

## Structure of Cyclic Graph on Semigroup

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The cyclic graph  $\Gamma(S)$  of a semigroup  $S$  is a simple graph whose vertex set is  $S$  and two vertices  $a, b \in S$  are adjacent if and only if  $\langle a, b \rangle$  is a monogenic subsemigroup of  $S$ . In this paper, we obtain graph theoretical properties of  $\Gamma(S)$ . In this connection, we classify the semigroup  $S$  such that  $\Gamma(S)$  is complete, bipartite, tree, star graph respectively. Moreover, we give a formulae of independence number, bound of chromatic number and independence number of  $\Gamma(S)$ .

Keywords: semigroup, cyclic graph, bipartite, independence number, chromatic number.