BI-RESOLVING GRAPH OF CYCLE-RELATED GRAPHS

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Abstract

Let $G(V, E)$ be a simple connected graph. For each $x \in V$, we associate a pair of vectors $S_x = (u, v)$ with respect to $S = \{s_1, s_2, \cdots, s_k\} \subseteq V$, where $u = (d(x, s_1), d(x, s_2), \cdots, d(x, s_k))$ and $v = (\delta(x, s_1), \delta(x, s_2), \cdots, \delta(x, s_k))$, where $d(x, s_i)$ and $\delta(x, s_i)$ respectively denote the lengths of a shortest and longest path between x and s_i. The set S is said to bi-resolving set G if every vertex of G has a distinct pair of vectors. The minimum cardinality of a bi-resolving set is called bi-metric dimension of G. A bi-resolving set S is connected if the subgraph $\langle S \rangle$ induced by S is a nontrivial connected subgraph of G. The connected bi-resolving number is the minimum cardinality of a connected bi-resolving set in a graph G, denoted by $cbr(G)$. A cbr-set of G is a connected bi-resolving set with cardinality $cbr(G)$. A connected graph H is a *bi-resolving graph* if there is a graph G with a cbr-set W such that $\langle W \rangle = H$. In this paper we show bi-metric dimension and bi-resolving graph of cycle-related graphs.

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