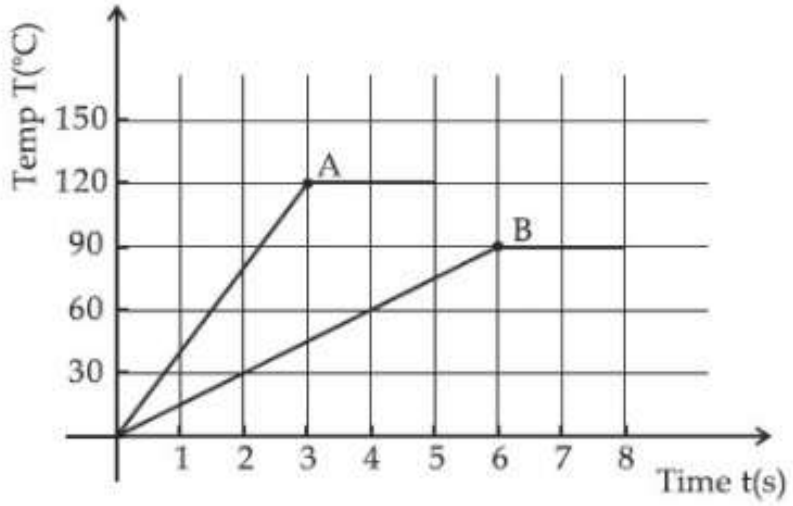
Two different metal bodies A and B of equal mass are heated at a uniform rate under similar conditions. The variation of temperature of the bodies is graphically represented as shown in the figure. The ratio of specific heat capacities is : (JEE MAIN 2021)



A $\frac{8}{3}$

B $\frac{3}{8}$

C $\frac{3}{4}$

D $\frac{4}{3}$

Given, $m_A = m_B$

Let C_A and C_B be the specific heat capacities of A and B respectively

A.T.Q. $(\Delta H)_{\text{lost by A}} = (\Delta H)_{\text{gained by B}}$

$$\Rightarrow \left(\frac{\Delta Q}{\Delta t}\right)_A = \left(\frac{\Delta Q}{\Delta t}\right)_B$$

$$\Rightarrow m_A C_A \frac{\Delta T_A}{\Delta t_A} = m_B C_B \frac{\Delta T_B}{\Delta t_B}$$

$$\Rightarrow \frac{C_A}{C_B} \Rightarrow \frac{\left(\frac{\Delta T}{\Delta t}\right)_B}{\left(\frac{\Delta T}{\Delta t}\right)_A}$$

$$\Rightarrow \frac{90/6}{120/3} \Rightarrow \frac{3}{8}$$

$$\Rightarrow \boxed{\frac{C_A}{C_B} = \frac{3}{8}}$$