

## Quiz I: Gases

SCH3U\_2016 - 2017\_V 5

NAME: \_\_\_\_\_

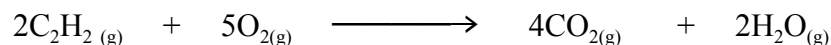
(Total Score: /10)

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 balanced equation for the combustion of ethyne, (A.K.A. acetylene),  $C_2H_2(g)$  is given below:



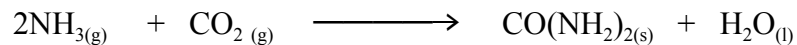
If 10.0 L of ethyne is burned with 10.L of oxygen gas, when measured at the same temperature and pressure, what volume of carbon dioxide will be formed and what volume of the excess gas will remain unreacted?

2

2. A bubble of gas underwater with a volume of 0.0355 L and at a pressure of 455 kPa rises to the surface where the pressure is only 103 kPa. What would be the size of the bubble if the temperature has not changed?

2

3. Urea,  $\text{CO}(\text{NH}_2)_{2(s)}$  is used as a fertilizer. It is made by the reaction of ammonia gas and carbon dioxide gas, according to the following equation:



What volume of ammonia gas measured at  $37.0^\circ\text{C}$  and  $105\text{ kPa}$  is required to produce  $600\text{ g}$  of urea,  $\text{CO}(\text{NH}_2)_{2(s)}$  ? 4

#### Multiple Choice (2)

1. If the temperature is kept constant, what is the volume of  $500\text{ mL}$  of gas, when the pressure is reduced to  $100\text{ kPa}$  to  $50\text{ kPa}$ ?

- A.  $250\text{ mL}$
- B.  $500\text{ mL}$
- C.  $900\text{ mL}$
- D.  $1000\text{ mL}$

2. A gas occupies a volume  $0.2\text{ L}$  at  $25\text{ kPa}$ . What volume will the gas occupy at  $2.5\text{ kPa}$ ?

- A.  $4\text{ L}$
- B.  $20\text{ L}$
- C.  $2\text{ L}$
- D.  $0.02\text{ L}$