

**Engineering Tripos Part IIB: Module 4C2**  
**Designing with Composites**

**Numerical answers - 2013/14**

1. (c) (ii)  $\varepsilon_x = 0.035$ ,  $\varepsilon_y = -0.0052$ ,  $\gamma_{xy} = 0.069$

3. (a)  $\kappa_x = 0.0117 \frac{M_x}{(Nt)^3} \frac{1}{\text{GPa}}$

(b)  $M_x = 717(Nt)^2 \text{MPa}$

(c)  $\sigma_z = 0.458 \frac{M_x}{NtR} \text{GPa}$