

# List of Symbols

$\mathbb{N}$	set of natural numbers
$\mathbb{N}_0$	$\mathbb{N} \cup \{0\}$
$(a, b)$	g.c.d of $a$ and $b$
$B_n$	Brandt semigroup
$ X $	cardinality of a set $X$
$S$	semigroup
$E(S)$	$\{f \in S : f^2 = f\}$
$S_f$	$\{a \in S : a^n = f \text{ for some } n \in \mathbb{N}\}$
$\langle a \rangle$	monogenic semigroup generated by $a$
$m_a$	index of $a$
$r_a$	period of $a$
$o(a)$	order of an element of $a$
$\mathcal{K}_a$	$\{a^{m_a}, a^{m_a+1}, \dots, a^{m_a+r_a-1}\}$
$\pi(S)$	$\{o(a) : a \in S\}$
$\mathcal{M}$	$\{a \in S : \langle a \rangle \text{ is a maximal monogenic subsemigroup of } S\}$
$\overline{\mathcal{M}}$	$\{a \in S : \langle a \rangle \text{ is a maximal cyclic subgroup of } S\}$
$G$	group

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$S_n$	symmetric group
$\mathcal{G}$	graph
$\overline{\mathcal{G}}$	complement of a graph $\mathcal{G}$
$a \sim b$	$a$ and $b$ are adjacent
$a \not\sim b$	$a$ and $b$ are not adjacent
$V(\mathcal{G})$	vertex set of a graph $\mathcal{G}$
$E(\mathcal{G})$	edge set of a graph $\mathcal{G}$
$N(x)$	$\{y \in V(\mathcal{G}) : y \sim x\}$
$N[x]$	$N(x) \cup \{x\}$
$\alpha(\mathcal{G})$	independence number of $\mathcal{G}$
$\beta(\mathcal{G})$	vertex covering number of $\mathcal{G}$
$\alpha'(\mathcal{G})$	matching number of $\mathcal{G}$
$\beta'(\mathcal{G})$	edge covering number of $\mathcal{G}$
$\omega(\mathcal{G})$	clique number of a graph $\mathcal{G}$
$\delta(\mathcal{G})$	minimum degree of a graph $\mathcal{G}$
$\text{sdim}(\mathcal{G})$	strong metric dimension of a graph $\mathcal{G}$
$\chi(\mathcal{G})$	chromatic number of $\mathcal{G}$
$\mathcal{P}(S)$	power graph of $S$
$\mathcal{P}_e(S)$	enhanced power graph of $S$
$\Gamma(S)$	cyclic graph of $S$
$\Delta(S)$	commuting graph of $S$
$\kappa(\mathcal{G})$	vertex connectivity of $\mathcal{G}$
$\kappa'(\mathcal{G})$	edge connectivity of $\mathcal{G}$
$\text{sdim}(\mathcal{G})$	strong metric dimension of a graph $\mathcal{G}$