Quiz I: Gases

NAME: _____
(Total Score: /10)

In all problems, please be certain to show the:
(a) original form of a formula, (b) any formula rearrangements
Please pay particular attention to units and significant figures.

1. The cylinder of hydrogen in the CB chemistry laboratory is at 22.0 ^{O}C and has a pressure of a
 4.00 atm. The cylinder can withstand an internal pressure of 14.5 atm. Calculate the
temperature, in Celsius degrees at which the hydrogen cylinder in the CB laboratory would
explode if the building caught fire. (Assume the moles of oxygen gas and the volume remain
constant.)   2

2. What is the final volume of 5.30 L of a gas at 110 ^{O}C and 210 kPa, when it is changed to
STP?   3

3. Calculate the number of molecules of carbon dioxide that occupy a volume of 200.0 L at 18.5 °C and at 98.0 kPa.   3

Multiple Choice (2)

1. If a certain volume of H_2 gas contains 1000 molecules, the same volume of O_2 gas at the same temperature and pressure would contain:

a. 1000 molecules
b. 2000 molecules
c. 4000 molecules
d. 6.02 x 10^{23}

2. A child's balloon contains a certain volume of helium at room temperature and pressure. Under which change of conditions will the volume become greatest?

A. Higher temperature and higher pressure.
B. Higher temperature and lower pressure.
C. Lower temperature and higher pressure.
D. Lower temperature and lower pressure