(b) Theory shows that the Young modulus is given by

$$E = \frac{30l^3}{bd^3T^2} \ ,$$

where l = length of overhang in m
b = width of rule in m
d = thickness of rule in m
T = period of oscillation in s.

(i) Using the apparatus available, measure a value for b and d for your metre rule. [3]

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(ii) Hence use the above equation to calculate values for the Young modulus at 0·9m and 0·6 m. [2]

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(iii) Which of the measurements you have made will have caused the largest error in your calculation, l, b, d, or T? Explain your answer. [2]

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