

Name: \_\_\_\_\_

Class/Period: \_\_\_\_\_

Assignment: Unit 2 (Periodic Table) Test Review Questions

Teacher: Martin

1 The properties of elements are periodic functions of their

- 1 mass numbers
- 2 atomic masses
- 3 atomic radii
- 4 atomic numbers

2 Which element is a liquid at STP and has low electrical conductivity?

- 1 silver
- 2 mercury
- 3 barium
- 4 bromine

3 The elements in the Periodic Table are arranged in order of increasing

- 1 atomic number
- 2 atomic radius
- 3 mass number
- 4 neutron number

4 Element *X* is a solid that is brittle, lacks luster, and has six valence electrons. In which group on the Periodic Table would element *X* be found?

- 1 1
- 2 2
- 3 15
- 4 16

5 Which element is malleable and conducts electricity?

- 1 iron
- 2 iodine
- 3 sulfur
- 4 phosphorus

6 Which element is malleable and can conduct electricity in the solid phase?

- 1 iodine
- 2 phosphorus
- 3 sulfur
- 4 tin

7 Which list of elements consists of metalloids, only?

- 1 B, Al, Ga
- 2 C, N, P
- 3 O, S, Se
- 4 Si, Ge, As

- 8 Which element has an atom with the electron configuration 2–8–8–2?
- 1 Mg
  - 2 Ni
  - 3 Ca
  - 4 Ge
- 9 What is the total number of valence electrons in a fluorine atom in the ground state?
- 1 5
  - 2 2
  - 3 7
  - 4 9
- 10 Which of these elements has an atom with the most stable outer electron configuration?
- 1 Ne
  - 2 Cl
  - 3 Ca
  - 4 Na
- 11 Which group of the Periodic Table contains two elements that are gases at STP?
- 1 17 (VIIA)
  - 2 16 (VIA)
  - 3 15 (VA)
  - 4 14 (IVA)
- 12 Which of the following Group 15 elements has the greatest metallic character?
- 1 nitrogen
  - 2 phosphorus
  - 3 antimony
  - 4 bismuth
- 13 Which list of elements from Group 2 on the Periodic Table is arranged in order of increasing atomic radius?
- 1 Be, Mg, Ca
  - 2 Ca, Mg, Be
  - 3 Ba, Ra, Sr
  - 4 Sr, Ra, Ba
- 14 Lithium and potassium have similar chemical properties because the atoms of both elements have the same
- 1 mass number
  - 2 atomic number
  - 3 number of electron shells
  - 4 number of valence electrons
- 15 Which element has an atom with the greatest attraction for electrons in a chemical bond?
- 1 As
  - 2 Bi
  - 3 N
  - 4 P

- 16 Which Group 14 element is a metalloid?
- 1 tin
  - 2 silicon
  - 3 lead
  - 4 carbon
- 17 Which period of the Periodic Table contains more metallic elements than nonmetallic elements?
- 1 Period 1
  - 2 Period 2
  - 3 Period 3
  - 4 Period 4
- 18 The elements in Period 5 on the Periodic Table are arranged from left to right in order of
- 1 decreasing atomic mass
  - 2 decreasing atomic number
  - 3 increasing atomic mass
  - 4 increasing atomic number
- 19 Compared to a potassium atom, a potassium ion has
- 1 a smaller radius
  - 2 a larger radius
  - 3 fewer protons
  - 4 more protons
- 20 Which group on the Periodic Table has two elements that exist as gases at STP?
- 1 Group 1
  - 2 Group 2
  - 3 Group 16
  - 4 Group 17
- 21 Which element is *least* likely to undergo a chemical reaction?
- 1 lithium
  - 2 carbon
  - 3 fluorine
  - 4 neon
- 22 Which two elements have the most similar chemical properties?
- 1 beryllium and magnesium
  - 2 hydrogen and helium
  - 3 phosphorus and sulfur
  - 4 potassium and strontium

- 23 Which statement describes the general trends in electronegativity and atomic radius as the elements in Period 2 are considered in order from left to right?
- 1 Both electronegativity and atomic radius increase.
  - 2 Both electronegativity and atomic radius decrease.
  - 3 Electronegativity increases and atomic radius decreases.
  - 4 Electronegativity decreases and atomic radius increases.
- 24 Which list of symbols represents nonmetals, only?
- 1 B, Al, Ga
  - 2 Li, Be, B
  - 3 C, Si, Ge
  - 4 P, S, Cl
- 25 At STP, which substance is a noble gas?
- 1 ammonia
  - 2 chlorine
  - 3 neon
  - 4 nitrogen
- 26 Which electron shell contains the valence electrons of a radium atom in the ground state?
- 1 the sixth shell
  - 2 the second shell
  - 3 the seventh shell
  - 4 the eighteenth shell
- 27 Which property *decreases* when the elements in Group 17 are considered in order of increasing atomic number?
- 1 atomic mass
  - 2 atomic radius
  - 3 melting point
  - 4 electronegativity
- 28 Which statement describes the general trends in electronegativity and metallic properties as the elements in Period 2 are considered in order of increasing atomic number?
- 1 Both electronegativity and metallic properties decrease.
  - 2 Both electronegativity and metallic properties increase.
  - 3 Electronegativity decreases and metallic properties increase.
  - 4 Electronegativity increases and metallic properties decrease.
- 29 When an atom of lithium loses an electron, the atom becomes a
- 1 negative ion with a radius smaller than the radius of the atom
  - 2 negative ion with a radius larger than the radius of the atom
  - 3 positive ion with a radius smaller than the radius of the atom
  - 4 positive ion with a radius larger than the radius of the atom

- 30 At STP, which element is solid, brittle, and a poor conductor of electricity?
- 1 Al
  - 2 K
  - 3 Ne
  - 4 S
- 31 Which element requires the *least* amount of energy to remove the most loosely held electron from a gaseous atom in the ground state?
- 1 bromine
  - 2 calcium
  - 3 sodium
  - 4 silver
- 32 Which Group 14 element is classified as a metal?
- 1 carbon
  - 2 germanium
  - 3 silicon
  - 4 tin
- 33 Which element is a liquid at STP?
- 1 argon
  - 2 bromine
  - 3 chlorine
  - 4 sulfur
- 34 Magnesium and calcium have similar chemical properties because a magnesium atom and a calcium atom have the same:
- 1 atomic number
  - 2 mass number
  - 3 total number of electron shells
  - 4 total number of valence electrons
- 35 How do the atomic radius and metallic properties of sodium compare to the atomic radius and metallic properties of phosphorus?
- 1 Sodium has a larger atomic radius and is more metallic.
  - 2 Sodium has a larger atomic radius and is less metallic.
  - 3 Sodium has a smaller atomic radius and is more metallic.
  - 4 Sodium has a smaller atomic radius and is less metallic.
- 36 Germanium is classified as a
- 1 metal
  - 2 metalloid
  - 3 nonmetal
  - 4 noble gas

- 37 Which of these elements is the best conductor of electricity?
- 1 S
  - 2 N
  - 3 Br
  - 4 Ni
- 38 Which list of elements is arranged in order of increasing atomic radii?
- 1 Li, Be, B, C
  - 2 Sr, Ca, Mg, Be
  - 3 Sc, Ti, V, Cr
  - 4 F, Cl, Br, I
- 39 Which property is characteristic of nonmetals?
- 1 They have a high electronegativity.
  - 2 They lose electrons easily.
  - 3 They have a low first ionization energy.
  - 4 They are good conductors of electricity.
- 40 Which element of Group 17 exists as a solid at 25°C and standard pressure?
- 1 fluorine
  - 2 chlorine
  - 3 bromine
  - 4 iodine
- 41 At 298 K and 1 atm, which noble gas has the lowest density?
- 1 Ne
  - 2 Kr
  - 3 Xe
  - 4 Rn
- 42 Which ion has the largest radius?
- 1 Br<sup>-</sup>
  - 2 Cl<sup>-</sup>
  - 3 F<sup>-</sup>
  - 4 I<sup>-</sup>
- 43 Based on Table S, which group on the Periodic Table has the element with the highest electronegativity?
- 1 Group 1
  - 2 Group 2
  - 3 Group 17
  - 4 Group 18

- 44 Which trend is observed as the first four elements in Group 17 on the Periodic Table are considered in order of increasing atomic number?
- 1 Electronegativity increases.
  - 2 First ionization energy decreases.
  - 3 The number of valence electrons increases.
  - 4 The number of electron shells decreases.
- 45 The valence electron of which atom in the ground state has the greatest amount of energy?
- 1 cesium
  - 2 lithium
  - 3 rubidium
  - 4 sodium
- 46 Which general trends in first ionization energy and electronegativity values are demonstrated by Group 15 elements as they are considered in order from top to bottom?
- 1 The first ionization energy decreases and the electronegativity decreases.
  - 2 The first ionization energy increases and the electronegativity increases.
  - 3 The first ionization energy decreases and the electronegativity increases.
  - 4 The first ionization energy increases and the electronegativity decreases.
- 47 As the elements in Period 3 are considered in order of increasing atomic number, there is a general *decrease* in
- 1 atomic mass
  - 2 atomic radius
  - 3 electronegativity
  - 4 first ionization energy
- 48 Which element has chemical properties that are most similar to the chemical properties of sodium?
- 1 beryllium
  - 2 calcium
  - 3 lithium
  - 4 magnesium
- 49 Which element is malleable at STP?
- 1 chlorine
  - 2 copper
  - 3 helium
  - 4 sulfur
- 50 At STP, which element is a good conductor of electricity?
- 1 chlorine
  - 2 iodine
  - 3 silver
  - 4 sulfur