Key

Electron Configuration Practice

In the space below, write the electron configurations of the following elements:

1. sodium $1s^2\ 2s^2\ 2p^6\ 3s^1$ = 11
2. iron $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^6$ = 26
3. bromine $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^5$ = 35
4. barium $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^{10}\ 5p^6\ 6s^2$ = 56
5. molybdenum $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^4$ = 42
6. cobalt $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^7$ = 27
7. silver $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^9$ = 47
8. tellurium $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^{10}\ 5p^4$ = 52

Determine what elements are denoted by the following electron configurations:

9. $1s^2 2s^2 2p^6 3s^2 3p^4$ Sulfur
10. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^1$ Rubidium
11. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^3$ Antimony
12. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2$ Barium

Determine which of the following electron configurations are not valid and explain why:

13. $1s^2 2s^2 2p^6 3s^2 3p^6 4s (4d^{10}) 4p^5$ Not valid → $3d^{10}$
14. $1s^2 2s^2 2p^6 3s (3d)^5$ not valid → too many e⁻ in s orbital
15. $1s^2 2s^2 2p^6 3s^2 3p^6\ 3d^{10} 4s^2$ not valid → $4s^2 3d^{10}$

Write the electron configurations of the following symbols:

16. Mg^{2+} = 10e⁻ $1s^2 2s^2 2p^6$
17. F^{-1} = 10e⁻ $1s^2 2s^2 2p^6$
18. Ne = 10e⁻ $1s^2 2s^2 2p^6$