LAMPIRAN 1

Analisis dengan Metode Analitik (Teori Stokey)

$$f_n = \frac{\kappa^2}{2\pi L^2}\sqrt{\frac{EI}{m}}\sqrt{1 \pm \frac{FL^2}{EI\pi^2 n^2}}$$

$$f_n = \frac{3.146^2}{2\times3.14\times1^2}\sqrt{\frac{2\times10^{11}\times1,98\times10^{-8}}{3.882}}\sqrt{1 + \frac{1020\times1^2}{2\times10^{11}\times1,98\times10^{-8}\times3.14^2 1^2}}$$

$$= 50,48\ Hz\ (Tarik)$$

$$f_n = \frac{3.146^2}{2\times3.14\times1^2}\sqrt{\frac{2\times10^{11}\times1,98\times10^{-8}}{3.882}}\sqrt{1 - \frac{1020\times1^2}{2\times10^{11}\times1,98\times10^{-8}\times3.14^2 1^2}}$$

$$= 49,16\ Hz\ (Tekan)$$

Keterangan :

Fn = Frekuensi alami (Hz)

K = Koefisien untuk kondisi batas sendi-sendi

L = Panjang benda uji (m)

E = Modulus Elastisitas (N/mm^2)

I = Momen Inersia (m^4)

m = Massa persatuan meter (Kg/m)

F = Gaya yang diberikan (N)

n = Mode