12 A small piece of metal A, of mass m, at 0 ºC, is placed into a hole in a block of metal B, of mass $4m$, at 100 ºC. The equilibrium temperature is 75 ºC.

Assuming that there is no heat loss to the surroundings, the ratio of the specific heat capacity of A to the specific heat capacity of B is

A $\frac{1}{4}$ **B** $\frac{1}{3}$ **C** $\frac{3}{4}$ **D** $\frac{4}{3}$