CHEM105 Quiz 6, Chapter 6 ***Name on back please…..***
Please show all work and explain fully to receive credit

1. Describe specifically, to include the appropriate reaction, exactly what is meant by the enthalpy of formation ($\Delta H_f°$) for butane [C_4H_{10} (l)].

2. Determine, in kJ, the heat gained or lost by the combustion of 2500 grams of ethanol [C_2H_5OH (l)]:

    a. Write the complete reaction for the combustion of ethanol.

    b. Calculate the change in enthalpy for the combustion of one mole of ethanol.

    c. Draw a reaction coordinate-enthalpy (energy) diagram for the combustion of ethanol.

    d. Calculate the heat gained or lost by the combustion of 2,500 grams of ethanol.

3. For the reaction of the hydroxyl radical [$\cdot OH$] with methane [CH_4] to form the methyl radical [$\cdot CH_3$] and water:

    a. Use bond energies to calculate the change in enthalpy.

    b. Draw a reaction coordinate - energy diagram for this reaction; clearly label the change in enthalpy.