Abstract

Let $G = (V, E)$ be a simple, finite, undirected graph with $|V| = n$ and $|E| = m$. Kulli introduced the new graph valued function namely the semi-total block graph of a graph $G$. Let $B_1 = \{u_1, u_2, \ldots, u_r, r \geq 2\}$ be a block of $G$. Then we say that the point $u_1$ and block $B_1$ are incident with each other, as are $u_2$ and $B_1$, $u_3$ and $B_1$ and so on. If two distinct blocks $B_1$ and $B_2$ are incident with a common cut point then they are called adjacent blocks. Let $B = \{B_1, B_2, \ldots, B_p\}$ be the set of blocks of $G$. The semi-total block graph $T_b(G)$ of a graph $G$ is the graph whose point set is $V(G) \cup B(G)$ in which any two points are either adjacent or the corresponding members of $G$ are incident. The points and blocks of $G$ are members of $T_b(G)$. A non-empty set $D \subseteq V \cup B$ is a dominating set of $T_b(G)$ if every point in $(V \cup B) - D$ is adjacent to at least one point in $D$ (Muddebihal, M.H. et al 2004). The domination number of $T_b(G)$ is denoted by $\gamma[T_b(G)]$ and it is defined as the minimum cardinality taken over all the minimal dominating sets of $T_b(G)$. 
In this paper, we defined Inverse domination in semi-total block graphs. Let D be the minimum dominating set of Tb(G). If (V∪B)-D contains a dominating set D' then D' is called the Inverse dominating set of Tb(G). The Inverse domination number in semi-total block graph is denoted by $\gamma'[Tb(G)]$ and it is defined as the minimum cardinality taken over all the minimal Inverse dominating sets of Tb(G). In this paper, many bounds on $\gamma'[Tb(G)]$ are attained and its exact values for some standard graphs are found. Its relationships with other parameters are investigated. Nordhaus-Gaddum type results are also obtained for this parameter.

Reference


Index Terms

Computer Science Graph Theory

Key words

Domination number Inverse domination number
semi-total block graph

independence number