Name: NOPE! Period: _____ ID: A

Chapter 12 Prep-Test

Multiple Choice
Identify the choice that best completes the statement or answers the question.

___ 1 A measure of the ability of an atom in a chemical compound to attract electrons is called
A electron affinity. C electronegativity.
B electron configuration. D ionization potential.

___ 2 The element that has the greatest electronegativity is
A oxygen. C chlorine.
B sodium. D fluorine.

___ 3 When chemical compounds form, valence electrons are those that may be
A lost only. C shared only.
B gained only. D lost, gained, or shared.

___ 4 For Groups 13 through 18, the number of valence electrons is equal to the group number
A plus 1. C minus the period number.
B plus the period number. D minus 10.

___ 5 How many valence electrons are in an atom of phosphorus?
A 2 C 4
B 3 D 5

___ 6 How many valence electrons does a helium atom have?
A 2 C 4
B 3 D 5

___ 7 What is the charge on the strontium ion?
A 2– C 1+
B 1– D 2+

___ 8 How does oxygen obey the octet rule when reacting to form compounds?
A It gains electrons.
B It gives up electrons.
C It does not change its number of electrons.
D Oxygen does not obey the octet rule.

___ 9 Ionic compounds are normally in which physical state at room temperature?
A solid C gas
B liquid D plasma

___ 10 Which of the following particles are free to drift in metals?
A protons C neutrons
B electrons D cations

___ 11 An Ionic bond is a bond between ____.
A a cation and an anion C the ions of two different metals
B valence electrons and cations D the ions of two different nonmetals

___ 12 A chemical bond results from the mutual attraction of the nuclei of atoms and
A electrons. C neutrons.
B protons. D dipoles.

___ 13 The Na - F bond in NaF (electronegativity for Na is 0.9; electronegativity for F is 4.0) is
A polar covalent. C nonpolar covalent.
B ionic. D pure covalent.

___ 14 In which of these compounds is the bond between the atoms NOT a nonpolar covalent bond?
A Cl_2 C HCl
B H_2 D O_2

A. Cl—H: **B.** :H—Cl: **C.** :H—$\ddot{\text{Cl}}$: **D.** H—$\ddot{\text{Cl}}$:

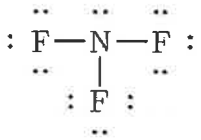
___ 15 What is the Lewis structure for hydrogen chloride, HCl?
A A C C
B B D D

___ 16 VSEPR theory is a model for predicting
A the strength of metallic bonds. C lattice energy values.
B the shape of molecules. D ionization energy.

___ 17 Use VSEPR theory to predict the molecular shape of the carbon tetraiodide molecule, CI_4.
A tetrahedral C bent
B linear D trigonal planar

___ 18 Which molecule is linear?
A SO_2 C H_2S
B CO_2 D Cl_2O

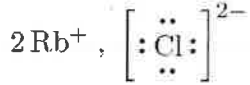
CLASS SET

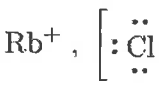


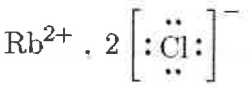
___ 19 What is the molecular geometry of this lewis structure (NF_3)?
A square pyramidal
B tetrahedral
C trigonal pyramidal
D linear

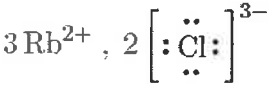
___ 20 Which of the following compounds has an ionic bond?
A SO_3
B HCl
C NaCl
D CO_2

___ 21 Which of the following is the best representation of the compound rubidium chloride?

A 

C 

B 

D 

___ 22 How many valence electrons are in a Se^{-2} ion?
A 8
B 7
C 6
D 2

___ 23 In the Molecular Models Lab, you built the structure for Hydrogen Fluoride. What is the polarity of that molecule and why?
A Nonpolar because H and F have the same electronegativities.
B Polar because H and F are both nonmetals.
C Polar because F is more electronegative than H.
D Nonpolar because H is more electronegative than F.

Matching

Match each item with the correct statement below.

A halide ion
B octet rule
C ionic bond
D Lewis dot structure
E valence electron
F acid base reaction
G metallic bond
H bent molecule

___ 24 an electron in the highest occupied energy level of an atom

___ 25 Atoms react so as to acquire the stable electron structure of a noble gas.

___ 26 a depiction of valence electrons around the symbol of an element

___ 27 the attraction of valence electrons for metal ions

___ 28 the force of attraction binding oppositely charged ions together

___ 29 Group 7 (or 17) anions

___ 30 H_2O

CLASS SET