TEST – MEN211 (Thermodynamics II)

June 06, 2006

1. A closed, insulated container is charged with a stoichiometric ratio of oxygen and hydrogen at 25°C and 150 kPa. After combustion, liquid water at 25°C is sprayed in such that the final temperature is 1200 K. **What is the final pressure?** (40 pts)
2. **Evaluate changes in an isothermal process for u, h and s for a gas with an equation of state as P(v - b) = RT.** (30 pts)
3. Ammonia at –70°C is used in a special application at a quality of 50%. Assume the only table available is B2 or A13 (as in your textbook) that goes down to –50°C. To size a tank to hold 0.5 kg with x = 0.5, **give your best estimate for the saturated pressure and the tank volume.** (30 pts)