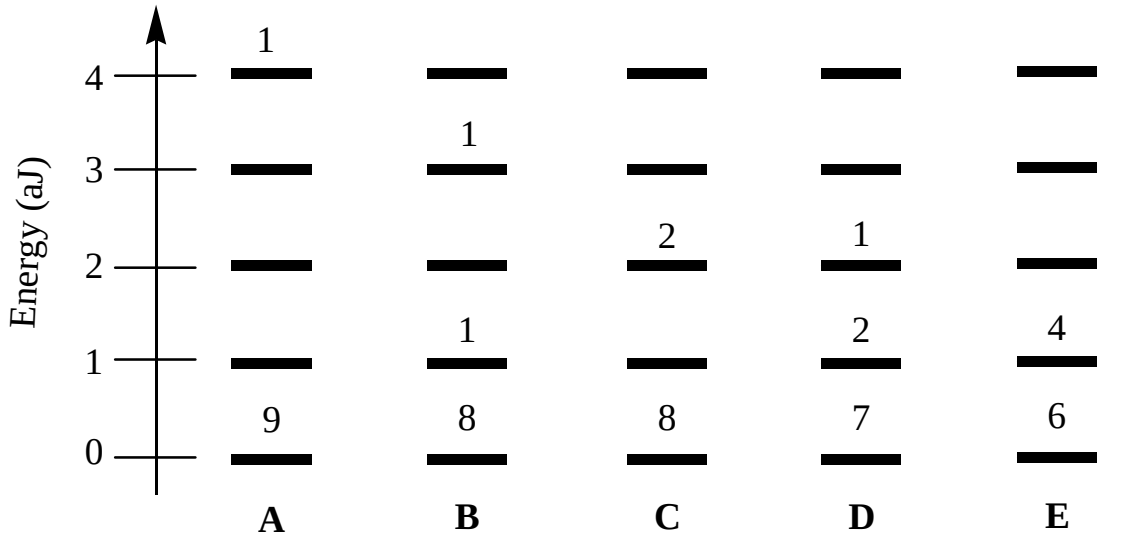
Accelerated General Chemistry
Chapter 7 Example Problem

1. Let's revisit an example from Chapter 2. We have ten particles and 4 x 10^{-18} J (that is, 4 aJ) of energy. The particles have equally spaced (vibrational) energy levels 1 aJ apart. This means that each particle can gain or lose 1 aJ of energy at a time. Here are all the possible energy distributions:



$W_A = 10$ $W_B = 90$ $W_C = 45$ $W_D = 360$ $W_E = 210$

(a) Confirm that **D** is a valid distribution by calculating its internal energy (in J).

(b) Calculate the change in entropy (in J K^{-1}) as a system goes from Distribution A to Distribution D.