Question Number	Answer		Mark
14(a)	Material returns to original shape/size when stress/force/tension removed	**(1)**	**1**
14(b)(i)	Determines gradient using > half drawn line $E = 2.1 \times 10^{11}$ (Pa) Example of calculation Gradient = 4.2 ÷ 2.0 = 2.1 $E = 2.1 \times (100\ \text{MPa} \div 0.1\%) = 2.1 \times 10^{11}$ Pa	**(1)** **(1)**	**2**
14(b)(ii)	Use of $\sigma = F / A$ Use of $E = \sigma / \varepsilon$ **Or** Use of graph **And** Use of $\varepsilon = \Delta x / x$ $\Delta x = 0.79$ mm (allow ecf from (b)(i)) **Or** $E_{req} = 2.8 \times 10^{11}$ Pa Valid comparison in consistent units and conclusion (allow ecf from (b)(i)) Example of calculation $\sigma = 9.5 \times 10^{5}\ \text{N} \div 4.80 \times 10^{-3}\ \text{m}^2 = 1.98 \times 10^{8}$ Pa $\varepsilon = \sigma \div E = 1.98 \times 10^{8}\ \text{Pa} \div 2.10 \times 10^{11}\ \text{Pa} = 9.42 \times 10^{-4}$ $\Delta x = 0.84\ \text{m} \times 9.42 \times 10^{-4}$ $= 7.91 \times 10^{-4}$ m = 0.79 mm > 0.6 mm ∴ no	**(1)** **(1)** **(1)** **(1)**	**4**
	Total for question 14		**7**