

## Determination of Term Symbol for different configuration:-

Energy of an atom denoted by term symbol. Formula for determining term symbol is -

$$\begin{array}{l} \text{Total spin} \\ \text{CS. No.} \end{array} \quad \begin{array}{l} \xrightarrow{2S+1} \text{Spin multiplicity} \\ \xrightarrow{L} \text{Orbital angular momentum} \\ \xrightarrow{\quad} \text{Total (Resultant) angular momentum} \end{array}$$

Determination of Total spin angular momentum

$$S = (S_1 + S_2), (S_1 + S_2 - 1), \dots, (S_1 - S_2)$$

Determination of Total orbital angular momentum

$$L = (l_1 + l_2), (l_1 + l_2 - 1), \dots, (l_1 - l_2)$$

L value represent different orbital term

$$L = 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad \dots$$

S P D F G - - - - -

Determination of Total Resultant angular momentum

$$J = [L+S], [L+S-1], \dots, [L-S]$$

Rules :- a) Ground state term will be highest J value for more than half filled orbital

b) lowest J value for less than half filled orbital