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COMPLEMENTARY TRIPLE CONNECTED SUBSTANTIAL INDEPENDENCE NUMBER FOR THE LEXICOGRAPHIC PRODUCT OF PATHS AND CYCLES

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Abstract: A Complementary triple connected substantial independent set is a non-empty subset S $\subset$ V of a graph G= (V, E) if S is a substantial independent set and the induced subgraph $< V-S >$ is triple connected. The Complementary triple connected substantial independence number is the maximum cardinality among all Complementary triple connected substantial independent sets and is indicated by β_{ctcs}. In this paper, we determine the value of Complementary Triple connected substantial independence number for the lexicographic product of paths and cycles.
Keywords and Phrases: Independence number, Substantial independent set, Complementary triple connected substantial independent set.

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1. Introduction and Preliminaries

A **substantial independent set** is a non-empty subset S $\subset$ V in a connected graph G if S is an independent set of G and any vertex in V/S is join by an edge to atmost one vertex in S. The **substantial independence number** of G is the supremum cardinality among all substantial independent sets in G and is indicated