ANNIHILATOR 3-UNIFORM HYPERGRAPHS OF RIGHT TERNARY NEAR-RINGS

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Abstract: The study of algebraic systems using graphs gives many interesting results. The ternary algebraic structures can be dealt with 3-uniform hypergraphs in which hyperedges are of size three. Right ternary near-ring, a generalization of near-ring in ternary context, was introduced by Daddi and Pawar in 2011. In this paper, annihilator 3-uniform hypergraph associated with the right ternary near-ring N denoted by $AH_3(N)$ is introduced. $AH_3(N)$ is seen to be empty when N is a constant RTNR and it is complete when N is a zero RTNR. If N is integral, then the nature of $AH_3(N)$ is studied. A necessary condition for $AH_3(N)$ to be complete is derived. Hypergraph invariants of $AH_3(\mathbb{Z}_n)$ are obtained. For certain RTNR, the existence of BIBD is verified.

Keywords and Phrases: 3-uniform hypergraph, Clique, Right ternary near-ring, Annihilator.