

Sharp Bounds for Generalized Zagreb Indices of Graphs

Dr. Sanju Vaidya, Mercy College, NY

In the last forty years, many scientists used Graph theory to develop mathematical models for analyzing structures and properties of various chemical compounds. In 1947 Harry Wiener introduced a topological index related to molecular branching. Now there are more than 100 topological indices for molecular graphs. In the paper, “Bounds for Topological Indices of Molecular Graphs”, which is published in *Congressus Numerantium* 2016, we found bounds for various topological indices such as First Zagreb Index, Estrada Index, and certain indices based on eccentricities of vertices. In this paper, I will establish formulas and bounds for generalized First Zagreb Index and Coindex, which are based on degrees of vertices. Additionally, I will establish sharp bounds of generalized First Zagreb Index for various types of graphs.

Key words: Molecular graphs, Topological indices, Zagreb index