

BOUNDS ON RZ -INVARIANT OF GRAPHS

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(Received: Mar. 01, 2020 Accepted: April. 25, 2020 Published: Apr. 30, 2020)

Abstract: The RZ -invariant of a simple connected graph G is defined as the sum of the terms $(Deg(u) + Deg(v) - 2)^2$ over all edges uv of G , where $Deg(u)$ is the degree of a vertex u in G . In this paper, we obtain some new upper and lower bounds for the RZ -invariant in terms of other graph parameters.

Keywords and Phrases: Degree, Zagreb invariant, RZ -invariant.

2010 Mathematics Subject Classification: 05C12, 05C76.

1. Introduction

Topological index is a graph theoretical property that is preserved by isomorphism. The chemical information derived through *topological index* has been found useful in chemical documentation, isomer discrimination, structure property correlations. The interest in topological indices is mainly related to their use in non-empirical quantitative structure-property relationships and quantitative structural-activity relationships. The first and second Zagreb invariant of a graph were first introduced by Gutman in [4] which are the oldest and most used topological indices [3, 1] defined as $M_1(G) = \sum_{v \in E(G)} Deg(v)^2$ and $M_2(G) = \sum_{uv \in E(G)} Deg(u)Deg(v)$.

Analogues to Zagreb indices Milicević et al. [6] in 2004 reformulated the Zagreb invariant in terms of edge degrees instead of vertex degrees, where the degree of