Assignment-1

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1) The entropy of an isolated system always , , , , and becomes a , , at the state of equilibrium.
   - decreases, minimum
   - increases, maximum
   - decreases, maximum
   - increases, minimum

   No, the answer is incorrect.
   Score: 2
   Accepted Answers:
   increases, maximum

2) Which of the following statements is true.
   - A given macrostate typically corresponds to a large number of microstates.
   - A given macrostate always has exactly one microstate.
   - Entropy is a function of the microstates of the system.
   - Different microstates always correspond to different macrostates.

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   A given macrostate typically corresponds to a large number of microstates.

3) From a standard deck of cards if you have a hand of 6 cards, 5 of which are black, calculate the entropy of the system.
   - 11.25
   - 27.69
   - 78.50
   - 10.65

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   10.65

4) How many 3 black and 3 red cards are picked from a standard deck of 52 cards, while Bob has a black and 2 red cards also from a standard deck. What is the potential energy of Bob?
   - Alice
   - Bob
   - Both have some entropy
   - Cannot be determined

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   Cannot be determined

5) Consider a case where there are 3 steps in a staircase all with equal height h and there are 3 different people on the staircase with equal weights.

   How many ways can the potential energy be the same?
   - 6
   - 3
   - 1
   - 7

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   1

6) For the same system as the above question what value of the potential energy will have the maximum possible ways of occurrence.
   - 6h
   - 3h
   - 1h
   - 7h

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   3h

7) Consider a staircase with 3 steps and 3 identical marbles arranged on them. The steps are of height h and marbles are of weight w. How many ways can the potential energy be the same?
   - 1
   - 4
   - 7
   - 6

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   1

8) For a system of marbles on an endless staircase there can be cases of negative temperature.
   - True
   - False

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   False