

ENGINEERING TRIPOS PART IIA 2005
3D4: STRUCTURAL ANALYSIS AND STABILITY
Answers

1. a) Important for ii), iii) ix) and xii)
b) 0.617 rads, 0.335 rads

$$2 \quad \omega R^2 \left[\frac{4 - \pi}{\pi} \right] \left\{ \frac{GJ - EI}{GJ + EI} \right\}$$

$$3. \text{ b) i) } \quad a = k + \frac{G}{L^2} - \frac{2P}{L}, \quad b = -\frac{2G}{L^2} + \frac{P}{L}, \quad c = \frac{4G}{L^2} - \frac{2P}{L}$$

$$\text{iii) } \quad \frac{L}{700} \begin{bmatrix} 7 \\ 3 \end{bmatrix}$$

- 4 b) $\beta = 10, \quad \gamma = 21$
d) 1203 kNm

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