

CORDIAL LABELLING OF BLOOM GRAPHS WITH DIFFERENT REGULAR POLYGON PETALS

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Cordial Labelling (CL) represents a concept related to graceful and harmonious labelling in graph theory where the number of vertices/edges labelled with each label differs by, at most, one from the number of vertices/edges labelled with any other label. Two notable types of CL are Mean Cordial Labelling (MCL) and Product Cordial Labelling (PCL). A graph that admits MCL and PCL is called a Mean cordial graph and a Product cordial graph, respectively. This study investigated the MCL and PCL of Bloom Graphs with different shapes of regular polygon petals by dividing graphs into four sets based on the parity of the number of petals (n) as well as the number of vertices in a petal (m) and generating common cordial labelling patterns for bloom graphs. It was found that while the general principles of two cordial labelling are applicable to most Bloom Graphs, an exception arises when n is odd, and m is even. Future research will explore the relationship between MCL and PCL in greater depth and extend these findings to other graph classes to enhance our understanding of cordial labelling and its applications.

Keywords: Bloom graphs, Cordial labelling, Mean cordial labelling, Product cordial labelling