Subject: Physics

Paper Code: GE 3

Paper: Thermal Physics and Statistical Mechanics

Due date: 28/09/2023

1. Explain the transport phenomena of a gas. 2
2. Explain the transportation of mass (or diffusion of a gas) and show that coefficient of diffusion increases with temperature as $T^{3/2}$. How does the diffusion coefficient depend upon the pressure? 5+ 3=8
3. What is meant by the mean free path of the molecules of a gas? derive an expression for it. Discuss how does it vary with pressure and temperature of the gas. 1+ 5+4=10