Abstract

Let $N_0$ be the set of all non-negative integers, let $X \subseteq N_0$ and $P(X)$ be the power set of $X$. An integer additive set-labeling (IASL) of a graph $G$ is an injective function $f : V(G) \rightarrow P(N_0)$ such that the induced function $f^+ : E(G) \rightarrow P(N_0)$ is defined by $f^+(uv) = f(u) + f(v)$, where $f(u) + f(v)$ is the sum set of $f(u)$ and $f(v)$. An IASL $f$ is said to be an integer additive set-indexer (IASI) of a graph $G$ if the induced edge function $f^+$ is also injective. An integer additive set-labeling $f$ is said to be a weak integer additive set-labeling (WIASL) if $|f^+(uv)| = \max(|f(u)|, |f(v)|)$ for all $uv \in E(G)$. The minimum cardinality of the ground set $X$ required for a given graph $G$ to admit an IASL is called the set-labeling number of the graph. In this paper, the notion of the weak set-labeling number of a graph $G$ is introduced as the minimum cardinality of $X$ so that $G$ admits a WIASL with respect to the ground set $X$ and the weak set-labeling numbers of certain graphs are discussed.

References

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\cite{pxc3901772.bib}

**Index Terms**

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**Keywords**
Integer additive set-labeled graphs; weak integer additive set-labeled graphs; weak set-labeling number of a graph.