Group Distance Magic Labeling of C_n^r

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Abstract

Let $G = (V, E)$ be a graph and Γ be an abelian group both of order n. For $D \subset \{0, 1, \ldots, diam(G)\}$, the *D-distance neighbourhood* of a vertex v in G is defined to be the set $N_D(v) = \{x \in V \mid d(x, v) \in D\}$. A bijection $f : V \to \Gamma$ is called a (Γ, D)*-distance magic labeling* of G if there exists an $\alpha \in \Gamma$ such that $\sum_{x \in N_D(v)} f(x) = \alpha$ for every $v \in V$. In this paper we study (Γ, D)-distance magic labeling of the graph C_n^r for $D = \{d\}$. We obtain $(\Gamma, \{d\})$-distance magic labelings of C_n^r with respect to certain classes of abelian groups. We also obtain necessary conditions for existence of such labelings.

Keywords

Group distance magic labeling Circulant graphs

Notes

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