

열 및 통계 물리 2 (수시고사 2)

출제교수명: 정형채

시행일자: 1998. 3. . 요일

자연과학 대학

학과

학년

학번:

성명:

1. A simple harmonic 1D oscillator has energy levels given by $E_n = (n + \frac{1}{2})h\omega/2\pi$ with $n = 0, 1, 2, \dots$. Suppose that such an oscillator is in thermal contact with a heat reservoir at temperature T low enough so that $2\pi kT \ll h\omega$.
 - (a) Find the ratio of the probability if the oscillator being in the second excited state to the probability of its being in the ground state.
 - (b) Assuming that only the ground state and first and second excited states are appreciably occupied, find the mean energy of the oscillator as a function of the temperature T .

2. Translate the Example in pages 204 and 205 into Korean. (You don't need to draw the fig. 6.2.1.)