

Name:

Unit 4 Exam: Periodic Table

- Which list of elements consists of a metal, a metalloid, and a nonmetal?
A) Li, Na, Rb B) Cr, Mo, W
C) **Sn, Si, C** D) O, S, Te
- Which list includes elements with the most similar chemical properties?
A) Br, Ga, Hg B) Cr, Pb, Xe
C) **O, S, Se** D) N, O, F
- Compared to the atoms of nonmetals in Period 3, the atoms of metals in Period 3 have
A) **fewer valence electrons**
B) more valence electrons
C) fewer electron shells
D) more electron shells
- A solid element that is malleable, a good conductor of electricity, and reacts with oxygen is classified as a
A) **metal** B) metalloid
C) noble gas D) nonmetal
- An element that has a low first ionization energy and good conductivity of heat and electricity is classified as a
A) **metal** B) metalloid
C) nonmetal D) noble gas
- Which element has chemical properties that are most similar to the chemical properties of fluorine?
A) boron B) **chlorine**
C) neon D) oxygen
- At STP, which element is solid, brittle, and a poor conductor of electricity?
A) Al B) K C) Ne D) **S**
- Which statement explains why neon is a Group 18 element?
A) Neon is a gas at STP.
B) Neon has a low melting point.
C) **Neon atoms have a stable valence electron configuration.**
D) Neon atoms have two electrons in the first shell.
- An atom of argon in the ground state tends *not* to bond with an atom of a different element because the argon atom has
A) more protons than neutrons
B) more neutrons than protons
C) a total of two valence electrons
D) **a total of eight valence electrons**
- Which Group 14 element is a metalloid?
A) tin B) **silicon**
C) lead D) carbon
- What is the total number of valence electrons in a germanium atom in the ground state?
A) 22 B) 2 C) 32 D) **4**
- Magnesium and calcium have similar chemical properties because a magnesium atom and a calcium atom have the same
A) atomic number
B) mass number
C) total number of electron shells
D) **total number of valence electrons**
- As the elements in Period 3 are considered in order of increasing atomic number, there is a general *decrease* in
A) atomic mass
B) **atomic radius**
C) electronegativity
D) first ionization energy
- An atom of which element has the largest atomic radius?
A) Fe B) **Mg** C) Si D) Zn
- Which characteristics both generally *decrease* when the elements in Period 3 on the Periodic Table are considered in order from left to right?
A) nonmetallic properties and atomic radius
B) nonmetallic properties and ionization energy
C) **metallic properties and atomic radius**
D) metallic properties and ionization energy
- Which atom has the *weakest* attraction for electrons in a chemical bond?
A) a boron atom B) **a calcium atom**
C) a fluorine atom D) a nitrogen atom

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17. Which general trend is found in Period 3 as the elements are considered in order of increasing atomic number?
- A) increasing atomic radius
B) increasing electronegativity
C) decreasing atomic mass
D) decreasing first ionization energy
18. Which general trend is demonstrated by the Group 17 elements as they are considered in order from top to bottom on the Periodic Table?
- A) a decrease in atomic radius
B) a decrease in electronegativity
C) an increase in first ionization energy
D) an increase in nonmetallic behavior
19. Which atom in the ground state requires the *least amount of energy to remove its valence electron*?
- A) lithium atom B) potassium atom
C) rubidium atom D) sodium atom
20. Samples of four Group 15 elements, antimony, arsenic, bismuth, and phosphorus, are in the gaseous phase. An atom in the ground state of which element requires the *least* amount of energy to remove its most loosely held electron?
- A) As **B) Bi** C) P D) Sb
21. As the elements in Group 17 are considered in order of increasing atomic number, the chemical reactivity of each successive element
- A) decreases** B) increases
C) remains the same
22. Compared to an atom of potassium, an atom of calcium has a
- A) larger radius and lower reactivity
B) larger radius and higher reactivity
C) smaller radius and lower reactivity
D) smaller radius and higher reactivity
23. Which element would most likely form a compound whose water solution is colored?
- A) H B) P C) Mg **D) Cu**
24. Which element forms an ion that is larger than its atom?
- A) aluminum **B) chlorine**
C) magnesium D) sodium
25. The elements on the Periodic Table are arranged in order of increasing
- A) atomic number** B) mass number
C) number of isotopes D) number of moles
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Answer Key
unit 4 Exam: Periodic Table Part 1

1. **C**
 2. **C**
 3. **A**
 4. **A**
 5. **A**
 6. **B**
 7. **D**
 8. **C**
 9. **D**
 10. **B**
 11. **D**
 12. **D**
 13. **B**
 14. **B**
 15. **C**
 16. **B**
 17. **B**
 18. **B**
 19. **C**
 20. **B**
 21. **A**
 22. **C**
 23. **D**
 24. **B**
 25. **A**
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