## ADV MATH SCI JOURNAL

Advances in Mathematics: Scientific Journal **9** (2020), no.6, 4231–4240 ISSN: 1857-8365 (printed); 1857-8438 (electronic) https://doi.org/10.37418/amsj.9.6.105 Spec. Issue on ICIGA-2020

## NON-SPLIT PERFECT TRIPLE CONNECTED DOMINATION NUMBER OF SEMI PRODUCT OF PATHS AND CYCLES

G. MAHADEVAN<sup>1</sup>, T. PONNUCHAMY, AND SELVAM AVADAYAPPAN

ABSTRACT. Recently the concept of non-split Perfect Triple connected domination number was introduced by G. Mahadevan et.al., and obtained many interesting results along with some product related graphs. A subset *S* of *V* of a non-trivial graph *G* is said to be non-split perfect triple connected dominating set, if *S* is a triple connected dominating set and  $\langle V-S \rangle$  is connected and has at least one perfect matching. The minimum cardinality taken over all non-split perfect triple connected dominating sets in *G* is called the non-split perfect triple connected domination number of *G* and is denoted by  $\gamma_{nsptc}(G)$ . In this paper, we investigate this parameter for various semi product of paths and cycles

## 1. INTRODUCTION

By a graph we mean a finite, simple, connected and undirected graph G(V,E), where V denotes its vertex set and E its edge set. Unless otherwise stated, the graph G has p vertices and q edges. We denote a path on *m* vertices by  $P_m$ . The concept of triple connected graphs was introduced by J. Paulraj Joseph et.al., A graph G is said to be triple connected if any three vertices lie on a path in G. A dominating set S is said to be triple connected dominating set, if the sub graph  $\langle S \rangle$  is triple connected. The minimum cardinality taken over all triple

<sup>&</sup>lt;sup>1</sup>corresponding author

<sup>2010</sup> Mathematics Subject Classification. 05C69.

*Key words and phrases.* Non-split perfect triple connected domination number, Cartesian product, Strong product, Semi Strong Product, Lexicographic product, Semi Lexicographic Product.