CHEM 1364
Thursday Quiz #6
February 21, 2013
Spring 2013 (Buckley)

Each question is worth 2 points. If you show your work you could receive some partial credit.

1. A substance has a molar mass of 50 g/mol. How many grams of the substance are in 5.0 moles of it?

2. A substance has a molar mass of 50 g/mol. How many moles of the substance are in 350 g of it?

For the remaining questions consider the reaction given below.

\[
\text{Al(OH)}_3 \text{(s)} + 3 \text{HCl (aq)} \rightarrow \text{AlCl}_3 \text{(aq)} + 3 \text{H}_2\text{O (l)}
\]

3. How many moles of H\textsubscript{2}O could be formed from the reaction of 6.0 mol of Al(OH\textsubscript{3})?

4. How many moles of HCl would be required to react with 6.0 mol of Al(OH\textsubscript{3})?

5. If 8.0 mol of Al(OH\textsubscript{3}) reacted with 20.0 mol of HCl, which would be the limiting reactant?

6. How many moles of AlCl\textsubscript{3} could be formed from the reaction in Question 5?
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1. A substance has a molar mass of 70 g/mol. How many grams of the substance are in 5.0 moles of it?

2. A substance has a molar mass of 70 g/mol. How many moles of the substance are in 210 g of it?

For the remaining questions consider the reaction given below.

\[
\text{Al(OH)}_3 (s) \quad + \quad 3 \text{ HCl (aq)} \quad \rightarrow \quad \text{AlCl}_3 (aq) \quad + \quad 3 \text{ H}_2\text{O (l)}
\]

3. How many moles of \( \text{H}_2\text{O} \) could be formed from the reaction of 5.0 mol of \( \text{Al(OH)}_3 \)?

4. How many moles of \( \text{HCl} \) would be required to react with 5.0 mol of \( \text{Al(OH)}_3 \)?

5. If 6.0 mol of \( \text{Al(OH)}_3 \) reacted with 20.0 mol of \( \text{HCl} \), which would be the limiting reactant?

6. How many moles of \( \text{AlCl}_3 \) could be formed from the reaction in Question 5?
Each question is worth 2 points. If you show your work you could receive some partial credit.

1. A substance has a molar mass of 60 g/mol. How many grams of the substance are in 5.0 moles of it?

2. A substance has a molar mass of 60 g/mol. How many moles of the substance are in 240 g of it?

For the remaining questions consider the reaction given below.

\[
\text{Al(OH)}_3 (s) + 3 \text{HCl (aq)} \rightarrow \text{AlCl}_3 (aq) + 3 \text{H}_2\text{O (l)}
\]

3. How many moles of H\textsubscript{2}O could be formed from the reaction of 8.0 mol of Al(OH\textsubscript{3})?

4. How many moles of HCl would be required to react with 8.0 mol of Al(OH\textsubscript{3})?

5. If 7.0 mol of Al(OH\textsubscript{3}) reacted with 20.0 mol of HCl, which would be the limiting reactant?

6. How many moles of AlCl\textsubscript{3} could be formed from the reaction in Question 5?
Each question is worth 2 points. If you show your work you could receive some partial credit.

1. A substance has a molar mass of 40 g/mol. How many grams of the substance are in 5.0 moles of it?

2. A substance has a molar mass of 40 g/mol. How many moles of the substance are in 160 g of it?

For the remaining questions consider the reaction given below.

$$\text{Al(OH)}_3 (s) + 3 \text{HCl (aq)} \rightarrow \text{AlCl}_3 (aq) + 3 \text{H}_2 \text{O (l)}$$

3. How many moles of H$_2$O could be formed from the reaction of 4.0 mol of Al(OH)$_3$?

4. How many moles of HCl would be required to react with 4.0 mol of Al(OH)$_3$?

5. If 6.0 mol of Al(OH)$_3$ reacted with 22.0 mol of HCl, which would be the limiting reactant?

6. How many moles of AlCl$_3$ could be formed from the reaction in Question 5?