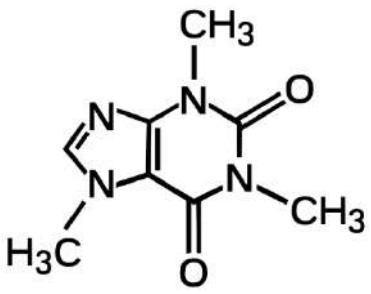
Chemistry Unit Test 2 Review HSPS 2015-2016

Name:_____

S8P1a. Students will distinguish between atoms and molecules.

1. Molecules are a combination of
   a. Mixtures
   b. Neutrons
   c. Atoms
   d. Compounds

2. The picture to the right represents
   a. An atom.
   b. A molecule.
   c. A mixture.
   d. An electron.

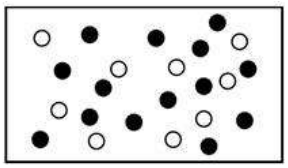


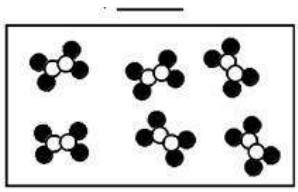
S8P1b. Students will describe the difference between pure substances (elements and compounds) and mixtures.

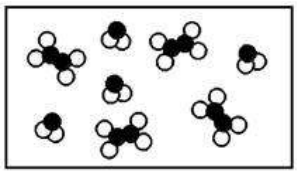
3. Acetylsalicylic Acid is an example of
   a. A compound.
   b. A mixture.
   c. An element.
   d. An orangutan.

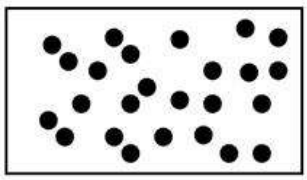
4. If you fold copper and zinc together you get brass. This makes brass
    a. An element.
    b. A compound.
    c. A mixture.
    d. An isotope.

5. Which of the following pictures represents a compound?

a. 

b. 

c. 

d. 

S8P1 d. Distinguish between physical and chemical properties of matter as physical

6. A group of students were asked to identify three white powders. The students used physical and chemical properties to identify the powders. They computed the density of each powder. They checked to see if any dissolved in water. One of the powders did not dissolve in water and they thought it was cornstarch. They knew that cornstarch felt slippery and reacted with iodine. The students put a few drops of iodine on each powder. One powder turned black; it was definitely cornstarch. Another powder, baking soda, reacted with vinegar. It fizzed and the test tube got hot. Which of these is an observed chemical property?
    a. The density of the powders.
    b. Color of the powders.
    c. Reacts with iodine.
    d. Dissolves in water.

7. Silver is a white metal that is an excellent conductor of heat and electricity. The density of silver is 10.49 g/cm^3. Silver does not react with water but does react with nitric acid. Silver tarnishes when exposed to air. A physical property of silver is
    a. Silver tarnishes in air.
    b. Silver has a density of 10.49 g/cm^3.
    c. Silver reacts with nitric acid.
    d. Silver does not react with water.

8. Which of the following is a chemical property?
    a. Ductile.
    b. Inert.
    c. Freezing point.
    d. Conductivity.

9. Which of the following is a physical property?
   a. Malleable.
   b. Reacts with oxygen.
   c. Will corrode.
   d. Flammable.

S8P1 e. Distinguish between changes in matter as physical or chemical.

10. During science lab, some students added sodium sulfide (Na_2S) to Hydrochloric acid (HCL). They noticed that the mixed solution began to smell like rotten eggs and the test tube got warm. Which of the following is a sign that a chemical change has taken place in <u>this</u> experiment?
    a. A new odor appeared.
    b. Formation of a gas.
    c. Decrease in temperature.
    d. Formation of a precipitate.

11. Which of the following is a chemical change?
    a. Shines bright like a diamond.
    b. Plate glass shattering.
    c. Meat cut into kabobs.
    d. Cookies browning in the oven.

12. Kreese told Johnny to sweep Daniel's leg in the final match. This would break Daniel's leg. Sweeping the leg would cause a
    a. Physical property.
    b. Chemical property.
    c. Physical change.
    d. Chemical change.

13. A chemical change for a towel would be
    a. Being folded.
    b. Getting washed.
    c. Being burned.
    d. Getting tie dyed.

S8P1 f. Recognize that there are more than 100 elements and some have similar properties as shown on the Periodic Table of Elements.

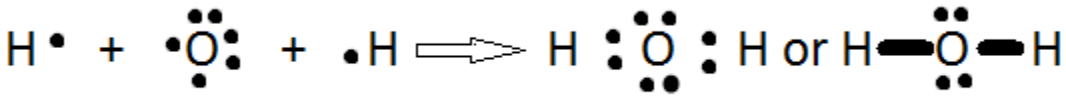
14. Calcium is a solid at room temperature, has a melting point around 1100K, a boiling point around 1700K, and a specific heat capacity of about 26 J/molK. Which of the following would be expected to have similar properties?
    a. Strontium (Sr)
    b. Scandium (Sc)
    c. Sodium (Na)
    d. Potassium (K)

15. Chlorine gas was used as a weapon in World War I because it was so highly reactive with living tissue. Which of the elements below was also most likely explored as a weapon due to its similar properties?
    a. Sulfur (S)
    b. Argon (Ar)
    c. Oxygen (O))
    d. Bromine (Br)

16. Which of the following pairs of elements would have the most similar properties to each other?
    a. Lithium (Li) and Beryllium (Br)
    b. Xenon(Xe) and Iodine (I)
    c. Chromium (Cr) and Tungsten (W)
    d. Gallium (Ga) and Germanium (Ge)

SPS1b. Compare and contrast ionic and covalent bonds in terms of electron movement.

17. The illustration below shows an atom of sodium bonding with an atom of chlorine.

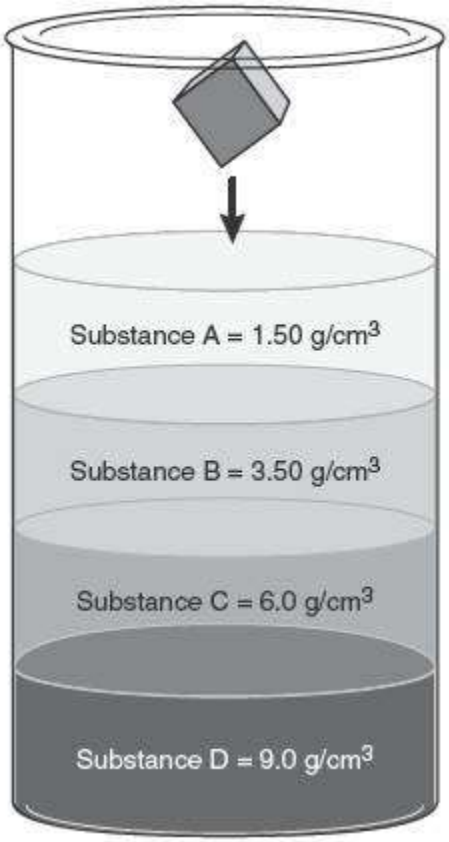


What type of bonding occurs between these two atoms?

a. covalent
b. ionic
c. nuclear
d. polar

SPS2 a. Calculate density when given a means to determine a substance's mass and volume.

18. A solid cube was put into a cylinder containing four liquids with different densities as shown to the right. The cube fell quickly through layer A, and stopped upon reaching layer B. The density of the cube most likely falls between



a. 1.00 and 1.50 g/cm^3.
b. 1.51 and 3.50 g/cm^3.
c. 3.51 and 6.00 g/cm^3.
d. 6.00 and 9.00 g/cm^3.

19. We have an object with a density of 21.45 g/cm^3 and a volume of 64 cm^3. What is the mass of this object?
    a. 0.335 g
    b. 2.98 g
    c. 42.55 g
    d. 1372.8 g

20. A graduated cylinder has 128 mL of water placed in it. An irregularly shaped rock is then placed in the graduated cylinder and the volume of the rock and water in the graduated cylinder now reads 156 mL. The mass of the rock is 541 g. What is the density of the rock?
    a. 3.47 g/mL
    b. 4.23 g/mL
    c. 19.32 g/ml
    d. 15148 g/mL

21. What volume of gold metal will weigh exactly 475.0 g. The density of gold is 19.1 g/cm^3.
    a. 0.04 cm^3
    b. 24.87 cm^3
    c. 455.9 cm^3
    d. 9072.5 cm^3

SPS2b. Predict formulas for stable binary ionic compounds based on balance of charges.

Write the correct formula for the following ions

22. U^{+4}, PO_4^{-3}_____

23. Cr^{+6}, O^{-2} _____

24. Ca^{+2}, NO_3^{-1} _____

SPS2c. Use IUPAC nomenclature for transition between chemical names and chemical formulas of

- **Binary ionic compounds (containing representative elements).**
- **Binary covalent compounds (i.e. carbon dioxide, carbon tetrachloride).**

If given the name, write the formula. If given the formula, write the name.

25. Ir_3N_4 _____

26. P_4O_8 _____

27. Ammonium sulfate _____

28. Tetraiodine nonoxide_____

SPS1a. Examine the structure of the atom in terms of

- **Proton, electron, and neutron locations.**
- **Atomic mass and atomic number.**
- **Atoms with different numbers of neutrons (isotopes).**
- **Explain the relationship of the proton number to the element's identity.**

Use the Periodic Table of the Elements for the table below.

Symbol	Name	Atomic #	#Protons	#Neutrons	#Electrons	Mass	Charge
^{131}I	29.	30.	31.	32.	53	33.	0
34.	35.	36.	37.	38.	36	39.	-2
Sr^{+2}	40.	41.	42.	43.	44.	45.	+2