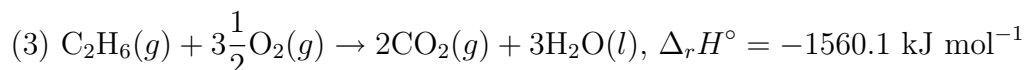
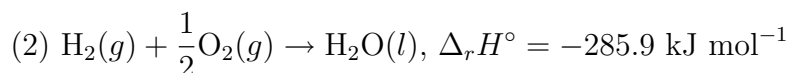


CHEM355 Exam I (Nov 2 2009).

$33\frac{1}{3}$ points / problem with maximum of 100 points.

1. What is the change in entropy when 1 mol of water melts at 0 °C and 1 bar pressure. The enthalpy of fusion for water under standard conditions is 6007 J/mol. The given process is reversible.
2. What is the standard enthalpy of formation ($\Delta_f H^\circ$) for ethane (C_2H_6) at 25 °C? The following standard reaction enthalpies at 25 °C are known:



The formation reaction of ethane corresponds to the reaction of graphite with hydrogen H_2 producing one mole of ethane.

3. One mole of monoatomic ideal gas initially at 298 K and 1.01 MPa expands adiabatically to the final external pressure of 101 kPa (reversible process). What is the final temperature of the gas, heat q , work w , change in internal energy ΔU and change in enthalpy ΔH ?