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LIST OF SYMBOLS

NB	:	Total number of nodes
LN1	:	Total number of branches (= NB-1)
jj	:	Branch number
IS(jj)	:	Sending-end node of branch jj
IR(jj)	:	Receiving-end node of branch jj
m2	:	Receiving-end node
m1	:	Sending-end node
I_(jj)	:	Current flowing through branch jj, jj = 1,2,...,LN1
r_(jj)	:	Resistance of branch jj, jj = 1,2,...,LN1
x_(jj)	:	Reactance of branch jj, jj = 1,2,...,LN1
V_(m2)	:	Voltage of node m2, m2 = 2,...,NB
LP_(jj)	:	Real power loss of branch jj, jj = 1,2,...,LN1
LQ_(jj)	:	Reactive power loss of branch jj, jj = 1,2,...,LN1
ip	:	Node count (identifies number of nodes beyond a branch)
IK(ip)	:	Node identifier(helps to identify the nodes beyond all the branches)
LL(ip)	:	Stores sending end node of ip
KK(ip)	:	Stores receiving end node of ip
N(jj)	:	Total number of nodes beyond branch jj
IB(jj, ip+1)	:	Sending end node
IE(jj, ip+1)	:	Receiving end node
I_(jj,k)	:	Current flowing through branch-jj with k type conductor, k=1,2,...,NTYPE
r_(jj,k)	:	Resistance of branch-jj with k type conductor, k=1,2,...,NTYPE
x_(jj,k)	:	Reactance of branch-jj with k type conductor, k=1,2,...,NTYPE
LP_(jj,k)	:	Real power loss of branch-jj with k type conductor, k=1,2,...,NTYPE
LQ_(jj,k)	:	Reactive power loss of branch-jj with k type conductor,

		$k=1,2,\dots,NTYPE$
$CL_{(ij,k)}$:	Annual cost for loss of branch-jj with k type conductor, $k=1,2,\dots,NTYPE$
K_p	:	Peak power loss constant (Rs./KW)
K_e	:	Annual cost of energy loss constant (Rs./KWh)
L_{sf}	:	Loss factor
$CC_{(ij,k)}$:	Annual cost on capital for branch-jj with k-type conductor
α	:	Interest and depreciation factor on capital cost of conductor
$Cost_{(k)}$:	Cost of k type conductor (Rs/km), $k=1,2,\dots,NTYPE$
$Len_{(ij)}$:	Length of branch-jj
$F_{(ij,k)}$:	Objective function of branch-jj with k type conductor(= $CL_{(ij,k)}+CC_{(ij,k)}$)
V_{min}	:	Minimum voltage limit
$I_{max,(k)}$:	Maximum current carrying capacity of k-type conductor
$V_{(1,k)}$:	Substation voltage (constant for all k, $k=1,2,\dots,NTYPE$)
$TYPE_{(ij)}$:	Optimal type of conductor for branch-jj
nt	:	Number of tie switches
$V_{(tse)}$:	Tie branch sending end node
$V_{(tre)}$:	Tie branch receiving end node
$V_{(sse)}$:	Sectionalizing branch sending end node
$V_{(sre)}$:	Sectionalizing branch receiving end node
S	:	Set of existing substation
\overline{S}	:	Set of load points to be connected
ES	:	Existing substation
$D_{i,j}$:	Distance between nodes i and j
$LKVA(i)$:	KVA of node i
$SLOAD(m)$:	Total KVA load of existing substation m
S_{maxi}	:	Maximum KVA load of substation i can handle

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