In the name of God

Department of Physics
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ADVANCED STATISTICAL MECHANICS I

Exercise Set 4

(Due Date: 1400/09/16)

1. Show the correspondence between Gibbs definition for entropy namely $S = k_B \ln \Omega$ and Shannon entropy, $S = -k_B \sum_i P_i \ln P_i$. Here P_i is probability of finding ith macro-sate having n_i micro-states and $\mathcal{N}$ is total number of micro-states.

2. Solve exercise of chapter 1 (R. K. Pathria): Q1, Q3, Q5, Q7, Q9, Q12, Q15, Q16

Good luck, Movahed

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