

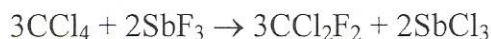
C

Multiple Choice

- 1) When 5.14 g of the hydrated magnesium sulfate $\text{MgSO}_4 \cdot x\text{H}_2\text{O}$ are heated till all its water of crystallization is driven off 2.51 g of the anhydrous MgSO_4 are obtained. Calculate the value of x (the number of the water molecules combined in the hydrated form).

☐ A) 7 B) 5 C) 3 D) 10

- 2) For the manufacture of Freon-12 gas CCl_2F_2 according to:



146.0 kg of SbF_3 were allowed to react with 200.0 kg of CCl_4 . After the reaction was finished, 120.0 kg of CCl_2F_2 were obtained. Calculate the percentage yield of CCl_2F_2 ?

☐ A) 79% B) 81% C) 85% D) 77%

- 3) Automotive air bags inflate when sodium azide NaN_3 decomposes to its constituent elements:



How many grams of NaN_3 are required to inflate an air bag by 70.0 L of N_2 at 35°C and 1.0 atm pressure?

☐ A) 110 B) 105 C) 120 D) 100

- 4) The mass, in g, of water produced as a result of combusting 27.3 g of C_8H_{18} is:



☐ A) 30.25 B) 32.17 C) 38.75 D) 29.32

- 5) The mass, in g, of $\text{Mg}(\text{NO}_3)_2$ in 150 mL of 2.2 M aqueous solution of $\text{Mg}(\text{NO}_3)_2$ is:

☐ A) 48.95 B) 35.65 C) 25.65 D) 55.65

- 6) The mole fraction of HCl in an aqueous solution that is 36.46% HCl by mass is:

☐ A) 0.25 B) 0.31 C) 0.35 D) 0.22

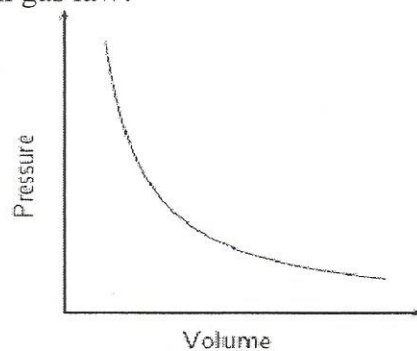
- 7) For a gas, if " $P \times V$ " does not equal " $n \times R \times T$ " (deviation from the ideal gas law is pronounced), which of the following could be the reason:

☐ A) the attractions between the gas particles are very small.
☐ B) the temperature of the gas is very low.
☐ C) the pressure of the gas is very low.
☐ D) the volumes of the gas particles are very small.

C

8) The diagram on the right is a graphical presentation of which gas law?

- ☐ A) Boyle's law
B) Charles law
C) Graham's law
D) Avogadro's law



9) Which of the following gases effuses about two times faster than $\text{SO}_2(\text{g})$?

- ☐ A) O_2 B) CO_2 C) CO D) CH_4
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