NOTATIONS

A	Cross sectional area of member
a, b	Size of plate
$\mathbf{a}^n$	Displacement vector in n^{th} iteration
[B]	Strain – displacement relation matrix
C	Violation coefficient
c_x, c_y, c_z	Direction cosine of member w.r.t. X, Y and Z axis
[D]	Constitutive law matrix
{d}	Displacement vector
E	Young's modulus of elasticity
E_1, E_2, E_3	Modulus of elasticity in three directions
f	Natural frequency
G_{12}, G_{23}, G_{13}	Modulus of rigidity in three directions
h	Thickness of plate
[I]	Unit matrix
I	Moment of inertia of a member
|J|	Determinant of Jacobian matrix
[K], [k], **K**	Stiffness matrix
$\mathbf{K}_T^n$	Tangential stiffness matrix in n^{th} iteration
K_x, K_y, K_{xy}	Curvatures
L	Length of member
[M]	Mass matrix
M_x, M_y, M_{xy}	Moment about x and y axis and torsional moment
[N]	Shape functions
{Q}, {q}	Load vector
Qx, Qy	Shear forces
Q_0	Uniformly distributed transverse load
[R]	Rotation transformation matrix
R	Radius
S	Surface force
[T]	Transformation matrix

T	Time period
T_x, T_y, T_{xy}	Membrane forces
u, v, w	Displacements in x. y and z direction respectively
u_a	Allowable displacement
u_j	Displacement of a joint
W_a and W_b	Weight at Gauss points
(x_j, y_j)	Coordinates of a joint
$[Y]$	Degrees of freedom
z	Distance from mid plane of plate
$\Delta\alpha^n$	Correction in displacement vector in n^{th} iteration
ε_x, ε_y, ε_z	Normal strains
(ξ, η)	Natural coordinates
$\phi(x)$	Unconstrained / modified objective function
ϕ_x, ϕ_y	Shear deformations
γ_{xy}, γ_{yz}, γ_{zx}	Shear strains
ν	Poisson's ratio
ν_{21}, ν_{32}, ν_{31}	Poisson's ratio in three directions
θ_x , θ_y	Rotation about x and y axes
ρ	Density of material
σ_a	Allowable stress
σ_i	Stress in a member
σ_θ	Radial stress
σ_x, σ_y, σ_z	Normal stresses
τ_{xy}, τ_{yz} , τ_{zx}	Shear stresses
ω	Circular natural frequency
ψ	Unbalanced force vector