

Cu
 Au
 Ag

17. List two elements that have similar properties to silver. List two elements similar to chlorine.

$\text{Cl} \rightarrow \text{F, Br}$

18. What do elements with similar chemical properties have in common in terms of their atomic structure?

They have the same number of valence electrons

19. How is an atom different from an ion? How are ions formed? Ions are atoms with charges + or - electrons. Gain or lose electrons

20. Give an example of a metal element and the ion it would form. Draw the element's Lewis structure for the atom and the ion.

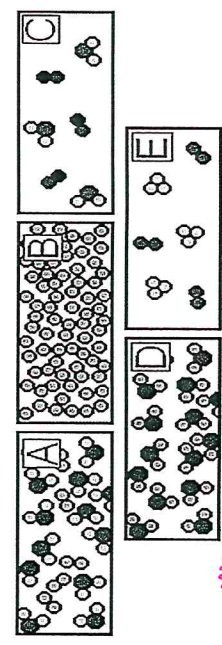
atom K • ion K^+
 atom Mg • ion Mg^{2+}
 atom MgO • ion Mg^{2+}
 Ex. 1
 Ex. 2
 Ex. 3

21. What elements make up an ionic compound? How are they held together?

Metals + Non-metals come together

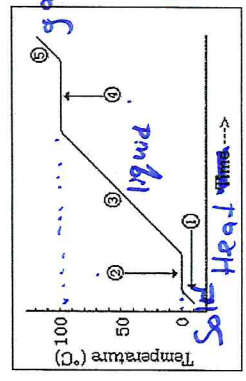
22. Write the formulas for the following ionic compounds:

Magnesium Bromide MgBr_2
 Copper (II) Sulfide CuS
 Iron (III) Phosphate FePO_4
 Aluminum Carbonate $\text{Al}_2(\text{CO}_3)_3$
 Vanadium (IV) Sulfate $\text{V}(\text{SO}_4)_2$



A = elements + compounds
 B = elements
 C = elements + compounds
 D = compounds E = elements

24. Use the heating curve below to answer the following questions.



- What phase change is occurring at 2 and 4 assuming heat is being added?
Evaporation boiling
- What state(s) is/are present at 3 and 5?
liquid + gas
- What happens to the temperature at 4? What happens to the kinetic energy?
constant temp. It is constant too.
- What is the boiling point of this substance? What is the melting point?
100°C
- Where is the kinetic energy increasing? Where is it constant?
1, 3, 5
- Where is the temperature increasing? Where is it constant?
1, 3, 5
- Where does a solid only exist?
2, 4.

25. Explain how an exothermic process is different from an endothermic process.

Exothermic process - the system releases energy. Colder

Endothermic - the system gains energy. Warmer

- List the three phase changes that are endothermic. List the three that are exothermic.
 melting - solid to liquid • condensation - gas to liquid
 evaporation - liquid to gas • freezing - liquid to solid
 sublimation - solid to gas • deposition - gas to solid

27. As the weather improves and the temperature rises, the snow will finally melt. Identify the system and the surrounding in this process. Is the process endothermic or exothermic?

Endothermic

Snow