

W-3254(A)

M.Sc. (Fourth Semester) Examination, (Second Chance) June-2020

PHYSICS

Paper - PT-402

Statistical Mechanics

Time : Three Hours

Maximum Marks : 85

Minimum Pass Marks : 29

Note : Attempt **all** questions.

- Q.1. Differentiate between the three ensembles. Derive an expression for the Microcanonical partition function.
- Q.2. When does the rotation of molecules contribute towards the energy and hence the specific heat? Obtain an expression for the rotational specific heat at low temperatures.
- Q.3. What is the phenomenon of Bose-Einstein condensation? Is it different from the normal condensation phenomenon?
- Q.4. Obtain the thermodynamics of an ideal Bose-Einstein system.
- Q.5. Discuss the one-dimensional random walk problem in detail.

