A problem connected with the study of thin elastic shallow shells in the theory of non-linear elasticity is considered. The equilibrium equations are in the form

$V^4 B^1 (x, y) + Eh\ n4\ B2 (x,y)=0$
$DV\ 4\ B2 (x,y) - n\ 4\ B1 (x,y) = S(x,y)$

The entire domain of the shell n bounded in
R3
∇^4 is the biharmonic operator

$$\nabla^4 (---)= \left(\frac{\partial}{(\partial x^4} + \frac{2\partial^4}{\partial x^2 \partial y^2} + \frac{\partial^4)}{\partial y^4)}\right.$$

$\prod^4$ is the pucher 's operator

$$\prod^4 (----)= \frac{\partial^2 \quad fd^2}{\partial x2 \quad \partial y2} - \frac{2\partial^2 \quad f}{\partial x \quad \partial y} + \frac{\partial^2}{\partial x \partial y} + \frac{\partial^2 \ f\partial^2}{\partial x^2 \ (\partial y^2}$$

E: Young's modulus of elasticity of the material λ

h: the uniform thickness of the shell λ

$D= \frac{Eh\ 3}{12} (I- u^2)^{-1}$ is the flexural rigidity of the material

μ=Poisson's ratio

βi **(**x,y**)** is the stress function

β2**(**x,y**)** is the deflection function

S**(**x,y**)** is the external force on the projection of the shell λ on xy plane

The entire boundary of the shell in the form dn is assumed clamped so that the deflection and slopes are zero boundaries
The entire domain of the shell l λ is bounded in R3 having middle surface in Monge's form Z= f (x ,y). Galerkin's orthogonality conditions are applied to solve the equilibrium equations for stress and deflections. Appropriate forms of orhonormal Fourier's double series are formulated forβ_1 (x, y) and β_2(x, y) to satisfy the boundary conditions. Finally the existence and the uniqueness of the solutions are established.