

- 8.** Young's moduli of two wires A and B are in the ratio 7 : 4. Wire A is 2 m long and has radius R. Wire B is 1.5 m long and has radius 2 mm. If the two wires stretch by the same length for a given load, then the value of R is close to :

[8 April 2019 II]

- (a) 1.5 mm (b) 1.9 mm (c) 1.7 mm (d) 1.3 mm

8. (c) $\Delta_1 = \Delta_2$

$$\text{or } \frac{Fl_1}{\pi r_1^2 y_1} = \frac{Fl_2}{\pi r_2^2 y_2} \quad \text{or } \frac{2}{R^2 \times 7} = \frac{1.5}{2^2 \times 4}$$

$$\therefore R = 1.75 \text{ mm}$$