Index of Notation

General symbols

$\mathbb{C}$	field of complex numbers
$\mathbb{F}_q$	finite field with q elements
Id_M	identity map on the set M
$\mathrm{Im}(f)$	image of the map f
$\ker(\varphi)$	kernel of the morphism φ
$\mathbb{N}$	the natural numbers without 0
$\mathbb{N}_0$	the natural numbers with 0
$\mathcal{O}$	discrete valuation ring
$\mathbb{P}$	the prime numbers in $\mathbb{Z}$
$\mathbb{Q}$	field of rational numbers
$\mathbb{Q}_p$	field of p-adic numbers
$\mathbb{R}$	field of real numbers
$\mathbb{Z}$	ring of integer numbers
$\mathbb{Z}_{\geqslant a}, \mathbb{Z}_{>a}, \mathbb{Z}_{\leqslant a}, \mathbb{Z}_{<a}$	$\{m \in \mathbb{Z} \mid m \geqslant a$ (resp. $m > a, m \geqslant a, m < a)\}$
$\mathbb{Z}_p$	ring of p-adic integers
$\lvert X \rvert$	cardinality of the set X
δ_{ij}	Kronecker's delta
$\bigcup$	union
$\coprod$	disjoint union
$\bigcap$	intersection
$\sum$	summation symbol
$\prod$, $\times$	cartesian/direct product
$\rtimes$	semi-direct product
$\oplus$	direct sum
$\otimes$	tensor product
$\varnothing$	empty set
$\forall$	for all
$\exists$	there exists
$\cong$	isomorphism
$a \mid b$, $a \nmid b$	a divides b, a does not divide b
(a, b)	gcd of a and b
$(F, \mathcal{O}, k)$	p-modular system
$f\lvert_S$	restriction of the map f to the subset S
$\hookrightarrow$	injective map
$\twoheadrightarrow$	surjective map

Group theory

$\mathrm{Aut}(G)$	automorphism group of the group G
$\mathfrak{A}_n$	alternating group on n letters
C_m	cyclic group of order m in multiplicative notation
$C_G(x)$	centraliser of the element x in G
$C_G(H)$	centraliser of the subgroup H in G
D_{2n}	dihedral group of order $2n$
$\delta : G \to G \times G$	diagonal map
$\mathrm{End}(A)$	endomorphism ring of the abelian group A
G/N	quotient group G modulo N
$\mathrm{GL}_n(K)$	general linear group over K
HgL	(H, L)-double coset
$[H\backslash G/L]$	set of (H, L)-double coset representatives
$H \leqslant G$, $H < G$	H is a subgroup of G, resp. a proper subgroup
$N \trianglelefteq G$	N is a normal subgroup G
$N_G(H)$	normaliser of H in G
$N \rtimes_\theta H$	semi-direct product of N in H w.r.t. θ
$\mathfrak{S}_n$	symmetric group on n letters
$\mathrm{SL}_n(K)$	special linear group over K
$\mathbb{Z}/m\mathbb{Z}$	cyclic group of order m in additive notation
${}^x g$	conjugate of g by x, i.e. gxg^{-1}
$\langle g \rangle \subseteq G$	subgroup of G generated by g
$\lvert G : H \rvert$	index of the subgroup H in G
$[G/H]$	set of left coset representatives of H
$\overline{x} \in G/N$	class of $x \in G$ in the quotient group G/N
$\{1\}$, 1	trivial group

Module theory

$\mathrm{Hom}_R(M, N)$	R-homomorphisms from M to N
$\mathrm{End}_R(M)$	R-endomorphism ring of the R-module M
$\mathrm{hd}(M)$	head of the module M
KG	group algebra of the group G over the commutative ring K
$\varepsilon : KG \longrightarrow K$	augmentation map
$I(KG)$	augmentation ideal
$\mathrm{Irr}(R)$	set of representatives of the isomorphism classes of simple R-modules
$J(R)$	Jacobson radical of the ring R
$M \mid N$	M is a direct summand of N
$M \otimes_R N$	tensor product of M and N balanced over R
M^G	G-fixed points of the module M
M_G	G-cofixed points of the module M
$M{\downarrow}^G_H$, $\mathrm{Res}^G_H(M)$	restriction of M from G to H
$M{\uparrow}^H_G$, $\mathrm{Ind}^G_H(M)$	induction of M from H to G
$\mathrm{Inf}^G_{G/N}(M)$	inflation of M from G/N to G
$R^\times$	units of the ring R
R°	regular left R-module on the ring R
$\mathrm{rad}(M)$	radical of the module M
$\mathrm{soc}(M)$	socle of the module M

$\langle X \rangle_R$	R-module generated by the set X
V^F	extension of scalars $F \otimes_{\mathcal{O}} V$
Z(R)	centre of the ring R

Character and block theory

b^G	Brauer correspondent of b
C	Cartan matrix of G
$\mathrm{Cl}_F(G)$, $\mathrm{Cl}_F(G_{p'})$	the class functions on G or $G_{p'}$
$\mathrm{Dec}_p(G)$	decomposition matrix
$G_{p'}$	p-regular elements of G
$\mathrm{Irr}_F(G)$	ordinary irreducible F-characters of G
$\mathrm{IBr}_p(G)$	irreducible p-Brauer characters of G
χ_{reg}	regular character
ρ_{reg}	regular representation
Φ_φ	projective indecomposable character associated to $\varphi \in \mathrm{IBr}(G)$

Category theory

$\mathrm{Ob}\,\mathcal{C}$	objects of the category $\mathcal{C}$
$\mathrm{Hom}_{\mathcal{C}}(A, B)$	morphisms from A to B
Set	the category of sets
$\mathbf{Vec}_k$	the category of vector spaces over the field k
Top	the category of topological spaces
Grp	the category of groups
Ab	the category of abelian groups
Rng	the category of rings
${}_R\mathbf{Mod}$	the category of left R-modules
$\mathbf{Mod}_R$	the category of left R-modules
${}_R\mathbf{Mod}_S$	the category of (R, S)-bimodules