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 $L(G) = L(G_1) \bigcirc L(G_2) \bigcirc \ldots \bigcirc L(G_m)$ where $L(G)$ denotes the line graph of G, and $\bigcirc$ 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 $Q_1(G) = G \bigcirc L(G)$ 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.
Index Terms

Computer Science
 Applied Mathematics

Keywords
 Line graph  quasi total graph  connected component.