

**20** A railway engine accelerates a train of total mass 800 tonnes (1 tonne = 1000 kg) from rest to a speed of  $50\text{ m s}^{-1}$ .

How much work must be done on the train to reach this speed?

- A**  $1.0 \times 10^6\text{ J}$
- B**  $2.0 \times 10^6\text{ J}$
- C**  $1.0 \times 10^9\text{ J}$
- D**  $2.0 \times 10^9\text{ J}$

**21** Water from a reservoir is fed to the turbines of a hydroelectric system at a rate of  $500\text{ kg s}^{-1}$ . The