

## Problem 4

11 January 2022 09:59 AM

 $\frac{4}{5}$ 

 B.D.e  
 13-01-2022

Q: 14) Using the Tripartite plot.

$$T_n = 0.462 \text{ s}$$

$$f_{\text{req}} = \frac{1}{T_n} = 2.1645 \text{ Hz} \quad \checkmark$$

Reading off the values of A and D from the Tripartite plot corresponding to this natural freq. = 2.1645 Hz.

$$A = \frac{4}{3}g \quad \text{and} \quad D = 8.3 \text{ in.}$$

$$\therefore f_{50} \text{ using } A; = m \cdot A \times 9.81.$$

$$= 1000 \times 9.81 \times 4$$

$$= 39.240 \text{ kN} \quad \checkmark$$

$$f_{50} \text{ using } D; = K \cdot D \cdot 0.0254 \quad \text{Scale? } \ominus$$

$$= 184977.78 \times 8.3 \times 0.0254$$

$$= 38.997 \text{ kN} \quad \checkmark$$

So we see that both the forces are nearly equal.

Observing the plot, max ground acc. = 1g.

Scanned by TapScanner

