

**18** A loaded aeroplane has a total mass of  $1.2 \times 10^5 \text{ kg}$  while climbing after take-off. It climbs at an angle of  $23^\circ$  to the horizontal with a speed of  $50 \text{ ms}^{-1}$ . What is the rate at which it is gaining potential energy at this time?

**A**  $2.3 \times 10^6 \text{ Js}^{-1}$

**B**  $2.5 \times 10^6 \text{ Js}^{-1}$

**C**  $2.3 \times 10^7 \text{ Js}^{-1}$

**D**  $2.5 \times 10^7 \text{ Js}^{-1}$

**19** When a horizontal force  $F$  is applied to a frictionless trolley over a distance  $s$ , the kinetic energy