

M.Sc. DEGREE EXAMINATION, EVEN SEMESTER 2021
II Year III Semester
Statistical Mechanics

Max.marks :25

Answer any **FIVE** questions ($5 \times 5 = 25$) Marks

1. What is meant by phase transitions? Discuss Ehrenfests classifications.
2. What is an ensemble? Explain micro-canonical ensemble in detail.
3. Show that entropy increases when two gases at the same temperature and pressure diffuse into each other. Discuss Gibbs paradox in this connection.
4. State and prove Liouvilles theorem.
5. Compare the three different statistics Maxwell-Boltzmann, Fermi-Dirac and Bose-Einstein statistics.
6. Obtain the expression for Fermi-Dirac distribution law.
7. Discuss the concept of blackbody radiation and hence derive Plancks radiation law.