

14. Which of the following sets of quantum numbers is correct for an electron present in 4f orbital?

- (1) $n = 4, l = 3, m = +4, s = +\frac{1}{2}$
- (2) $n = 3, l = 2, m = -2, s = +\frac{1}{2}$
- (3) $n = 4, l = 3, m = +1, s = +\frac{1}{2}$
- (4) $n = 4, l = 4, m = -4, s = -\frac{1}{2}$

Solution:

For 4f orbital, $n = 4$ and $l = 3$.

Values of $m = -3, -2, -1, 0, +1, +2, +3$

Hence option (3) is the answer.