*University of Bahrain, Chemistry Department*

*Chemy 102, Quiz-2 (Thermochemistry)*

Name : Key ID# : _____ Sec_____

**Q1(1pts)**: In an energy exchange between a system and a surrounding, consider a negative $\Delta E_{sys.}$ Which of the following is true ?

a. The $\Delta E_{sys}$ increases and the $\Delta E_{surr}$ decreases.
b. Both $\Delta E_{sys}$ and $\Delta E_{surr}$ increase.
c. Both $\Delta E_{sys}$ and $\Delta E_{surr}$ decrease.
d. The $\Delta E_{sys}$ decreases and the $\Delta E_{surr}$ increases.

**Q2(2pts)**: A system releases 415kJ of heat and does 125kJ of work on the surroundings. What is $\Delta E_{sys}$ ?

$-540$ kJ

**Q3(2pts)**: Determine the mass of $CO_2$ produced by burning enough carbon to produce $5.00 \times 10^2$ kJ of heat.

$$C_{(s)} + O_{2\,(g)} \rightarrow CO_{2\,(g)} \qquad \Delta H^\circ_{rxn} = -393.5 \text{ kJ}$$

55.9 g

**Q4(2pts)**: Consider the following reaction : $A + 2\,B \rightarrow C + 3\,D$ $\Delta H^\circ_{rxn} = 155$ kJ

Determine the value of $\Delta H$ for : $\frac{1}{2}\,C + \frac{3}{2}\,D \rightarrow \frac{1}{2}\,A + B$

$-77.5$ kJ