Name:_____ Date:_____

1 a force that holds atoms together in a compound

A covalent bond
B chemical bond

2 a covalent compound made up of many small, repeating units linked together in a chain

A crystal
B polymer

3 the ability of a material to be hammered or rolled into sheets

A malleability
B ductility

4 the number of electrons in the outermost energy level of an atom

A atomic number
B valence

5 a pure substance that contains two or more elements

A binary compound
B compound

6 the ability of a substance to be pulled into wires

A ductility
B conductivity

7 the smallest repeating pattern that shows how the atoms, ions, or molecules are arranged in a crystal

A monomer
B unit cell

8 a type of chemical bond in which atoms share electrons

A ionic bond
B covalent bond

9 the smallest unit of an element that retains all the properties of that element

A atom
B molecule

10 In a(n) (metallic bond/ionic bond), many metal atoms share their pooled electrons.

A metallic bond
B ionic bond

11 A (monomer/unit cell) is a small molecule that forms a link in a polymer chain.

A monomer
B unit cell

12 Positively and negatively charged ions in an ionic compound experience an electrical attraction
called a(n) (covalent bond/ionic bond).

A covalent bond
B ionic bond

13 A (Lewis dot diagram/chemical formula) uses atomic symbols and subscripts to show the elements and the number of atoms of each element that combine to form a compound.

A Lewis dot diagram
B chemical formula

14 Snowflakes are one example of a (crystal/polymer), or a regular, repeating arrangement of atoms, ions, or molecules.

A crystal
B polymer

15 Metallic crystals tend to be more brittle than ionic crystals.

A True
B False: Ionic crystals tend to be more brittle than metallic crystals.
C False: Metallic crystals tend to be more brittle than covalent crystals.

16 Table salt is necessary for human life, even though it is made from a poisonous gas and an explosive solid.

A True
B False: Table salt is not necessary for human life, because it is made from a poisonous gas and an explosive solid.
C False:Table salt is necessary for human life because it is made of only one kind of element.

17 A noble gas such as helium tends not to form compounds with other elements because its outer energy level is missing two electrons.

A True:
B False: A noble gas such as helium tends not to form compounds with other elements
because its outer energy level is missing one electron.
C False: A noble gas such as helium tends not to form compounds with other elements because its outer energy level is full of electrons.

18 How are covalent bonds different from ionic bonds?

A In covalent bonds, atoms share electrons, while in ionic bonds, electrons are transferred to fill the outer energy levels of atoms, giving them positive or negative charges. The oppositely charged ions then attract each other.

B In ionic bonds, atoms share electrons, while in covalent bonds, electrons are transferred to fill the outer energy levels of atoms, giving them positive or negative charges. The oppositely charged atoms then attract each other.

19 Compare and Contrast

Both crystals and polymers can be made of repeating patterns of molecules. How are these materials similar and different?

A Crystals repeat their patterns in three dimensions, while polymers are one-dimensional chains of molecules.

B Polymers repeat their patterns in three dimensions, while crystals are one-dimensional chains of molecules.

20 Recommend at least three uses for which metals are suited because they are ductile and malleable.

A Because metals are malleable, they can be shaped into thin sheets to be used in manufacturing things such as car bodies. Similarly, ductility allows metal to be pulled into wires that can be used in many ways, from carrying telephone signals to making fences.

B Because metals are brittle, they are good for making frying pans. Their low melting point makes them ideal for manufacturing internal combustion engines. Their inability to conduct heat or electricity make them useful in the making of cooking utensils, electric wires, and heating elements in home furnaces.