Glossary of Symbols

GENERAL MATHEMATICAL SYMBOLS

		Page
$\cup$	union	
$\cap$	intersection	
$\subseteq$	subset	
$\subset$	proper subset	
$\setminus$	set-theoretic difference	
Δ	symmetric difference	
$[x]$	greatest integer $\leq x$	
$\{x\}$	least integer $\geq x$	
$\|\|f\|\|$	support of f	215
$\mathbf{R} \mid S$	restriction of $\mathbf{R}$ to S	215
$\mathbf{R}'$	transpose of $\mathbf{R}$	

GRAPH-THEORETIC SYMBOLS

A	arc set	171
$\mathbf{A}$	adjacency matrix of a graph	7
$\mathbf{A}$	adjacency matrix of a digraph	173
$b(f)$	boundary of f	140
$\mathscr{B}$	bond space	213
$c(G)$	closure of G	56
cap K	capacity of cut K	194
$\mathscr{C}$	cycle space	212
$d_G(v)$	degree of vertex v in G	10
$d_G(f)$	degree of face f in G	140
$d_D^-(v)$	indegree of v in D	172
$d_D^+(v)$	outdegree of v in D	172
$d_G(u, v)$	distance between u and v in G	14
D	directed graph	171
$D(G)$	associated digraph of G	179
ext J	exterior of J	135
Ext J	closure of ext J	135
E	edge set	1
$f^-(S)$	flow into S	191
$f^+(S)$	flow out of S	191
F	face set	139
$F(B, \tilde{H})$	set of faces of $\tilde{H}$ in which B is drawable	164

		Page
G	graph	1
$G[S]$	subgraph of G induced by S	9
int J	interior of J	135
Int J	closure of int J	135
K_n	complete graph	4
$K_{m,n}$	complete bipartite graph	5
$\mathbf{M}$	incidence matrix of a graph	7
$\boldsymbol{M}$	incidence matrix of a digraph	214
N	network	191
$N_G(S)$	neighbour set of S in G	72
$N_D^-(v)$	in-neighbour set of v in D	175
$N_D^+(v)$	out-neighbour set of v in D	175
$r(k, l)$	Ramsey number	103
$r(k_1, k_2, \ldots, k_m)$	Ramsey number	108
r_n	$r(3, 3, \ldots, 3)$	108
val f	value of flow f	192
V	vertex set	1
$V(B, H)$	set of vertices of attachment of B to H	146
α	independence number	101
α'	edge independence number	102
β	covering number	101
β'	edge covering number	102
δ	minimum degree	10
δ^-	minimum indegree	172
δ^+	minimum outdegree	172
Δ	maximum degree	10
Δ^-	maximum indegree	172
Δ^+	maximum outdegree	172
ε	number of edges	3
κ	connectivity	42
κ'	edge connectivity	42
ν	number of vertices	3
o	number of odd components	76
π_k	chromatic polynomial	125
τ	number of spanning trees	32
ϕ	number of faces	139
χ	chromatic number	117
χ'	edge chromatic number	91
χ^*	face chromatic number	158
ω	number of components	13
$\bar{D}$	converse of D	173
$\hat{D}$	condensation of D	173

		Page
G^c	complement of G	6
G^*	dual of G	140
$\tilde{G}$	planar embedding of G	135
W^{-1}	reverse of walk W	12
$G \cdot e$	contraction of e	32
$G - e$	deletion of e	9
$G + e$	addition of e	9
$G - v$	deletion of v	9
$G + E'$	addition of E'	9
$G - S$	deletion of S	9
$G \cong H$	isomorphism	4
$H \subseteq G$	subgraph	8
$H \subset G$	proper subgraph	8
$G \cup H$	union	9
$G \cap H$	intersection	10
$G + H$	disjoint union	10
$G \times H$	product	96
$G \vee H$	join	58
$\bar{H}(G)$	complement of H in G	29
$[S, T]$	set of edges between S and T	29
(S, T)	set of arcs from S to T	176
WW'	concatenation of walks	12