Guidelines for Odd Sem 2022-23

Paper: Thermal Physics

Teacher : Dr. Seema Gupta

Course: Bsc (H) Physics Sem III

Comprehend the basic concepts of thermodynamics, the first and the second law of thermodynamics.

• Understand the concept of entropy and the associated theorems, the thermodynamic potentials and their physical interpretations.

• Know about reversible and Irreversible processes. • Learn about Maxwell’s relations and use them for solving many problems in Thermodynamics

• Understand the concept and behavior of ideal and real gases.

• Learn the basic aspects of kinetic theory of gases, Maxwell-Boltzman distribution law, equitation of energies, mean free path of molecular collisions, viscosity, thermal conductivity, diffusion and Brownian motion.

• In the laboratory course, the students are expected to do some basic experiments in thermal Physics, viz., determination of Mechanical Equivalent of Heat (J), coefficient of thermal conductivity of good and bad conductor, temperature coefficient of resistance, variation of thermo-emf of a thermocouple with temperature difference at its two junctions and calibration of a thermocouple.

Essential Readings:

1. Heat and Thermodynamics: M.W. Zemansky and R.Dittman, (Tata McGraw-Hill.)

2. A Treatise on Heat :M.N.Saha and B.N.Srivastava, 1958 ( Indian Press.)

3. Thermal Physics: S. C.Garg, R. M. Bansal and C. K. Ghosh (Tata McGraw-Hill.)

4. Thermodynamics, Kinetic Theory & Statistical Thermodynamics :Sears and Salinger (Narosa).

5. Concepts in Thermal Physics: Blundell and Blundell ( Oxford Univ. press)

Additional Readings:

1. An Introduction to Thermal Physics: D. Schroeder (Pearson)

2. Thermal Physics :C. Kittel and H. Kroemer ( W. H. Freeman)