Quiz I: Gases

SCH3U_2016 - 2017_V 6

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. An automobile tire contains air at a pressure of 2.00 atm and 25 °C. After an hour of driving, the tire heated up and the pressure increased to 2.75 atm. Assuming the tire neither expands nor leaks, what is the temperature of the gas inside the tire, in Celsius degrees ? 2

3. How many liters of $O_{2(g)}$ will be produced at 175 ^{O}C and 105.1 kPa in the decomposition of 256 g potassium chlorate? 4

$$2\ KClO_{3\ (s)} \longrightarrow 2KCl_{(s)} + 3O_{2(g)}$$

3. 100 cm^3 of ethene gas, $C_2H_{4(g)}$, is burned in of 400 cm^3 oxygen gas, producing carbon dioxide

gas and some liquid water. Some oxygen remains unreacted.

(a) Write the equation for the complete combustion of ethene in oxygen gas. 2

(b) Calculate the volume of carbon dioxide produced and the volume of oxygen remaining. Assume all gases are measured at the same temperature and pressure. 2