Name _____

Advanced Placement Chemistry - Electron Configuration Worksheet

1. **Write the complete electron configuration for the following elements:**
    a. Scandium (Sc)

    b. Argon (Ar)

    c. Cesium (Cs)

    d. Tin (Sn)

    e. Polonium (Po)

    f. Berkelium (Bk)

2. **Draw the orbital diagram for the following elements:**
    a. Oxygen (O)

    b. Titanium (Ti)

    c. Silicon (Si)

    d. Copper (Cu)

3. **For each of the following elements, identify if the electron configuration is correct or incorrect. If it is incorrect, give the fix to the configuration.**

    a. Carbon (C) = $1s^2 2s^2 2p^2$

    b. Sulfur (S) = $1s^2 2s^2 2p^6 3p^6$

    c. Tantalum (Ta) = $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 5d^3$

    d. Nickel (Ni) = $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^8$

4. **Identify what element is shown based on its electron configuration.**

    a. $1s^2 2s^2 2p^1$

    b. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^6$

    c. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{12}$

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

5. **Identify which of the following electron configurations are in an excited state. Correct the electron configurations to put them back into their ground state.**

    a. $1s^2 2s^2 2p^6 3s^2 3p^3$

    b. $1s^2 2p^4$

    c. $1s^2 2s^2 2p^6 3s^2 4s^2$

    d. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4p^6$

6. Write electron configurations or orbital diagrams as indicated:

a) Arsenic (As) – complete:

b) Iridium (Ir) – noble gas:

c) Antimony (Sb) – shorthand:

d) Silicon (Si) – orbital diagram:

e) Uranium (U) – noble gas:

f) Rubidium (Rb) – complete:

g) Molybdenum (Mo) – noble gas:

h) Erbium (Er) – shorthand:

i) Copper (Cu) – complete:

j) Zirconium (Zr) – shorthand:

k) Iodine (I) – noble gas:

l) Barium (Ba) – shorthand:

m) Helium (He) – complete:

n) Chromium (Cr) – orbital diagram:

o) Californium (Cf) – noble gas:

p) Bohrium (Bh) – complete: