Assignments for B.Sc - II (Physics)

Heat and Thermodynamics

(CC-201)

Prepare All these three.

(1) What is Joule-Thomson effect ? Describe Joule-Thomson porous plug experiment. Deduce a theoretical expression for the Joule-Thomson cooling. Why does hydrogen show a negative Joule-Thomson effect ?

(2) (a) Deduce general expression for Maxwell's thermodynamic relation and hence obtain Maxwell's four thermodynamic equations.

(b) Using Maxwell's thermodynamical relations, prove that for any substance, the ratio of the adiabatic and isothermal elasticities is equal to the ratio of the two specific heats.

(3) What are the two basic differences between a real gas and an ideal gas ? Discuss the observed deviation of a real gas from an ideal gas. Explain this deviation by Kinetic theory.
