

College Prep Chemistry of the Earth System

Assignment 2E (Part 2) 20 Points

Calorimetry 40Pts Total

Solve the following calorimetry problems

1. $c_{\text{Al}} = 0.898 \text{ J/g}^\circ\text{C}$, $q = -349.2 \text{ J}$, $T_{\text{final}} = 54.9^\circ\text{C}$, $T_{\text{ini}} = 83.5^\circ\text{C}$, $m = \underline{\hspace{1cm}} \text{ J}$

$$q_{\text{Fe}} = \underline{\hspace{1cm}} \text{ J} \quad (q_{\text{Fe}} = -q_{\text{Al}})$$

2. $c_{\text{Fe}} = 0.451 \text{ J/g}^\circ\text{C}$, $q = 2945.2 \text{ J}$, $T_{\text{final}} = 42.4^\circ\text{C}$, $T_{\text{ini}} = 25.4^\circ\text{C}$, $m = \underline{\hspace{1cm}} \text{ J}$

$$q_{\text{Zn}} = \underline{\hspace{1cm}} \text{ J} \quad (q_{\text{Zn}} = -q_{\text{Fe}})$$

3. $q_{\text{oil}} = -3813.4 \text{ J}$, $q_{\text{water}} = \underline{\hspace{1cm}} \text{ J}$
($q_{\text{water}} = -q_{\text{oil}}$)

$$m_{\text{water}} = 39.4 \text{ g}, C_{\text{water}} = 4.184 \text{ J/g}^\circ\text{C}$$
$$\Delta T = \underline{\hspace{1cm}} ^\circ\text{C}$$

4. $q_{\text{food}} = -9215.2 \text{ J}$, $q_{\text{water}} = \underline{\hspace{1cm}} \text{ J}$
($q_{\text{water}} = -q_{\text{food}}$)

$$m_{\text{water}} = 81.8 \text{ g}, C_{\text{water}} = 4.184 \text{ J/g}^\circ\text{C}$$
$$\Delta T = \underline{\hspace{1cm}} ^\circ\text{C}$$