South East Asian J. of Mathematics and Mathematical Sciences
Vol. 17, No. 2 (2021), pp. 241-250

ISSN (Online): 2582-0850

ISSN (Print): 0972-7752

WIENER TYPE INDICES OF CERTAIN CLASSES OF TREES

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(**Received:** *Apr. 01, 2020* **Accepted:** *Jul. 09, 2021* **Published:** *Aug. 30, 2021)*

Abstract: The most acclaimed distance based topological index, Wiener index was introduced by the chemist H. Wiener in 1947 [20]. It is defined as the sum of the lengths of the shortest paths between all pairs of vertices of a graph G. In this paper, we have computed the Wiener and Terminal Wiener indices of certain classes of trees known as Gutman trees and Kragujevac trees.

Keywords and Phrases: Topological Indices, Wiener Index, Gutman Trees, Broom Graph, Kragujevac trees.

2020 Mathematics Subject Classification: 05C05, 05C07, 05C012, 05C35.

1. Introduction

Throught this paper, we consider finite, connected, undirected graphs without loops and multiple edges. For all further notations and terminology, see [13].

Let $G = (V,E)$ be a graph with vertex set $V(G)$ and edge set $E(G)$. The distance between two vertices u and v denoted by $d_G(u,v)$ or $d(u,v)$ is the length of shortest path between the vertices u and v in G. The degree $d_G(v)$ or $d(v)$ of a vertex v is the number of vertices adjacent to v and $N_G(v)$ is the set of vertices adjacent to v.

Chemical graph theory is a branch of Mathematical Chemistry which has an important effect on the development of chemical sciences. A single number used to characterize some property of the graph of the underlying molecule is called a topological index of that graph. There are numerous molecular descriptors also