CH1201: PRACTICE SESSION II

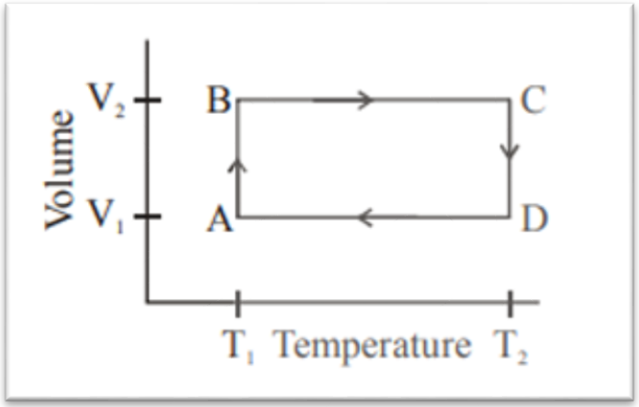
Conducted by Sukumar And Subhadip

Topics: Upto Lecture no 3 and 4

Dated 1st APRIL,2025

Question 1: Demonstrate that: 1) heat change and 2) work done are not perfectly differentiable quantities.

Question 2: One mole of an ideal gas undergoes a cyclic process (ABCDA) starting from point A through 4 reversible steps as shown in the figure. Total work done in the process is:



Question 3: A sample of 2.0 moles of O2 (g) (assumed ideal) at 500K is expanded from 5L to 50 L under adiabatic and reversible conditions. The change in its internal energy (in kJ) is close to:

Question 4: Establish pictorially and mathematically that the magnitude of the work involved in a reversible expansion of an ideal gas from volume V1 and V2 is larger than the corresponding work involved in an irreversible expansion against a constant pressure of p2.

Q.5 An ideal monoatomic gas ($C_{v,m}$=1.5 R) initially at 298 K and 1.013 MPa pressure expands adiabatically and irreversibly until it is in equilibrium with a constant pressure of 0.1013 MPa. What is the final temperature of the gas?