

Tier: \_\_\_\_\_ Score \_\_\_\_\_

- Tier 1: Teams with no violations of the rules \_\_\_\_\_
- Tier 2: Teams with any violations of the rules – **write what the violations were on the back of this page** \_\_\_\_\_
- Tier 3: Interference by a coach, parent or conversation with another team **DQ** \_\_\_\_\_

\*\*\*\*Predicted Water Temperature: \_\_\_\_\_ °C

Student signature(s): \_\_\_\_\_

## Thermodynamics C

### 2012 – San Diego Regional Competition

School \_\_\_\_\_ Team \_\_\_\_\_

Students \_\_\_\_\_ & \_\_\_\_\_

### 1. Written Test Score:

\_\_\_\_\_ Max = 50 pts

### 2. Plot Score

\_\_\_\_\_ Max = 10 pts

- \_\_\_\_\_ Plot labeled with school and student(s) names 2 pts
- \_\_\_\_\_ Title of plot is appropriate; X and Y axes are labeled 2 pts
- \_\_\_\_\_ Units and axes increments are appropriate 2 pts
- \_\_\_\_\_ One point for each data plot on a graph – or # graphs 4 pts max

Device: Set-up time (MAX = 5 min) \_\_\_\_\_

### 3. Heat Retention Score

$$\left[ \frac{\text{Final Internal beaker water temp } ^\circ\text{C}}{\text{Final External beaker water temp } ^\circ\text{C}} - 1 \right] \times 50 = \underline{\hspace{2cm}}$$

### 4. Prediction Score

$$1 - \left| \frac{\text{Final Internal beaker water temp } ^\circ\text{C} - \text{Predicted Internal beaker water temp } ^\circ\text{C}}{\text{Final Internal beaker water temp}} \right| \times 25 = \underline{\hspace{2cm}}$$

### 5. Ice Water Bonus:

$$\frac{\text{Volume of ice water (ml)}}{8} = \underline{\hspace{2cm}}$$

**TOTAL of FIVE scores:** \_\_\_\_\_