

Solution

1. Which of the following states (n, l, m_l, m_s) is/are **NOT** allowed?

a. $(2, 1, 1, -1/2)$

b. $(4, 0, 0, 1/2)$

c. $(3, 2, 3, -1/2)$ $m_l > l$

d. $(5, 2, 2, 1/2)$

e. $(4, 4, 2, -1/2)$ $l = n$

2. Which of the following atomic electron configurations violates the Pauli Exclusion Principle?

a. $1s^2, 2s^2, 2p^6, 3s^2, 3d^8$

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

c. $1s^2, 2s^2, 2p^8, 3s^2, 3d^8$

d. $1s^1, 2s^2, 2p^6, 3s^2, 3d^9$

e. $1s^2, 2s^2, 2p^3, 3s^2, 3d^{11}$