Answer on Question #56879 - Chemistry - General Chemistry

Question:

Which of the following set of quantum numbers (ordered n, ℓ, mℓ, ms) are possible for an electron in an atom?

Check all that apply.

3, 2, -3, 1/2

5, 2, 1, -1/2

3, 3, 1, -1/2

3, 2, 1, -1

-3, 2, 2, -1/2

2, 1, 3, 1/2

4, 2, -1, -1/2

3, 2, 0, -1/2

Answer:

Number	Symbol	Possible Values
Principal Quantum Number	n	$1, 2, 3, 4, \ldots$
Angular Momentum Quantum Number	ℓ	$0, 1, 2, 3, \ldots, (n-1)$
Magnetic Quantum Number	m_{l}	$-\ell, \ldots, -1, 0, 1, \ldots, \ell$
Spin Quantum Number	m_{s}	$+1/2, -1/2$

5, 2, 1, -1/2

4, 2, -1, -1/2

3, 2, 0, -1/2