Chemistry 141 Name

Dr. Cary Willard

Quiz 7A (20 points) March 19, 2009

1. (4 points) The heat of formation of liquid ethanol CH3CH2OH is -277.69 kJ. Write the reaction described by this heat of formation.
2. (10 points) In photosynthesis, the sun’s energy brings about the combination of CO2 and H2O to form O2 and a carbon-containing compounds such as a sugar. In its simplest form the reaction could be written

6 CO2*(g)* + 6 H2O*(l)* 🡪 6 O2*(g)* + C6H12O6*(s)*

What is the energy change for the formation of 100.0 g of sugar?

1. (6 points) Estimate the H for the conversion of 2 mol of ammonia from molecular nitrogen and molecular hydrogen. Is this reaction endothermic or exothermic?



Heats of formation

|  |  |
| --- | --- |
| compound | Hof (kJ/mol) |
| CO2(g) | -393.5 |
| H2O(l) | -285.8 |
| H2O(g) | -241.8 |
| C6H12O6(s) | -1274.4 |
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