

# AE 405 LAB-4

## DATA SHEET

**GROUP MEMBERS (name, surname, signature)**

- |    |    |
|----|----|
| 1. | 5. |
| 2. | 6. |
| 3. | 7. |
| 4. | 8. |

### Procedure

#### PART (I)

1. Fill a glass beaker with (30 ml) of water. Heat the water to 50 C°.
2. Determine the temperature of the empty and dry calorimeter before pouring the hot water quickly into the calorimeter, stirring continuously for a little while.
3. Determine the temperature of the mixture.
4. Calculate the capacity of the calorimeter (4).
5. Empty the calorimeter, then fill it with water at room temperature, wait a few minutes, then empty and dry the calorimeter.
6. Repeat steps (1-4) several times then calculate the average capacity for more accuracy.

#### PART(II)

1. Fill a glass beaker with water.
2. Put a known mass piece of metal, tight with a light string 4 cm high from the bottom of the beaker.
3. Heat the beaker, water and the piece of metal to  $T_h = 100\text{ C}^\circ$  for 10 minutes.
4. Fill the calorimeter with (ml) of water at room temperature, a few minutes later determines the temperature  $T_c$ .
5. Drop the hot piece of metal quickly into the calorimeter, stir continuously for a little while then determine the temperature of the mixture  $T_f$ .
6. Calculate the specific heat of the piece of metal (5).
7. Repeat steps (1-6) for the other available pieces of metals.
8. Fill in the tables given below.

## RESULTS

DATA TABLE-1:

| $m_w(gm)$ | $c_w (cal/g\ ^\circ C)$ | $T_c(^{\circ}C)$ | $T_h(^{\circ}C)$ | $T_f(^{\circ}C)$ | $C_{cal} (cal/^{\circ}C)$ |
|-----------|-------------------------|------------------|------------------|------------------|---------------------------|
|           |                         |                  |                  |                  |                           |

DATA TABLE-2:

| Metal | $m_m(gm)$ | $m_w(gm)$ | $c_w (cal/g\ ^\circ C)$ | $T_c(^{\circ}C)$ | $T_h(^{\circ}C)$ | $T_f(^{\circ}C)$ | $c_m (cal/g\ ^\circ C)$ |
|-------|-----------|-----------|-------------------------|------------------|------------------|------------------|-------------------------|
|       |           |           |                         |                  |                  |                  |                         |
|       |           |           |                         |                  |                  |                  |                         |
|       |           |           |                         |                  |                  |                  |                         |