

# NORMAL MODES →

The mode of vibration in which all particles oscillate with same frequency is called normal mode.

Amplitude and phase of particles may not be same in normal mode.

The angular frequency of oscillation of system is obtained by solving determinant equation

$$\boxed{|\hat{V} - \omega^2 \hat{T}| = 0}$$

where  $\hat{T}, \hat{V} \rightarrow$  coefficient matrices for K.E and P.E

$$\hat{T} = \begin{bmatrix} T_{11} & T_{12} \\ T_{21} & T_{22} \end{bmatrix}$$

$T_{11}$  = co-efficient of  $q_1^2$

**APPOINTMENTS**

**TASKS**

$T_{12} = T_{21} = \frac{1}{2} \times$  co-efficient of  $q_1 q_2$

$T_{22}$  = co-efficient of  $q_2^2$

$$\hat{V} = \begin{bmatrix} V_{11} & V_{12} \\ V_{21} & V_{22} \end{bmatrix}$$

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$V_{11}$  = coefficient of  $q_1$

$V_{22}$  = co-efficient of  $q_2$

$V_{12} = V_{21} = \frac{1}{2} \times$  co-efficient of  $q_1 q_2$