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ARTICLES

A study on prime arithmetic integer additive set-indexers of graphs

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ABSTRACT:

Let N_0 be the set of all non-negative integers and $P(N_0)$ be its power set. An integer additive set-indexer (IASI) is defined as an injective function $f : V(G) \to P(N_0)$ such that the induced function $f^+ : E(G) \to P(N_0)$ defined by $f^+(uv) = f(u)+f(v)$ is also injective, where N_0 is the set of all non-negative integers. A graph G which admits an IASI is called an IASI graph. An IASI of a graph G is said to be an arithmetic IASI if the elements of the set-labels of all vertices and edges of G are in arithmetic progressions. In this paper, we discuss about a particular type of arithmetic IASI called prime arithmetic IASI.

Key words: Integer additive set-indexers; arithmetic integer additive set-indexers; prime arithmetic integer additive set-indexers

1. INTRODUCTION

For all terms and definitions, not defined in this paper, we refer to [12] and for more about graph labeling, we refer to [8] . Unless mentioned otherwise, all graphs considered here are simple, finite and have no isolated vertices.

Let N_0 denote the set of all non-negative integers. For all $A, B \subseteq N_0$, the sum set of these sets, denoted by A + B, is defined by $A + B = \{a + b: a \in A, b \in B\}$. If either A or B is infinite, then A + B is also infinite. Hence, all sets mentioned in this paper are finite sets of non-negative integers. We denote the cardinality of a set A by |A|.

An integer additive set-indexer (IASI, in short) is defined in [9] as an injective function $f : V(G) \to P(N_0)$ such that