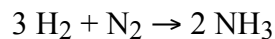
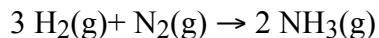


1. $\text{Co}(\text{ClO}_4)_3$ is
- A. cobalt tri-chlorotetroxide.
 - B. cobalt chlorate.
 - C. cobaltous chlorate.
 - D. cobalt(III) perchlorate.
2. What is the formula of sodium nitrite?
- A. SNO
 - B. NaNO_2
 - C. NaNO_3
 - D. Na_2NO_2

3. What is NOT a true statement about the following chemical reaction?

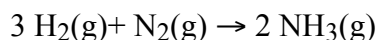


- A. For every nitrogen molecule consumed, two molecules of ammonia are produced.
 - B. For every two moles of nitrogen consumed, three moles of ammonia are produced.
 - C. For every three moles of hydrogen consumed, two moles of ammonia are produced.
 - D. For every two molecules of ammonia made, three molecules of hydrogen are consumed.
4. Volumes of a gas are proportional to the number of moles of gas (under constant pressure and temperature). If 3 liters of hydrogen gas are combined with 1 liter of nitrogen under conditions that favor a complete reaction, what will be the final volume after reaction takes place?

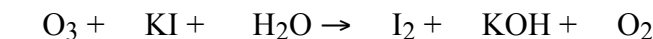


- A. 2 liters
- B. 6 liters
- C. 4 liters
- D. 5 liters

5. Volumes of a gas are proportional to the number of moles of gas (under constant pressure and temperature). If 6 liters of hydrogen gas are combined with 2 liters of nitrogen under conditions that favor a complete reaction, what will be the final volume after reaction takes place?



- A. 2 liters
B. 6 liters
C. 4 liters
D. 10 liters
6. Ozone, O_3 , has a characteristic odor and is formed by high voltage electrical discharge in the air. It reacts with potassium iodide, KI, and water to form iodine, I_2 , potassium hydroxide and O_2 . In the balanced equation, the necessary balancing coefficients are given in order:



- A. 2, 1, 2, 2, 1, 2
B. 1, 1, 2, 1, 1, 2
C. 1, 2, 1, 1, 2, 1
D. 1, 1, 1, 2, 2, 2
7. The characteristic "fishy" odor comes from methylamine, CH_3NH_2 , that is similar to ammonia, NH_3 , in structure and also in its ability to react with acids. Lemon juice and vinegar are good accompaniments to fish that are a little too "fishy" because of this acid-base chemistry. Which equation shows the reaction between methylamine and acetic acid, CH_3COOH , that is found in vinegar?
- A. $\text{CH}_3\text{NH}_2 + \text{CH}_3\text{COOH} \rightarrow \text{CH}_3\text{NH}_2\text{CH}_3\text{COOH}$
B. $\text{CH}_3\text{NH}_2 + \text{CH}_3\text{COOH} \rightarrow \text{CH}_3\text{NH}_3^+ + \text{CH}_3\text{COO}^-$
C. $\text{CH}_3\text{NH}_2 + \text{CH}_3\text{COOH} \rightarrow \text{CH}_3\text{CH}_3 + \text{NH}_2\text{COOH}$
D. $\text{CH}_3\text{NH}_2 + \text{CH}_3\text{COOH} \rightarrow \text{CH}_3\text{NH}^- + \text{CH}_3\text{COHOH}^+$