KSU – Chemical Engineering Department
ChE 212 (Thermodynamics) – TUT #4
Name: **ID:** **SN:**

1. A mass of 5 kg of saturated water vapor at 300 kPa is heated at constant pressure until the temperature reaches 200 ^{o}C. Calculate the work done during this process.

2. 0.8-m^3 cylinder contains nitrogen gas at 600 kPa and 300 K. Now the gas is compressed isothermally to a volume of 0.1 m^3. Calculate the work done during this compression process. R = 0.297 kJ/kg.K.

3. The specific heat at constant pressure for an ideal gas is given by $c_p = 0.9 + (2.7\times10^{-4})\,T$, (kJ/kg · K) where T is in kelvin. Calculate the change in the enthalpy for this ideal gas undergoing a process in which the temperature changes from 27 to 127°C.