NOTATION

The following symbols are used in this thesis :

D = flexural rigidity of a plate = $\frac{Eh^3}{12(1-\nu^2)}$;

E = modulus of elasticity in tension and compression ;

e_1 = first invariant of middle surface strains
= $\epsilon_x + \epsilon_y$ in rectangular coordinates
= $\epsilon_r + \epsilon_\theta$ in cylindrical coordinates ;

e_2 = second invariant of middle surface strains
= $\epsilon_x \epsilon_y - \frac{1}{4}\gamma_{xy}^2$ in rectangular coordinates
= $\epsilon_r \epsilon_\theta$ in polar coordinates in case of circular symmetry ;

G = modulus of elasticity in shear ;

h = thickness of a plate ;

I = modified Bessel's function ;

J = Bessel function of first kind ;

K_p = nondimensional foundation modulus ;

M_r, M_θ, $M_{r\theta}$ = radial, tangential and twisting moments per unit length of sections of a plate in polar coordinates,

N_{cr} = critical value of middle plane force ;

N_T = buckling temperature = $\alpha E \int_{-\frac{h}{2}}^{\frac{h}{2}} T dz$

N_x , N_y , N_{xy} = normal force resultants per unit length in middle plane of a plate ;

P = single concentrated load ;

Q = shearing force per unit length of a section of a plate ;

q = intensity of a continuously distributed load ;

r, θ = polar co-ordinates ;

S = Lommel's function ;

T = temperature ;

u, v, w = displacement in x, y, and z directions respectively ;

x, y, z = rectangular coordinates ;

α = coefficient of linear thermal expansion ;

σ = direct stress ;

$(\sigma)_{cr}$ = critical buckling stress ;

τ = shear stress ;

ϵ = direct strain ;

ϵ_n = error function in Galerkin's method ;

γ = shear strain ;

ρ = density of plate material ;

ν = Poisson's ratio ;

Γ = Gamma function ;

$\xi = r e^{i\theta}$ = a complex quantity.