2. NOTATIONS AND DEFINITIONS

The following are the Notations which have not otherwise been stated in the text of the thesis and arranged alphabetically:

$C_i (i = 1,2,3,....)$ = constants

$C = \dfrac{Eh}{(1-\nu^2)}$

$C_Q = G_c h_c$

$D = \dfrac{Eh^3}{12(1-\nu^2)}$ =flexural rigidity

$D = \dfrac{E_f h_f (h_f + h_c)^2}{2}$ = flexural rigidity

$e_1 = u_{,r} + \dfrac{u}{r} + \dfrac{1}{2}(\omega_{,r})^2$ = First invariant of middle surface strains

$e_2 = \dfrac{u}{r} + \left\{ u_{,r} + \dfrac{1}{2}(\omega_{,r})^2 \right\}$ = Second invariant of middle surface strains

E = Young's modulus

E_f = Young's modulus of the face material

$F(x, y)$ = stress function

G_c = shearing modulus of the core material

h = thickness of the shell

h_f = face thickness

h_c = core thickness

$K_x (= \dfrac{1}{R_1}), K_y (= \dfrac{1}{R_2})$ = principal curvature of the shell panel

m, n = integers

M_x, M_y, M_{xy} = moments

$M_T = \int_{-\frac{h}{2}}^{\frac{h}{2}} zT(x, y, z)dz$ = Thermal Moment [thermal stress resultant]

$N_T = \int_{-\frac{h}{2}}^{\frac{h}{2}} T(x, y, z)dz$ = Thermal Stress Couple

q = uniform external normal load per unit area

R = Radius of the cylindrical shell

R_1, R_2 = Principal radii of curvature of the shell panel

$T(x, y, z) = \tau_0(x, y) + z\tau(x, y)$ = temperature distribution within the shell panel

x, y = independent in-plane variables

u, v, W = displacement components along X, Y and Z direction respectively.

W_0 = central deflection

ν = Possion's ratio of homogeneous material

ν_f = Possion's ratio of the face material

α_t = co-efficient of thermal expansion

σ_x, σ_y = Normal stresses in the X and Y directions respectively

τ_{xy} = shear stress

γ_{xy} = shear strain

$\varepsilon_x, \varepsilon_y$ = Normal strains in the X and Y directions respectively

∇^2 = Laplacian operator = $\frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2}$

(,)=order of partial differentiation