

QUIZ # 5 - PHYS 300 (Mendes, Spring 2009)

Name: _____

(30 credits)

1) a) As we know, the ionization energy for hydrogen atom is 13.6 eV. At what temperature is the average kinetic energy of translation equal to 13.6 eV?

b) What is the average kinetic energy of translation of hydrogen atoms at 10^7 K, a typical temperature in the interior of the Sun?

c) Do you expect hydrogen to be ionized or not in the interior of the Sun? Explain your answer based on your results above.

(see next question on back side)

(10 credits)

2) Given three containers all at the same temperature, one filled with a gas of classical molecules, one with a fermion gas, and one with a boson gas, which will have the highest pressure? Support your answer.