Quiz I: Gases

SCH3U_2016 - 2017_V 4

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. Anesthetic gas is normally given to a patient when the room temperature is 22.0 ^{O}C. What would be the volume of 1.45 L of an anesthetic gas in the body of a patient where the temperature is 37.0 ^{O}C? (Assume the pressure and the moles of gas remain constant.) 2

2. Jupiter's atmosphere contains a high concentration of a gas unknown on Earth, it contains 64.8 % carbon, 13.5 % hydrogen and 21.7 % oxygen.

a. Calculate the empirical formula of this unusual gas. 3

b. On the surface of Jupiter, where the temperature is 208 ^{O}C and the pressure is 98.3 kPa, 54.5 cm^3 of this gas has a mass of 0.100 g. Calculate the molar mass of the gas. 3

c)Use the results of your calculations on parts (a) and (b) to determine the molecular formula of the gas. 1

Multiple Choice (1)

1. At a certain temperature and pressure, 0.20 mol of $CO_{2(g)}$ has a volume of 3.0 L. A 3.0 L sample of hydrogen gas at the same temperature and pressure:

a. has a higher density
b. contains the same number of molecules
c. has the same mass
d. contains the same number of atoms