that the induced function $f^+ : E(G) \to \mathcal{P}(\mathbb{N}_0)$ defined by $f^+(uv) = f(u) + f(v)$ is also injective, where $f(u) + f(v)$ is the sum set of $f(u)$ and $f(v)$. An integer additive set-indexer $f$ is said to be a weak integer additive set-indexer (weak IASI) if $|f^+(uv)| = \max(|f(u)|, |f(v)|) \quad \forall \ uv \in E(G)$. The minimum number of singleton set-labeled edges required for the graph $G$ to admit a weak IASI is called the sparing number of the graph. In this paper, we discuss the admissibility of weak IASI by a particular type of graph product called the edge corona of two given graphs and determine the sparing number of the edge corona of certain graphs.

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Index Terms

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