Abstract

Topological indices are used to study the various combinatorial properties of the graphs. The first general zegrab index (FGZI) of a graph is obtain by the sum of the βth power of the degrees of its vertices, where $\beta \in R - \{0, 1\}$. In this thesis, we discuss four sum operations S, R, Q, and T on a connected graph G and obtain new connected graphs S(G), R(G), Q(G)and T(G). Moreover, we construct D-sum graphs $G_{+_D}H$ with the concept of a product of graphs, where H is another graph and G_{+_D} is one of S(G), R(G), Q(G)and T(G). Mainly, we compute FGZI for D-sum graphs.