CHM 151   Quiz 6   25 Pts   Fall 2017   Name: _____
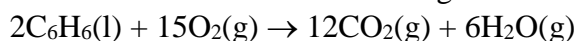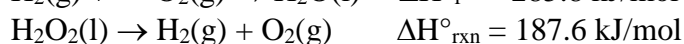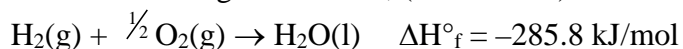
Due back Friday October 13th.   Show all work to receive credit

1. (4 Pts) The value of $\Delta H°_{rxn}$ for the following reaction is –6535 kJ/mol.

   $$2C_6H_6(l) + 15O_2(g) \rightarrow 12CO_2(g) + 6H_2O(g)$$
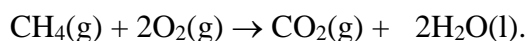
   How many kilojoules of heat will be evolved during the combustion of 16.0 g of $C_6H_6(l)$?

2. (4 Pts) Given the following $\Delta H°$ values, (Hess's Law)

   $$H_2(g) + \tfrac{1}{2}O_2(g) \rightarrow H_2O(l) \quad \Delta H°_f = -285.8 \text{ kJ/mol}$$
   $$H_2O_2(l) \rightarrow H_2(g) + O_2(g) \quad \Delta H°_{rxn} = 187.6 \text{ kJ/mol}$$

   calculate $\Delta H°_{rxn}$ for the reaction $H_2O_2(l) \rightarrow H_2O(l) + \tfrac{1}{2}O_2(g)$,

3. (4 Pts) Find $\Delta H°_{rxn}$ for the reaction

   $$CH_4(g) + 2O_2(g) \rightarrow CO_2(g) + 2H_2O(l).$$

   $[\Delta H°_f (CH_4(g)) = -74.8 \text{ kJ/mol}; \Delta H°_f (CO_2(g)) = -393.5 \text{ kJ/mol}; \Delta H°_f (H_2O(l)) = -285.5 \text{ kJ/mol}]$

4. (4 Pts)   At body temperature 2,404 joules of energy are required to evaporate 1.00 g of water. After vigorous exercise, a person feels chilly because the body is giving up heat to evaporate the perspiration. A typical person perspires 25 mL of water after 20. minutes of exercise. How much body heat is this person using to evaporate this water? (Assume the density of water is 1.00g/mL)

More on next page

5. (4 Pts) The specific heat of silver is 0.235 J/g·°C. How many joules of heat are required to heat a 75 g silver spoon from 20°C to 35°C?

6. (5 Pts) 25.00 mL of 0.505 M hydrochloric acid solution is reacted with 20.50 mL of 0.303 M barium hydroxide solution. Determine how many moles of the excess reactant is present when the reaction is done.