

A wire of length $l = 6 + 0.06\text{cm}$ and radius $r = 0.5 + 0.005\text{cm}$ has mass $m = 0.3 + 0.003\text{g}$.
Maximum percentage error in density is

A 4

B 2

C 1

D 6.8

Correct option is A)

$$d = \frac{M}{V}$$

$$d = \frac{M}{\pi r^2 h}$$

$$\% \text{ error in mass} = \frac{0.003}{0.3} \times 100 = 1\%$$

$$\% \text{ error in length} = \frac{0.006}{0.6} \times 100 = 1\%$$

$$\% \text{ error in radius} = \frac{0.005}{0.5} \times 100 = 1\%$$

$$\% \text{ error in mass} = 1\% + 2 \times 1\% + 1\% = 4\%$$