

## A NOTE ON IDEAL BASED ZERO-DIVISOR GRAPH OF A COMMUTATIVE RING

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### Abstract

In this paper, we consider the ideal based zero divisor graph  $\Gamma_I(R)$  of a commutative ring  $R$ . We discuss some graph theoretical properties of  $\Gamma_I(R)$  in relation with zero divisor graph. We also relate certain parameters like vertex chromatic number, maximum degree and minimum degree for the graph  $\Gamma_I(R)$  with that of  $\Gamma(\frac{R}{I})$ . Further we determine a necessary and sufficient condition for the graph to be Eulerian and regular.

**Keywords:** zero-divisor graph, chromatic number, ideal based zero divisor graph, clique number.

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