KATWA COLLEGE

DEPARTMENT OF PHYSICS

INTERNAL ASSESSMENT EXAMINATION -2022
B.Sc. (H), SEMESTER: -III, PAPER:-CC-VI (THERMAL PHYSICS)

F.M: 10   **TIME: 1 HOUR**

❖ **Answer any five from the following questions: -**   **5 x 2 = 10**

1. "Equation of a state of system only can be stated when the system is in thermodynamical equilibrium." Justify the statement.

2. Show that for an ideal gas, internal energy depends on temperature only but in case of Vander wall gas it is a function of temperature and volume both.

3. Write down the assumptions of kinetic theory of gas.

4. Prove that $C_P - C_V = -T \left(\frac{\partial P}{\partial V}\right)_T \left(\frac{\partial V}{\partial T}\right)_P^2$.

5. Calculate the ratio of root mean square speed C_{rms} and most probable speed C_m .

6. Show that expansion of an ideal gas is an irreversible process.

7. Determine the expression of the ratio of specific heats of a mixture of two gases of N_1 and N_2 molecules. Given γ_1 and γ_2 are the ratio of specific heats of the two gases.

8. Find the value of $\frac{P_C V_C}{T_C}$, Where P_C, V_C and T_C represent pressure, volume, and temperature at the critical point of the Vander wall gas.