Abstract

The line graph, 1-quasitotal graph and 2-quasitotal graph are well-known. It is proved that if G is a graph consist of exactly m connected components $G_i$, 1 $\leq$ i $\leq$ m, then $L(G) = L(G_1) \oplus L(G_2) \oplus \ldots \oplus L(G_m)$ where $L(G)$ denotes the line graph of G, and $\oplus$ denotes the ring sum operation on graphs. The number of connected components in G is equal to the number of connected components in $L(G)$ and also if G is a cycle of length n, then $L(G)$ is also a cycle of length n. The concept of 1-quasitotal graph is introduced and obtained that $Q_1(G) = G \oplus L(G)$ where $Q_1(G)$ denotes 1-quasitotal graph of a given graph G. It is also proved that for a 2-quasitotal graph of G, the two conditions (i) $|E(G)| = 1$; and (ii) $Q_2(G)$ contains unique triangle are equivalent.

References

- Narsing Deo "Graph Theory with Applications to Engineering and Computer Science", Prentice Hall of India Pvt. Ltd, New Delhi (1997).

**Index Terms**

Computer Science
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Line graph  quasi total graph  connected component.