Experiment 7 Lab Report: Name _____Section (M-1) (M-3) (W-1) (W-3)
Dr. Hahn sections Show all work for partial and full credit. Handwarmer Part I Circle your section.

My Lab Partners were: _____ _____
By writing down your data on this sheet, you earn 50% of your grades. The other questions below are the remaining 50% of your lab report grade. If you missed the lab with an excuse, you should pre-arrange with someone in the lab to provide the data for this lab.

Part 2 -specific heat capacity of a human hand (using 100 mL of water, density water = 1 g/mL)(rxn = warming sausage)

$T_{initial}$ of ice water _____ $T_{initial}$ of water in calorimeter _____

$T_{final\ calorimeter}$ (lowest T) of water (after sausage) _____ (write down the lowest temperature, keep writing down low T until T starts going up on separate paper)

Mass of one Vienna sausage = _____ (dry after calorimeter T measurement)

Calculation for Part 2: solve for $C_{sausage}$: $q_{rxn} = - q_{water}$ **$C_{sausage}$ = _____**
$(mass_{sausage})(C_{sausage})\Delta T_{sausage} = - (mass_{water})(4.184\ J/g^oC)(\Delta T_{water})$ $[\Delta T_{water} = T_{final\ calorimeter} - T_{initial\ calorimeter}]$
$[\Delta T_{sausage} = T_{final\ calorimeter} - T_{ice\ water}]$ $T_{initial\ calorimeter}$ ~ room temperature, $T_{ice\ water}$ = ~ zero ^oC

Part 3 – Endo and Exothermic Properties of Salts – (a) in TT #1 add 2 cm DI water (b) in TT #2 add 1 cm of salts, (c) add TT #2 to TT #1 (write down T after addition of salt on separate paper until reach either lowest T or highest T)

Choosing which salt to use:

Step 3: Na Cl T initial of water _____ T final of water _____

RXN Na Cl (s) → _____ + _____

Step 4: K Cl T initial of water _____ T final of water _____

RXN K Cl (s) → _____ + _____

Step 5: $Ca Cl_2$ T initial of water _____ T final of water _____

RXN $Ca Cl_2$ (s) → _____ + _____

Best Salt Pack Salt is [(NaCl) or (KCl) or ($CaCl_2$)] (circle one)

<u>Choosing how much of the salt to use vs. how much water to use</u> (1 g/mL = density of water)

Step 6,7,8 for 100 mL water mass of your chosen salt _____ (use between 8 to 12 grams)

Volume of water _____ $T_{initial}$ _____ T_{final} _____

Mass of water _____ total mass (mass water + salt) _____

Step 6,7,8 for 70 mL water mass of your chosen salt _____ (use ~ same as for the 100 mL)

Volume of water _____ $T_{initial}$ _____ T_{final} _____

Mass of water _____ total mass (mass water + salt) _____

Step 6,7,8 for 50 mL water mass of your chosen salt _____ (use ~ same as for the 100 mL)

Volume of water _____ $T_{initial}$ _____ T_{final} _____

Mass of water _____ total mass (mass water + salt) _____

Which volume of water is your choice for the best handwarmer ?

[(100 mL water) or (70 mL water) or (50 mL water)] (circle one)

<u>Calculation for Part 3:</u>

100 mL trial q_{rxn} = - (mass water + mass salt)(4.184 J/g^{o}C)(T_f-T_i)

70 mL trial

50 mL trial