Let $G(V,E)$ simple connected graph, with $|E| = \varepsilon$. In this paper, we define an edge-set graph $G_G$ constructed from the graph $G$ such that any vertex $V_{s,i}$ of $G_G$ corresponds to the $i$-th $s$-element subset of $E(G)$ and any two vertices $V_{s,i}$, $V_{k,m}$ of $G_G$
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 $e$. 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
A Study on Edge-Set Graphs of Certain Graphs

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