Name: _____

Period: ____ Subject: _____

Date: _____

Electron Configuration

1. List the entire aufbau sequence of orbitals (from **1s** to **7p**).

$1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^{10}\ 5p^6\ 6s^2\ 4f^{14}\ 5d^{10}\ 6p^6\ 7s^2\ 5f^{14}\ 6d^{10}\ 7p^6$

2. Write out the electron configuration (longhand version) for the element **oxygen**.
O: $1s^2\ 2s^2\ 2p^4$

3. Write out the electron configuration (longhand version) for the element **iron**.
Fe: $1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^6$

4. Write out the electron configuration of **gold** using noble-gas notation (the shorthand method).
Au: [Xe] $6s^2\ 4f^{14}\ 5d^9$

5. Write out the electron configuration of **praseodymium** (element #59) using noble-gas notation.
Pr: [Xe] $6s^2\ 4f^2$

6. Which element has the electron notation $\mathbf{1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6\ 5s^2\ 4d^2}$?
zirconium

7. Which element has the electron configuration **[Kr]** $\mathbf{5s^2\ 4d^2}$?
zirconium

8. Name an ion with the electron configuration $\mathbf{1s^2\ 2s^2\ 2p^6\ 3s^2\ 3p^6}$.
P^{-3}, S^{-2}, Cl^-, K^+, Ca^{+2}

9. Write out the electron configuration for a **bromine** ion (longhand notation).
Br^-: 1s2 $2s^2\ 2p^6\ 3s^2\ 3p^6\ 4s^2\ 3d^{10}\ 4p^6$

10. Which of the following orbitals has the lowest energy level: **6s 5d 4f 5p**
5p