Question #: 1

Which of the following cannot be brought into the lab?

A. Bottle of water
B. Lab notebook
C. Goggles
D. Pen

Question #: 2

Flammable liquids

A. do not evaporate unless boiled.
B. need direct flame for heating.
C. can catch fire easily.
D. can be stored with all other reagents.

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Properly and clearly labeling chemicals in containers helps to reduce

A. putting stoppers on containers.
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It is a sunny 80 °F day in Lexington and four students are on their way to chemistry lab. Which of the following students is correctly dressed for lab?

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A. 5 minutes  
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A metal cube having a mass of 76 grams is dropped into a graduated cylinder containing 30.00 mL of water. This causes the water level to rise to 39.50 mL. What is the density of the cube?

A. 9.5 g/mL  
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C. 1.9 g/mL  
D. 720 g/mL

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A 10-mL graduated cylinder, shown in picture below, was used to measure the volume of a liquid reagent added to the reaction flask. A section of the graduated cylinder, which includes the meniscus of the solution, is enlarged for illustrative purposes. How many significant figures should be shown in this measurement?

![Graduated Cylinder Image]

A. 1  
B. 2  
C. 3  
D. 4
Question #: 8

On the balance shown below, what will the balance read after it has been tared?

A. 5.4982 g  
B. 45.2935 g  
C. 0.0904 g  
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How many grams of baking soda (NaHCO₃) do you need to neutralize 250.0 mL of battery acid (H₂SO₄) that has been spilled on your garage floor? Assume that the concentration of the battery acid is 12.00 M.

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\text{H}_2\text{SO}_4(aq) + 2 \text{NaHCO}_3(s) \rightarrow \text{Na}_2\text{SO}_4(aq) + 2 \text{CO}_2(g) + 2 \text{H}_2\text{O}(l)
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A. 1,220 g  
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If 15 grams of anhydrous copper(II) chloride reacts with 20. grams of sodium nitrate to form copper(II) nitrate and sodium chloride, what is the limiting reactant?

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Balance the following chemical reaction by filling in the coefficient blanks below with the smallest possible whole numbers. If the coefficient is 1, enter the number 1.

\[ \text{1} \text{ Na}_3\text{PO}_4(aq) + \text{2} \text{ CaCl}_2(aq) \rightarrow \text{3} \text{ NaCl}(aq) + \text{4} \text{ Ca}_3(\text{PO}_4)_2(aq) \]

1. __________
2. __________
3. __________
4. __________

Question #: 12

To avoid plagiarizing, when in doubt,

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A student is writing a lab report and uses the ideas of another writer, but changes the words and gives no citations. What guideline to avoid plagiarizing did she violate?

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Question #: 14

Which of these sources must be cited in the References section of a lab report? Select all that apply.

A. common knowledge
B. textbooks
C. experimental data
D. journal articles
**Question #**: 15

Determine whether the student’s work is plagiarism and if so, the reason why.

Original text:

“Many organic molecules consist predominantly of a backbone of carbons linked by single bonds, with only hydrogen atoms attached. However, they may also contain doubly or triply bonded carbons, as well as other elements.”


Student’s text:

Organic molecules are made up of single, double or triple bonded carbon atoms linked together, as well as other elements (Vollhardt, et.al.).


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**Question #**: 16

A molecule of CSe$_2$ has a total of ___1___ valence electron(s) and the carbon atom displays a ___2___ molecular geometry.

1. __________
2. __________

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How many single bonds are present in a CH$_2$CHOCH$_3$ molecule?

A. 1  
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What is the formal charge for silver in Ag₂SO₄?

A. +1  
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Which of the following molecules has the smallest number of electron groups around the central atom?

A. IF₃  
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C. CCl₄  
D. XeF₂

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What is the bond order of the nitrogen-oxygen bonds in the nitrite ion, NO₂⁻?

A. 1.0  
B. 1.5  
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D. 2.5

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Consider the structure of glycine, shown below without lone pairs. What is the hybridization of the nitrogen atom indicated with the arrow?

A. sp  
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What is the freezing point of a solution prepared by dissolving 11.5 g of Ca(NO₃)₂ in 120.0 g of water? The $K_f$ of water is 1.86 °C/m.

A. −0.583 °C  
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What is the predicted van't Hoff factor for a dilute aqueous solution of barium hydroxide?

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A student prepared a sugar solution containing 1.0254 g sugar (C\textsubscript{12}H\textsubscript{22}O\textsubscript{11}) in 25.00 mL of water and collected the freezing point data shown below. What is the $K_f$ of water based on the student's data?

![Freezing Point of Pure Water](image1)

![Freezing Point of Sugar Solution](image2)

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Which of the following is not a colligative property of solutions?

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\[ \text{1 grams of salt} \]

1. __________

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How does a catalyst work?

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<td>0.720</td>
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A. $\text{rate} = [\text{A}]^2[\text{B}]^2$
B. $\text{rate} = [\text{A}]^1[\text{B}]^1$
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1. 2
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\text{Freezing Point of Pure Water} \\
\begin{array}{c|cccccccccccc}
\text{Temperature (°C)} & 20 & 18 & 16 & 14 & 12 & 10 & 8 & 6 & 4 & 2 & 0 \\
\hline
\text{time (seconds)} & 0 & 10 & 20 & 30 & 40 & 50 & 60 & 70 & 80 & 90 & 100 \\
\end{array}
\end{array} \]

\[ \begin{array}{c}
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\begin{array}{c|cccccccccccc}
\text{Temperature (°C)} & 25 & 20 & 15 & 10 & 5 & 0 \\
\hline
\text{time (seconds)} & 0 & 10 & 20 & 30 & 40 & 50 \\
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