LIST OF SYMBOLS

PART I

A	:	area of conductor
C	:	concentration of electrolyte
c	:	intercept of line on Y-axis
τ	:	cell constant
K	:	Specific conductivity
M	:	molarity
m	:	molality
m.f.	:	mole fraction
m_1	:	regression co-efficient of y on X
m_2	:	regression co-efficient of x on Y
N	:	normality
η	:	co-efficient of viscosity; dynes-sec-cm^{-2} or poise
r	:	correlation co-efficient
R_x	:	unknown resistance
u	:	Average ion velocity
V^+	:	velocity of positive ions
V^-	:	velocity of negative ions
W	:	molecular weight
$\bar{X}$	:	mean (average) value
$\bar{Y}$	:	mean (average) value
γ_m	:	co-efficient of cubical expansion of liquid
θ	:	temperature in °C
$d\theta$	:	temperature difference

PART II

A	:	Area of cross section; angle of orientation of the longer diagonal of the Knoop indentation mark measured from [100] direction.
A_o	:	Initial area of cross section
a	:	standard hardness (constant)
a_o	:	minimum value of A in the parabolic curve of H Vs. A
AR	:	axis of rotation
b	:	constant
C	:	constant; constant of Indenter geometry; intercept of the plot of $\sqrt{HA}$ Vs. A
C_1	:	constant
C_c	:	calculated value of intercept using formula $C = \frac{1}{2}\sqrt{h_o . a_o}$ for straight line plot of $\sqrt{HA}$ Vs. A
C_s	:	Statistically determined value of the intercept of the straight line plot of $\sqrt{HA}$ Vs. A
C_{Ar}	:	constant for different applied loads and orientations
CRSS	:	critical resolved shear stress
d	:	diagonal length of Knoop indentation mark
d_{Ar}	:	length of the longer diagonal of Knoop indentation mark corresponding to different applied loads P_r and orientation A
E	:	Young's modulus of elasticity
e,f	:	constant
ERSS	:	effective resolved shear stress
F	:	force; facet
F_T	:	tensile stress axis
F_c	:	compressive stress axis

$\bar{H}$	:	average hardness in high load region
HLR	:	high load region
h_o	:	minimum value of hardness in the parabola of H Vs. A
H	:	line parallel to indenter face
ILR	:	intermediate load region
K	:	constant
l	:	length after small compression
l_o	:	initial length
LLR	:	low load region
m	:	Slope of the plot of log $\bar{H}T_q$ Vs. log T_q; Slope of the plot of $\sqrt{\bar{H}A}$ Vs. A
m_1	:	Slope of the plot of log $T_q\sqrt{\bar{H}A}$ Vs. log T_q
m_A	:	Slope of the plot of log $T_q d$ Vs. log T_q
m_c	:	calculated value of slope by using formula $m = \frac{1}{2}\sqrt{h_o/a_o}$ for straight line plot of $\sqrt{\bar{H}A}$ Vs. A
m_s	:	statistically determined value of the slope of the straight line plot of $\sqrt{\bar{H}A}$ Vs. A
n	:	slope of the plot of log d Vs. log P
P	:	load in gm; constant
P_r	:	different applied loads
r	:	constant of indenter geometry
S.d.	:	slip direction
S.P.N.	:	slip plane normal
T_q, T_Q	:	quenching temperature °K
W	:	Newtonian resistance pressure
σ	:	compressive stress
θ	:	compressive strain

λ : angle between tensile stress axis (F_T) and slip direction (s.d.)

ϕ : angle between tensile stress axis (F_T) and slip plane normal (S.P.N.)

ψ : angle between an axis parallel to the indenter face (H) and the axis of rotation (AR)(normal to slip direction) of the slip system during deformation

$\surd$: angle between the axis H (normal to F and parallel to the indenter face) and the slip direction (s.d.)

PART III

A : pre-exponential factor

B : breadth of an etch-pit along $[1\bar{1}0]$

C : concentration of an etchant

C_a : acid concentration

C_P : concentration at which maxima, minima or kink occurs in various plots

D : diffusion rate; amount of reaction

E : Activation energy

E_t : Activation energy for tangential dissolution

E_s : Activation energy for surface dissolution

E_μ : Activation energy for viscosity of the material

E_σ : Activation energy for electrolytic conductivity of an etchant

E_{tL} : Activation energy for tangential dissolution along length direction [110]

E_{tB} : Activation energy for tangential dissolution along breadth direction $[1\bar{1}0]$

K	:	Boltzmann constant, constant
K_a	:	constant
L	:	length of an etch-pit along [110]
n	:	concentration of charge carriers
R	:	universal gas constant
S	:	carrier charge
T	:	temperature °K
V	:	rate of dissolution
V_t, V_L	:	lateral/tangential or ledge dissolution velocity parallel to surface
V_n	:	dissolution velocity normal to surface
V_s	:	rate of surface dissolution
V_{nd}	:	normal dissolution velocity at a dislocation
V_{ndf}	:	normal dissolution velocity of a dislocation-free portion of the surface
V_{tL}	:	rate of tangential dissolution along length direction [110]
V_{tB}	:	rate of tangential dissolution along breadth direction $[1\bar{1}0]$
V_{sP}	:	maximum surface dissolution rate
V_{tLP}	:	maximum tangential dissolution rate along length dirction [110]
V_{tBP}	:	maximum tangential dissolution rate along breadth direction $[1\bar{1}0]$
μ	:	co-efficient of viscosity of the solution
μ_s	:	carrier mobility
σ	:	electrolytic conductivity of etchant
σ_p	:	electrolytic conductivity at kink of the plot of σ Vs. C
δ	:	desorption rate
δ_w	:	desorption rate for weak reaction
δ_s	:	desorption rate for strong reaction.