

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) = $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 5d^3$

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: