

- 10** A polystyrene cup contains a mass of 88 g of water at 30 °C. A cube of ice of mass 12 g and temperature 0 °C is placed in the water. The water, of specific heat capacity $4.2 \times 10^3 \text{ J kg K}^{-1}$, is stirred till all the ice melts.

Assuming negligible heat loss to the cup and surroundings, what is the final temperature of the water?

specific latent heat of fusion of ice = $3.3 \times 10^5 \text{ J kg K}^{-1}$.

- A** 17 °C
- B** 19 °C
- C** 21 °C
- D** 23 °C