

In the name of God

Department of Physics
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ADVANCED STATISTICAL PHYSICS I

Exercise Set 3

(Date Due: 1395/08/15)

1. Show the correspondence of Gibbs definition for entropy namely $S = k \ln \Omega$ and Shannon entropy, $S = -k \sum_i p_i \ln p_i$.
2. Solve exercise of chapter 1 (R. K. Pathria): Q1, Q3, Q5, Q7, Q9, Q12, Q15, Q16
3. In micro-canonical ensemble, compute the thermodynamical properties of ultra-relativistic particles.
4. Solve exercise of chapter 2 (R. K. Pathria): Q1, Q5, Q9

Good luck, Movahed
