

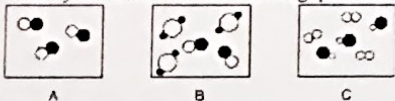
Unit 2A Quest Review

1. Which substance represents a compound?  
 A. C (s)      C CO (g)  
 B. Co (s)     D O<sub>2</sub> (g)

2. When potassium chloride, KCl (s) is dissolved in water, the resulting solution is classified as a  
 A. heterogeneous compound  
 B. homogeneous compound  
 C. heterogeneous mixture  
 D. homogeneous mixture

3. Two substances, A and Z, are to be identified. Substance A cannot be broken down by a chemical change. Substance Z can be broken down by a chemical change. What can be concluded about these substances?  
 A. Both substances are elements.  
 B. Both substances are compounds.  
 C. Substance A is an element and substance Z is a compound.  
 D. Substance A is a compound and substance Z is an element.

6. Base your answers to the following questions on the particle diagrams below:



7. Explain, in terms of composition, why sample A represents a pure substance

Each molecule is identical  
cannot be physically separated

8. Explain why sample C would represent a mixture of fluorine (F<sub>2</sub>) and hydrogen chloride (HCl)

can be physically separated

9. Contrast sample A and sample B, in terms of compounds and mixtures. Include both sample A and sample B in your answer

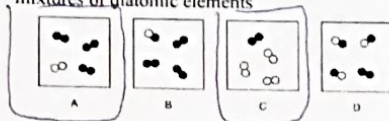
A = compound  
B = mixture

10. What mass contains  $6.02 \times 10^{23}$  atoms?

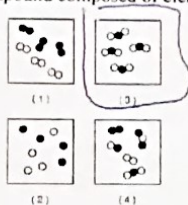
- A. 7 g of nitrogen      B. 40 g of calcium      C. 10 g of neon      D. 14 g of silicon

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4. Circle the two particle diagrams that represent mixtures of diatomic elements



5. Which particle model diagram represents only one compound composed of elements X and Z?



11. How many moles are present in 34 grams of Cu(OH)<sub>2</sub>?

0.35 mol

12. How much does 4.2 moles of Ca(NO<sub>3</sub>)<sub>2</sub> weigh?

690 grams

13. How many moles are present in  $2.45 \times 10^{23}$  molecules of CH<sub>4</sub>?

0.407 moles

14. How many grams are there in  $3.4 \times 10^{24}$  molecules of NH<sub>3</sub>?

96 grams

15. The molecular formula of glucose is C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>. What is the empirical formula of glucose?

CH<sub>2</sub>O

16. What is the percent composition by mass of oxygen in H<sub>2</sub>SO<sub>4</sub> (molar mass = 98 g/mol)?

65%

17. A compound has the empirical formula CH<sub>2</sub>O and a gram-formula mass of 60 grams per mole. What is the molecular formula of this compound?

C<sub>2</sub>H<sub>4</sub>O<sub>2</sub>

18. A certain blue solid contains 36.84% N and 63.16% O. What is the empirical formula of this compound?

N<sub>2</sub>O<sub>3</sub>

Name \_\_\_\_\_  
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