NOTATIONS

The following notations have been used in this thesis.

A, A_1 arbitrary amplitude coefficient

A_{mn}, A_n series coefficients

$c' = k_1 / D$, k_1 foundation reaction per unit area per unit deflection

$D = E h^3 / 12(1 - \sigma^2)$, D flexural rigidity, h plate thickness (uniform or variable), σ Poisson's ratio

$D_o = Eh_o^3 / 12(1 - \sigma^2)$, h_o plate thickness at centre

$D_1 = E'' h^3/12$, E'' Elastic constant

$D_x = E_x' h^3/12$, D_x flexural rigidity along X axis

$D_y = E_y' h^3/12$, D_y flexural rigidity along Y axis

$D_{xy} = Gh^3/12$, G modulus of elasticity in shear

E Young's modulus

e exponential

e_1, e_2 first and second invariant, respectively, of the middle surface strains

$h_1 = t' + h'/2$ h_1, total thickness, h' core thickness, t' face thickness of sandwich plate

$F(t)$, $G(t)$, $H(t)$, $f(t)$ functions of time

I_1^m first invariant of averaged strains

$j = \sqrt{-1}$ imaginary quantity

K complete elliptic integral of the first kind

$k = D_y/D_x$

k' thermal diffusivity

k^* modulus of the elliptic function

M' concentrated mass

T', T^* time period of linear and non-linear motions, respectively

T_1 kinetic energy of the plate

T_h, T_h^* time period of small harmonic and large harmonic motions, respectively

U, u displacement along x axis/radial displacement

V, v displacement along Y axis

V_1, $\bar{V}_o$ strain energy per unit area of the middle surface of the plate

w	deflection, normal to middle plane of the plate
w_o	central deflection
w^*	radian frequency of non-linear motions
w_d, w_s	dynamic and quasi-static deflections, respectively
X, Y, Z	rectangular coordinate axes
$(\ )^c$	core variable
$(\ )^f$	face variable
$(\ )^u$	upper face variable
$(\ )^l$	lower face variable
$(\ )^m$	averaged value
α, c	real normalised constant of integration
α_t	temperature coefficient of the plate material
β	relative amplitude
$\gamma^{\frac{1}{2}} = w_1$	radian frequency of linear motion
δ	non-linearity factor

ϵ_x, ϵ_y strains along x and y axes, respectively

ϵ_r, ϵ_θ unit elongations along radial and cross-radial directions, respectively

ϕ stress functions/dimensionless parameter

ρ density of the plate material

T absolute temperature of the plate

∇^2 Laplacian operator

$$\nabla^2 \equiv \frac{\partial^2}{\partial x^2} + \frac{\partial^2}{\partial y^2} \text{ (cartesian)} ; \quad \nabla^2 \equiv \frac{d^2}{dr^2} + \frac{1}{r}\frac{d}{dr} \text{ (polar)}$$

$\delta(x - x_1)$, $\delta(y - y_1)$ Dirac delta functions

$c_\rho^{-2} = \rho h^3/12\,D$

cn Jacobi's elliptic function.

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