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EDGE VERTEX PRIME LABELING FOR SOME GRAPHS

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Abstract: In this paper, edge vertex prime labeling for helm graph and for even n, planter graph R_n are investigated. Further, a necessary condition for a graph to be an edge vertex prime graph is investigated.

Keywords and Phrases: Edge vertex prime labeling, helm graph, planter graph, prime labeling.

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1. Introduction

In this paper, all graphs are considered simple, undirected and finite. We follow Gross and Yeelen [4] for various graphs and graph theoretical notation and Burton [2] for number theoretical results.

An edge vertex prime labeling is a variation of prime labeling. *Prime labeling* is a bijection $f : V(G) \longrightarrow \{1, 2, ..., n\}$ such that for each edge $e = uv$, $\gcd(f(u), f(v)) = 1$ and corresponding graph is a *prime graph*. Roger Entringer introduced the notion of prime labeling and in 1982, Tout and et. al discussed it in their paper [10]. Lots of works done on prime labeling till today, which have given in dynamic survey on graph labeling by Galian [3].

Edge vertex prime labeling is a bijection $f : V(G) \cup E(G) \to \{1, 2, \ldots, |V(G) \cup E(G)|\}$ such that for any edge $e = uv$; $f(u), f(v)$ and $f(uv)$ are pairwise relatively prime and corresponding graph is an *edge vertex prime graph*. Edge vertex prime labeling was introduced by R. Jagadesh and J. Bhaskar Babujee [5] in 2017. They proved that paths, cycles and star-$K_{1,n}$ admit an edge vertex prime labeling. Y.