

Quantum Numbers

1. Define the quantum number, n .
2. Define the quantum number, l . Indicate what values l can have as well as the corresponding subshell.
3. Define the quantum number, m_l . Indicate the values m_l can have.
4. Define the quantum number, m_s and indicate its values.
5. Assign quantum numbers to the two outermost electrons of Br (follow the correct order of orbital filling).
6. Assign quantum numbers to the valence electrons of Sr.
7. Which of the following is not a valid set of quantum numbers?
a) $n = 2, l = 2, m_l = 0, m_s = +1/2$ b) $n = 4, l = 3, m_l = -3, m_s = +1/2$
c) $n = 5, l = 3, m_l = -4, m_s = -1/2$ d) $n = 5, l = 3, m_l = -4, m_s = +1/2$
e) $n = 7, l = 0, m_l = -2, m_s = -1/2$ f) $n = 3, l = 2, m_l = +2, m_s = -1/2$
8. Assign quantum numbers to each of the electrons in the 3d subshell of Cr.