

1. Powdered sulfur is yellow, and powdered iron is gray. When powdered sulfur and powdered iron are mixed at 20°C, the powdered iron

- A) becomes yellow B) becomes a liquid
C) remains ionic D) remains magnetic

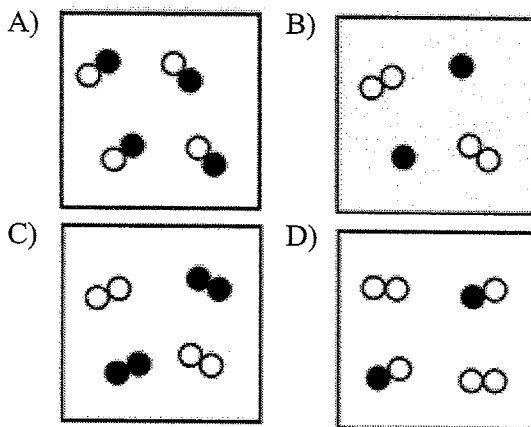
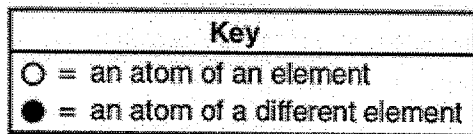
2. Two grams of potassium chloride are completely dissolved in a sample of water in a beaker. This solution is classified as

- A) an element
B) a compound
C) a homogeneous mixture
D) a heterogeneous mixture

3. Which formula represents a mixture?

- A) $C_6H_{12}O_6(l)$ B) $C_6H_{12}O_6(s)$
C) $LiCl(aq)$ D) $LiCl(s)$

4. Which particle diagram represents a mixture of an element and a compound?



5. A dilute, aqueous potassium nitrate solution is best classified as a

- A) homogeneous compound
B) homogeneous mixture
C) heterogeneous compound
D) heterogeneous mixture

6. Which must be a mixture of substances?

- A) solid B) liquid
C) gas D) solution

7. Bronze contains 90 to 95 percent copper and 5 to 10 percent tin. Because these percentages can vary, bronze is classified as

- A) a compound B) an element
C) a mixture D) a substance

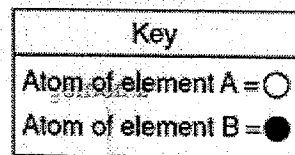
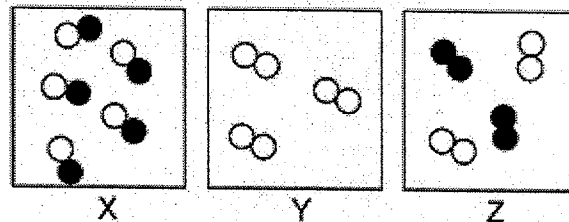
8. A mixture of crystals of salt and sugar is added to water and stirred until all solids have dissolved. Which statement best describes the resulting mixture?

- A) The mixture is homogeneous and can be separated by filtration.
B) The mixture is homogeneous and cannot be separated by filtration.
C) The mixture is heterogeneous and can be separated by filtration.
D) The mixture is heterogeneous and cannot be separated by filtration.

9. An aqueous solution of sodium chloride is best classified as a

- A) homogeneous compound
B) homogeneous mixture
C) heterogeneous compound
D) heterogeneous mixture

10. Given the diagrams *X*, *Y*, and *Z* below:



Which diagram or diagrams represent a mixture of elements *A* and *B*?

- A) *X*, only B) *Z*, only
C) *X* and *Y* D) *X* and *Z*

11. Which of these contains only one substance?

- A) distilled water B) sugar water
C) saltwater D) rainwater

12. Which of these terms refers to matter that could be heterogeneous?

- A) element B) mixture
C) compound D) solution

13. One similarity between all mixtures and compounds is that both

- A) are heterogeneous
B) are homogeneous
C) combine in a definite ratio
D) consist of two or more substances

14. Which sample of matter is classified as a solution?

- A) $\text{H}_2\text{O}(s)$ B) $\text{H}_2\text{O}(\ell)$
C) $\text{CO}_2(g)$ D) $\text{CO}_2(aq)$

15. Which formula represents a homogeneous mixture?

- A) $\text{H}_2\text{O}(\ell)$ B) $\text{H}_2\text{S}(g)$
C) $\text{NaH}(s)$ D) $\text{HCl}(aq)$

16. An example of a heterogeneous mixture is

- A) soil B) sugar
C) carbon monoxide D) carbon dioxide

17. Which material is a mixture?

- A) water B) air
C) methane D) magnesium

18. When sample *X* is passed through a filter paper a white residue, *Y*, remains on the paper and a clear liquid, *Z*, passes through. When liquid *Z* is vaporized, another white residue remains. Sample *X* is best classified as

- A) an element
B) a compound
C) a heterogeneous mixture
D) a homogeneous mixture

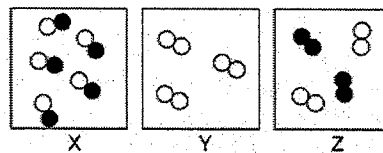
19. Any substance composed of two or more elements that are chemically combined in a fixed proportion is

- A) an isomer B) an isotope
C) a solution D) a compound

20. Describe diagrams *X*, *Y*, and *Z* using the following terms:

- Pure substance
Compound
Element
Mixture of elements
Mixture of compounds

You may use more than one term for each diagram.



Key	
Atom of element A =	○
Atom of element B =	●