

CHAPTER 3

AUTO EVALUATION EXERCISE

The deflection of a square plate of side a , which supports a lateral load represented by the function $q(x, y)$ is given by:

$$w(x, y) = w_0 \cos \frac{\pi x}{a} \cos \frac{3\pi y}{a}$$

where x and y are referred to axes whose origin coincides with the centre of the plate and w_0 is the deflection at the centre. If the flexural rigidity of the plate is D and Poisson's ratio is ν determine:

- a. The loading function $q(x, y)$
- b. The support conditions of the plate
- c. The bending moments at the centre of the plate.