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COMPUTATION OF b -CHROMATIC TOPOLOGICAL INDICES OF SOME GRAPHS AND ITS DERIVED GRAPHS

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Abstract: The two fastest-growing subfields of graph theory are graph coloring and topological indices. Graph coloring is assigning the colors/values to the edges/vertices or both. A proper coloring of the graph G is assigning colors/values to the vertices/edges or both so that no two adjacent vertices/edges share the same color/value. Recently, studies involving Chromatic Topological indices that dealt with different graph coloring were studied. In such studies, the vertex degrees get replaced with the colors, and the computation is carried out based on the topological index of our choice. We focus on b -Chromatic Zagreb indices and b -Chromatic irregularity indices in this work. This paper discusses the b -Chromatic Zagreb indices and b -Chromatic irregularity indices of the gear graph, star graph, and its derived graphs such as the line and middle graph.

Keywords and Phrases: b -coloring, b -Chromatic Zagreb indices, b -Chromatic irregularity index, b -Chromatic total irregularity index.

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