

Electron Configurations Practice Questions

1. Predict the electron configurations of S, K, Ti, Sn.

S: $1s^2 2s^2 2p^6 3s^2 3p^4$

K: $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$

Ti: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4s^2$

Sn: $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^2 4p^6 4d^{10} 5s^2 5p^2$

2. Which of the following are expected to be diamagnetic in the ground state?

Ba

Se

Zn

Si

3. Write the shorthand electron configuration for:

Ni $[\text{Ar}]3d^8 4s^2$

Ge $[\text{Ar}]3d^{10} 4s^2 4p^2$

Cs $[\text{Xe}]6s^1$

Br $[\text{Ar}]3d^{10} 4s^2 4p^5$

Bi $[\text{Xe}] 6s^2 4f^{14} 5d^{10} 6p^3$

4. Draw the complete orbital diagram for Mg.

Mg: $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$
 $1s$ $2s$ $2p$ $3s$

5. Draw orbital diagrams for the shorthand configuration of Ni and Ge.

Ni: $[\text{Ar}]$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ \uparrow \uparrow
 $4s$ $3d$

Ge: $[\text{Ar}]$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ $\uparrow\downarrow$ \uparrow \uparrow $_$
 $4s$ $3d$ $4p$