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Some Results on Prime Cordial Labeling of Lilly Graphs

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Abstract.
A PCL of G is a bijective map g from V to $\{1, 2, 3, ...|V|\}$ in such a way that if an edge st is given label 1 if $GCD(g(s), g(t)) = 1$ & 0 otherwise, then the edges given 0 & 1 differ by at most 1 i.e; $|e_g(0) - e_g(1)| \leq 1$. If a graph permits a PCL, then it is called a PCG. In this paper, we prove that lilly graph admits a PCL. Further, we have shown that lilly graph under some graph operations like switching of a vertex, duplication of a vertex, degree splitting graph and barycentric subdivision admits a PCL which may find its application in the development of artificial intelligence.

Keywords: Prime Cordial Labeling, Lilly Graph, Vertex Switching, Barycentric Subdivision, Degree Splitting Graph.

1. Introduction

Graph labeling is a widely used and fastest growing area in the field of mathematics and computer science. Now a days, when data security is a major area of concern, various researchers and scientist are working to develop the techniques and softwares that can resolve the issues. Graph labeling is used in many areas of science and technology. A lot of graph labeling techniques are discussed in [4], we enlist a few of them which are finding their use in different aspects of artificial intelligence [6].

1. Radio labeling is finding its application in fast communication in sensor networks.
2.The designing of fault tolerance system with particularized degree, facility graph is used.
3. The concept of chromatic number is widely used in solving many complex problems in computer which is also a type of graph labeling.
4. Mobile Adhoc Networks (MANETS) problems can also be resolved by using graph labeling.
5. Automatic routing with graph labeling is done when each network usually path, cycle, circuit, walk and connected graph repesent a fixed network and labeling is done with a constant which helps routing to involuntary detect the next node in the network.
6. Behavior trees are used in robotics.

For number theory concepts, refer to [2] and for terms and terminology related to graph theory that have not been defined here, we refer to Hararay [5]. For detail survey on various

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