

**The Physics of Energy, Explained Simply  
&  
The Physics of Energy For Beginners**

**Thermal Energy Questions**

Equation:  **$U = mc\Delta T$**

U = Thermal Energy (J), m = Mass (kg),

c = Specific Heat Capacity (J/kg°C),  $\Delta T$  = Temperature Change (°C)

1.  $U = 2 \text{ kg} \times 500 \text{ J/kg}^\circ\text{C} \times (50-20)^\circ\text{C} = 20000 \text{ J}$
2.  $U = 1.5 \text{ kg} \times 4200 \text{ J/kg}^\circ\text{C} \times 30^\circ\text{C} = 189000.0 \text{ J}$
3.  $U = 3 \text{ kg} \times 450 \text{ J/kg}^\circ\text{C} \times 30^\circ\text{C} = 40500 \text{ J}$
4.  $U = 0.5 \text{ kg} \times 900 \text{ J/kg}^\circ\text{C} \times 15^\circ\text{C} = 6750.0 \text{ J}$
5.  $U = 4 \text{ kg} \times 385 \text{ J/kg}^\circ\text{C} \times 25^\circ\text{C} = 38500 \text{ J}$
6.  $U = 2.5 \text{ kg} \times 800 \text{ J/kg}^\circ\text{C} \times 12^\circ\text{C} = 24000.0 \text{ J}$
7.  $U = 5 \text{ kg} \times 2000 \text{ J/kg}^\circ\text{C} \times 8^\circ\text{C} = 80000 \text{ J}$
8.  $U = 1 \text{ kg} \times 1800 \text{ J/kg}^\circ\text{C} \times (30-10)^\circ\text{C} = 36000 \text{ J}$
9.  $U = 0.8 \text{ kg} \times 380 \text{ J/kg}^\circ\text{C} \times 18^\circ\text{C} = 5472.0 \text{ J}$
10.  $U = 6 \text{ kg} \times 790 \text{ J/kg}^\circ\text{C} \times 5^\circ\text{C} = 23700 \text{ J}$

