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Sharp bounds on certain degree based topological indices for generalized Sierpiński graphs.

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Summary: Sierpiński graphs are broadly investigated graphs of fractal nature with applications in topology, computer science and mathematics of Tower of Hanoi. The generalized Sierpiński graphs are determined by reproduction of precisely the same graph, producing self-similar graph. Graph invariant referred to as topological index is used to predict physico-chemical properties, thermodynamic properties and biological activity of chemical. In QSAR/QSPR study, these graph invariants act a key role. In this article, we studied the first, second Zagreb and forgotten indices for generalized Sierpiński graph with arbitrary base graph G. Moreover, we obtained some sharp bounds with different parameters as order, size, maximum and minimum degree of G for these topological indices of generalized Sierpiński graph.

MSC:

05C09 Graphical indices (Wiener index, Zagreb index, Randić index, etc.)

Keywords:

generalized Sierpiński network; Zagreb indices; forgotten index; extremal graphs

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