

Chemistry Worksheet: Electron Configuration

Short Answer

1. For the *f* sublevel, the number of orbitals is
2. How many electrons can occupy the *s* orbitals at each energy level?
3. What is the electron configuration for nitrogen, atomic number 7?
4. The element with electron configuration $1s^2 2s^2 2p^6 3s^2 3p^2$ is
5. The set of orbitals that are dumbbell shaped and directed along the *x*, *y*, and *z* axes are called
6. A spherical electron cloud surrounding an atomic nucleus would best represent
7. How many orientations can an *s* orbital have about the nucleus?
8. The electron notation for aluminum (atomic number 13) is
9. The number of orbitals for the *d* sublevel is
10. The letter designations for the first four sublevels with the maximum number of electrons that can be accommodated in each sublevel are

Identify which element matches the following Electron Configuration

11. $\frac{1\downarrow}{1s} \frac{1\downarrow}{2s} \frac{1\downarrow}{2p} \frac{1\downarrow}{3s} \frac{1\downarrow}{3p} \frac{1\downarrow}{3d} \frac{1\downarrow}{4s}$
12. $\frac{1\downarrow}{1s} \frac{1\downarrow}{2s} \frac{1\downarrow}{2p} \frac{1\downarrow}{3s} \frac{1\downarrow}{3p} \frac{1\downarrow}{3d} \frac{1\downarrow}{4s} \frac{1\downarrow}{4p} \frac{1\downarrow}{4d} \frac{1\downarrow}{5s}$
13. $\frac{1\downarrow}{1s}$
14. $\frac{1\downarrow}{1s} \frac{1\downarrow}{2s} \frac{1\downarrow}{2p} \frac{1\downarrow}{3s} \frac{1\downarrow}{3p} \frac{1\downarrow}{3d} \frac{1\downarrow}{4s} \frac{1\downarrow}{4p} \frac{1\downarrow}{4d} \frac{1\downarrow}{4f} \frac{1\downarrow}{5s} \frac{1\downarrow}{5p} \frac{1\downarrow}{5d} \frac{1\downarrow}{6s}$
15. $\frac{1\downarrow}{1s} \frac{1\downarrow}{2s} \frac{1\downarrow}{2p} \frac{1\downarrow}{3s} \frac{1\downarrow}{3p} \frac{1\downarrow}{4s}$

Identify which element matches the simple form of electron configuration

16. $1s^1$
17. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$ or [Ar] $4s^1$
18. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^7 4s^2$ or [Ar] $3d^7 4s^2$
19. $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 4d^{10} 4f^{14} 5s^2 5p^6 5d^9 6s^2$ or [Xe] $5d^9 6s^2$
20. $1s^2 2s^2 2p^6 3s^2 3p^2$ or [Ne] $3s^2 3p^2$