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Switched signed graphs of integer additive set-valued signed graphs

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Let X denote a set of non-negative integers and $\mathscr{P}(X)$ be its power set. An integer additive set-labeling (IASL) of a graph G is an injective set-valued function $f : V(G) \to \mathscr{P}(X) - \{\emptyset\}$ such that the induced function $f^+ : E(G) \to \mathscr{P}(X) - \{\emptyset\}$ is defined by $f^+(uv) = f(u) + f(v)$; $\forall uv \in E(G)$, where $f(u) + f(v)$ is the sumset of $f(u)$ and $f(v)$. An IASL of a signed graph S is an IASL of its underlying graph G together with the signature σ defined by $\sigma(uv) = (-1)^{|f^+(uv)|}$; $\forall uv \in E(S)$. A marking of a signed graph is an injective map $\mu : V(S) \to \{+, -\}$, defined by $\mu(v) = (-1)^{|f(v)|}$ for all $v \in V(S)$. Switching of signed graph is the process of changing the sign of the edges in S whose end vertices have different signs. In this paper, we discuss certain characteristics of the switched signed graphs of certain types of integer additive set-labeled signed graphs.

Keywords: Signed graphs; balanced signed graphs; switched signed graphs; integer additive set-labeled signed graphs.

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1. Introduction

For all terms and definitions, not defined specifically in this paper, we refer to [4, 8, 17] and for the terminology and results in the theory of signed graphs, see