

Phy 410
Quiz #2, Jan 29, 2010

Two systems S_1 ($N_1=100$, $U_1=100$) and S_2 ($N_2=200$, $U_2=20$) are not in thermal contact initially. The number of microstates accessible to S_1 is g_1 and to S_2 is g_2 .

a) What is the number of microstates accessible to the combined system S_2+S_1 , g ? (2 points)

b) The two systems are brought into thermal contact (energy exchange) and they come to thermal equilibrium. (3 points)

Which of the following statements is true?

- i) g will decrease**
- ii) g will remain constant**
- iii) g will increase**

c) What are the energies of the two systems when they are in thermal equilibrium? (5 points)