

DISTANCE BASED INDICES FOR COMPLEMENT OF
MYCIELSKIAN GRAPHS

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Abstract: In this paper, we establish an explicit formula to calculate the several graph indices based on distance for the complement of generalized Mycielskian of any graph G .

Keywords and Phrases: Graph index, distance, Mycielskian graph.

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1. Introduction and Preliminaries

For vertices $u, v \in V(G)$, the distance between u and v in G , denoted by $d_G(u, v)$, is the length of a shortest (u, v) -path in G and let $d_G(v)$ be the degree of a vertex $v \in V(G)$. The *diameter* of the graph G is $\max\{d_G(u, v) | u, v \in V(G)\}$. A *topological index* of a graph is a real number related to the graph; it does not depend on labeling or pictorial representation of a graph. There exist several types of such indices, especially those based on vertex and edge distances. One of the most intensively studied topological indices is the Wiener index.

Dobrynin and Kochetova [2] and Gutman [3] independently proposed a vertex-degree-weighted version of Wiener index called *degree distance*, which is defined for