

1B Paper 2 - 2015

Answers

1. (a) 10.1 mm ; (b) 0.7 kN m

2. (a) $\frac{-MR^2}{EI}$; (b) $\frac{4M}{R\pi}$, $\frac{MR}{EI}\left(\frac{\pi}{2} - \frac{4}{\pi}\right)$

3. (a) $6M_p / L$; (b) (i) $PL / 4$ (ii) $M_{p,AB} = \frac{PL}{3}$, $M_{p,BC} = \frac{PL}{3}$

4. (a) $3wL / 8$; (b) $7wL / 8$; (c) $wL^4 / (56EI)$

5. (a) $\frac{36m}{b^2} - \frac{24m}{a^2}$

6. (b) $\varepsilon_1 = 120 \times 10^{-6}$, $\theta_1 = -18.4^\circ$, $\varepsilon_2 = -80 \times 10^{-6}$, $\theta_2 = 71.6^\circ$; (c) -17.1×10^{-6} ; (d) 187.2×10^{-6}