## Relative Study of the Effect of the Temperature Gradient on Free Vibrations of Clamped Visco-Elastic Rectangular Plates with Linearly and Exponentially Thickness Variations Respectively in Two Directions

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**Abstract :** Rayleigh-Ritz method is a broadly used classical method for the calculation of the natural vibration frequency of a structure in the second or higher order. Here it is used to construct a mathematical model of relative study of the thermal effect on free transverse vibrations of clamped (c-c-c-c type) visco-elastic rectangular plate with linearly and exponentially thickness variations respectively in two directions. Researchers in the field of Engineering always make an effort for better designs of mechanical structures. In-depth study of the vibration behavior of tapered plates with diverse thickness variation under high temperature would ultimately help to finalize the accurate design of a structure. The perfect tapered structure saves weight and as well as expenses. In the present paper, the comparison has been done for deflection and time period corresponding to the first two modes of vibrations of clamped plate for various values of aspect ratio, thermal constants, and taper constants of both the cases.

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