

ME 24-221
Thermodynamics I

Quiz No: 3
September 29 2000
Instructor: J. Murthy
15 minutes
Open textbook, closed notes

Carbon dioxide is contained in a piston-cylinder assembly and undergoes an isothermal process. The initial pressure and temperature are 0.738 MPa and 1247.35°C respectively, and the mass is 0.1 kg. The final pressure is 0.1 MPa.

1. Compute the compressibility factor Z and determine whether the perfect gas law is applicable at the beginning and end states.
2. Find the work done in the process in kJ. Is work being done *on* the system or *by* the system?