Abstract

Let G(V,E) simple connected graph, with |E| = ε. In this paper, we define an edge-set graph $G_{\mathcal{E}}$ constructed from the graph G such that any vertex $V_{s,i}$ of G corresponds to the i-th s-element subset of $E(G)$ and any two vertices $V_{s,i}$, $V_{k,m}$ of G.
are adjacent if and only if there is at least one edge in the edge-subset corresponding to $V_{s,i}$ which is adjacent to at least one edge in the edge-subset corresponding to $V_{k,m}$, where $s, k$ are positive integers. It can be noted that the edge-set graph $G$ of a graph $G$ is dependent on both the structure of $G$ as well as the number of edges $ε$. We also discuss the characteristics and properties of the edge-set graphs corresponding to certain standard graphs.

References

5. F. Harary, Graph Theory, Addison-Wesley, 1994.

Index Terms

Computer Science Applied Mathematics

Keywords
Edge-set graph, Total edge-degree of a graph, Edge-degree of vertex, Connected edge dominating set, Artificial edge-set element