

TRIAMETER OF GRAPHS

ANGSUMAN DAS

*Department of Mathematics
Presidency University, Kolkata, India*

e-mail: angsuman.maths@presiuniv.ac.in

Abstract

In this paper, we study a new distance parameter *triameter* of a connected graph G , which is defined as $\max\{d(u, v) + d(v, w) + d(u, w) : u, v, w \in V\}$ and is denoted by $tr(G)$. We find various upper and lower bounds on $tr(G)$ in terms of order, girth, domination parameters etc., and characterize the graphs attaining those bounds. In the process, we provide some lower bounds of (connected, total) domination numbers of a connected graph in terms of its triameter. The lower bound on total domination number was proved earlier by Henning and Yeo. We provide a shorter proof of that. Moreover, we prove Nordhaus-Gaddum type bounds on $tr(G)$ and find $tr(G)$ for some specific family of graphs.

Keywords: distance, radio k -coloring, Nordhaus-Gaddum bounds.

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