**13** Thermal energy is supplied to 5.00 kg of water at 30.0 °C. All of this water becomes steam at 100 °C. There is no heat loss to the surroundings.

Specific heat capacity of water = 4190 $J\,kg^{-1}\,K^{-1}$.

Specific latent heat of vaporisation of water = 2260 $kJ\,kg^{-1}$.

How much thermal energy is supplied to the water?

**A** $1.48 \times 10^6$ J

**B** $3.73 \times 10^6$ J

**C** $1.13 \times 10^7$ J

**D** $1.28 \times 10^7$ J