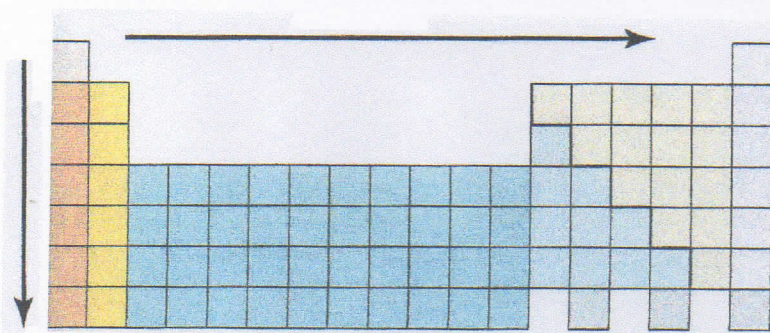


periodic trends TEST REVIEW

Multiple Choice

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



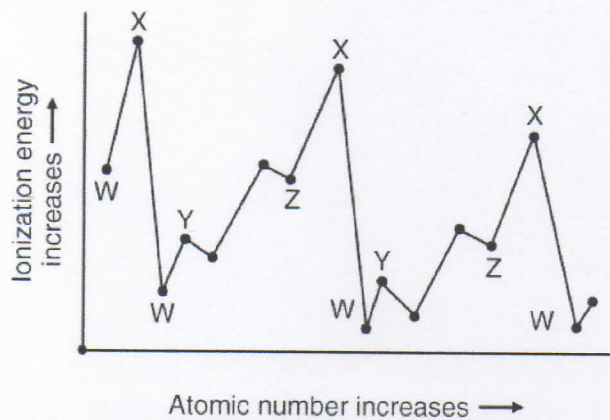
Trends in Atomic Radius

- How does atomic radius change from top to bottom in a **group** in the periodic table?
 - It first decreases, then increases.
 - It first increases, then decreases.
 - It tends to increase.
 - It tends to decrease.
- What causes the shielding effect to remain *constant* across a **period**?
 - The atomic radius increases.
 - The charge on the nucleus is constant.
 - Electrons are added to different principal energy levels.
 - Electrons are added to the same principal energy level.
- Which atom has the lowest ionization energy?
 - Ca
 - K
 - Na
 - Mg
- Which of the following **decreases** with increasing **atomic number** in Group 2A?
 - ionic size
 - number of electrons
 - ionization energy
 - shielding effect
- The modern periodic table is arranged in order of **increasing** atomic _____.
 - charge
 - number
 - mass
 - radius
- Who arranged the elements according to atomic mass and used the arrangement to predict the properties of missing elements?
 - Henry Moseley
 - Antoine Lavoisier
 - Dmitri Mendeleev
 - John Dalton
- A measure of the ability of an atom in a chemical compound to attract electrons is called
 - electronegativity
 - electron affinity
 - ionization potential
 - electron configuration

8. Which atom is the smallest- C, N, Si, or P?
- P
 - N
 - Si
 - C
9. What is the element with the **lowest** electronegativity value?
- calcium
 - cesium
 - helium
 - fluorine
10. Why is the second ionization energy **greater** than the first ionization energy?
- It is more difficult to remove a second electron from an atom.
 - The nuclear attraction from protons in the nucleus decreases.
 - The size of atoms increases down a group.
 - The size of anions decreases across a period.
11. In which group in the periodic table do the elements have the **highest** electronegativity values?
- halogen group
 - alkaline earth metals
 - alkali metals
 - oxygen group
12. What element in the second period has the **largest** atomic radius?
- potassium
 - carbon
 - neon
 - lithium
13. The electron configuration of aluminum, atomic number 13, is $[\text{Ne}]3s^2 3p^1$. Aluminum is in Period
- 6
 - 13
 - 3
 - 2
14. The energy required to remove an electron from an atom is the atom's
- electron energy
 - electronegativity
 - electron affinity
 - ionization energy
15. Which of the following elements has the **smallest** ionic radius?
- Li
 - K
 - O
 - S
16. Which of the following factors contributes to the **increase** in ionization energy from left to right across a period?
- an increase in the size of the nucleus
 - an increase in the shielding effect
 - an increase in the number of protons
 - fewer electrons in the highest occupied energy level
17. Which is the best reason that the atomic radius generally increases with atomic number in each group of elements?
- The number of energy levels increases
 - The number of neutrons increases
 - The attractive force of the nucleus increases
 - A new octet forms

18. Within a group, the ionization energy changes because
- the number of electrons changes
 - the attractive force of the nucleus changes
 - the atomic number changes
 - the number of electrons in different energy levels changes causing the amount of shielding to change
19. Atoms with higher electronegativities
- have a higher chance to lose electrons
 - have a larger atom
 - will form ions with a positive charge
 - have a greater attraction for electrons
20. A horizontal row of elements in the periodic table is called a(n)
- group
 - period
 - octet
 - family
21. As you move from left to right across the second period of the periodic table _____.
- atomic mass decreases
 - atomic radii increase
 - electronegativity decreases
 - ionization energy increases
22. Which of the following factors contributes to the **increase** in atomic size within a **group** in the periodic table as the atomic number increases?
- an increase in number of protons
 - fewer electrons in the highest occupied energy level
 - an increase in size of the nucleus
 - more shielding of the electrons by the highest occupied energy level
23. Which statement is **true** about **electronegativity**?
- Electronegativity generally increases as you move from top to bottom within a group.
 - Electronegativity generally increases from left to right across a period.
 - Electronegativity is the ability of an anion to attract another anion.
 - Electronegativity generally is higher for metals than for nonmetals.
24. The element that has the greatest electronegativity is
- sodium
 - fluorine
 - chlorine
 - oxygen
25. As you move within a period, the reason the size of the atom changes is best explained by
- a change in the atom's ionization energy
 - a change in the number of energy levels
 - a change in the atom's electronegativity
 - a change in the attractive force of the nucleus
26. The element at the top of the Periodic Table, compared with those at the bottom,
- have lower ionization energies.
 - have smaller atoms.
 - are less electronegative.
 - are more metallic.

27. Which atom is the largest- Cr, Cu, W, Au?
- W
 - Au
 - Cu
 - Cr



28. Element **W** is in the _____ group.
- | | |
|------------------|--------------------------|
| a. alkali metals | c. alkaline earth metals |
| b. halogen | d. noble gases |
29. To which group does lithium and potassium belong?
- | | |
|----------------|----------------------|
| a. noble gases | c. alkali metals |
| b. halogens | d. transition metals |
30. To which group do fluorine and chlorine belong?
- | | |
|--------------------------|------------------------|
| a. alkaline-earth metals | c. actinides |
| b. halogens | d. transition elements |