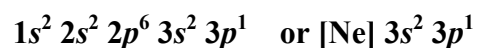


Marks
2

- Give the ground-state electron configuration of the aluminium atom.



Provide one set of valid quantum numbers (n, l, m_l, m_s) for the highest energy electron.

For the $3p^1$ electron, there are six possible sets:

- $n = 3, l = 1, m_l = 1, m_s = +\frac{1}{2}$
- $n = 3, l = 1, m_l = 1, m_s = -\frac{1}{2}$
- $n = 3, l = 1, m_l = 0, m_s = +\frac{1}{2}$
- $n = 3, l = 1, m_l = 0, m_s = -\frac{1}{2}$
- $n = 3, l = 1, m_l = -1, m_s = +\frac{1}{2}$
- $n = 3, l = 1, m_l = -1, m_s = -\frac{1}{2}$