

- 1 Five energies are listed.

5 kJ

5 mJ

5 MJ

5 nJ

Starting with the smallest first, what is the order of increasing magnitude of these energies?

- A** 5 kJ \rightarrow 5 mJ \rightarrow 5 MJ \rightarrow 5 nJ
- B** 5 nJ \rightarrow 5 kJ \rightarrow 5 MJ \rightarrow 5 mJ
- C** 5 nJ \rightarrow 5 mJ \rightarrow 5 kJ \rightarrow 5 MJ
- D** 5 mJ \rightarrow 5 nJ \rightarrow 5 kJ \rightarrow 5 MJ
- 2 Which of the following correctly expresses the volt in terms of SI base units?
- A** $A\Omega$
- B** WA^{-1}
- C** $kg\,m^2\,s^{-1}\,A^{-1}$
- D** $kg\,m^2\,s^{-3}\,A^{-1}$
- 3 What is a reasonable estimate of the average kinetic energy of an athlete during a 100 m race that takes 10 s?
- A** 40 J **B** 400 J **C** 4000 J **D** 40 000 J
- 4 The resistance R of a resistor is determined by measuring the potential difference V across it and the current I in it. The value of R is then calculated using the equation

$$R = \frac{V}{I}.$$

The values measured are $V = 1.00 \pm 0.05\,V$ and $I = 0.50 \pm 0.01\,A$.

What is the percentage uncertainty in the value of R ?

- A** 2.5 % **B** 3.0 % **C** 7.0 % **D** 10.0 %