Department of Physics

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Subject No. PH41023(Statistical Physics-I) Saturday 14th January, 2023
Assignment Due date : 18th July 2019) Total Marks: 10

Assignment # 1

§1. If the equation of state for a gas with internal energy U is

$$P\,V\ = \frac{1}{3}\,U$$

then equation for an adiabatic process is

§2. The generalized coordinates of a simple pendulum are the angular displacement θ and the angular momentum $n\,l^2\,\dot{\theta}$. Study, both mathematically and graphically, the nature of the corresponding trajectories in the phase space of the system, and so that the area A enclosed by a trajectory is equal to the product of the total energy E and the time period τ of the pendulum.

§3. Derive four Maxwell's relation corresponds to E, F, G, H potentials.

§4. Find the number of microstate and macrostate when two identical and unbias dices are rolled together?