

CHEM 1104 TEST#3

NAME:

Date: June 6, 2018

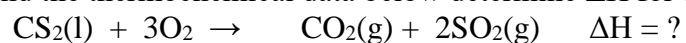
Student Number:

1. Using the enthalpy of formation data below calculate ΔH° for the following reaction:

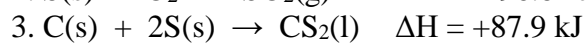
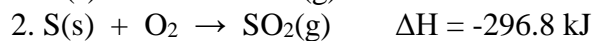
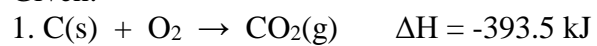


Compound	ΔH_f° (kJ/mole)
HNO ₃ (aq)	-207.4
H ₂ O(l)	-285.8
NO(g)	90.29
NO ₂ (g)	33.10

2. Using Hess's law and the thermochemical data below determine ΔH for the reaction below.



Given:



3. A 0.922 g sample of naphthalene, $C_{10}H_8$, a major component in mothballs, is burned in a bomb calorimeter that has a heat capacity of $9.44 \text{ kJ/}^\circ\text{C}$. The temperature rose from 15.73°C to 19.66°C . Calculate the heat of combustion of naphthalene and express your answer in the units kJ/mole .

Atomic Mass of C = 12.01 g/mole

$$-q_{\text{rxn}} = q_{\text{cal}}$$

$$\Delta H = q_p$$

Atomic Mass of H = 1.01 g/mole

$$q_{\text{cal}} = C_{\text{cal}}\Delta t$$

$$\Delta E = q_v$$

Answer Set for CHEM 1104 TEST#3

1. -138.0 kJ; 3 pt

2. -1075.0 kJ; 4 pt

3. -37.1 kJ, 2 pt; -5160 kJ/mole, 1 pt