Chapter 7 Question #2

Which of the following reverse state transitions(from 2 to 1) are consistent with the First Law of Thermodynamics?

A. State 1: Two identical blocks of copper are put in contact. One is at 200K the other is at 300K. The two (together) are thermally-insulated from the environment. State 2: Blocks of copper now at T=250K.

B. State 1: A flywheel is spinning in air in a thermally-insulated rigid container. The flywheel and air at at the same temperature. State 2: The flywheel has stopped and the air temperature is higher.

C. State 1: Gas X fills half of a rigid container and another gas Y occupies the other half. The temperature is T. State 2: The gases are uniformly mixed throughout the container and the temperature is T.

1) A 2) B 3) C 4) All of them 5) None of them

6) I am not sure

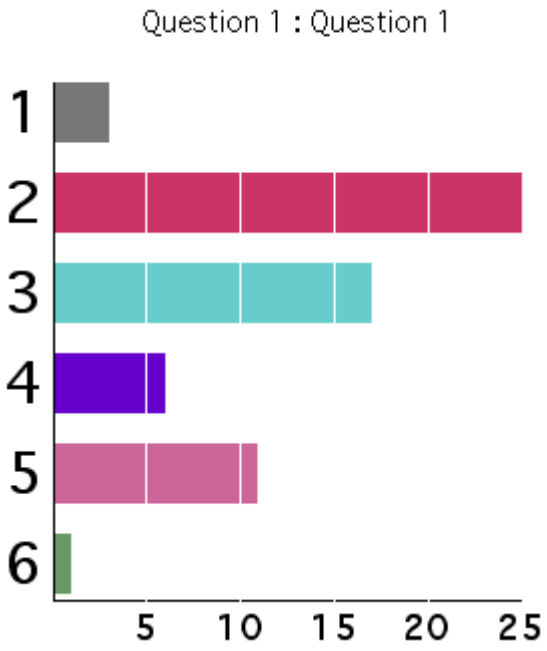
LO#5

Chapter 7 Question 2 Answer:

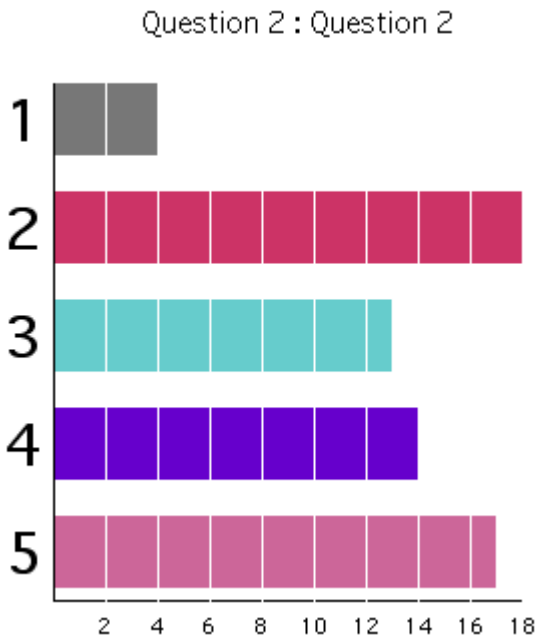
(4) All of them

All of the reverse state transitions are consistent with the First Law of Thermodynamics. All of them conserve energy. The First Law says nothing about direction. Any process that satisfies the First Law in one direction also satisfies it in the reverse direction.

Class Response (2003):



Class Response (2002):



After discussion with other students: