

Table 8.8 The possible terms for electron configurations  $(nl)^x$ , with  $l = 0, 1, 2$ .

| Configuration |           |                           |                                     |                           |  |                      |       |
|---------------|-----------|---------------------------|-------------------------------------|---------------------------|--|----------------------|-------|
| $ns$          |           |                           | $^2S$                               |                           |  |                      |       |
| $ns^2$        |           | $^1S$                     |                                     |                           |  |                      |       |
| $np$          | $np^5$    |                           | $^2P$                               |                           |  |                      |       |
| $np^2$        | $np^4$    | $^1S, ^1D$                |                                     | $^3P$                     |  |                      |       |
|               | $np^3$    |                           | $^2P, ^2D$                          |                           |  | $^4S$                |       |
|               | $np^6$    | $^1S$                     |                                     |                           |  |                      |       |
| $nd$          | $nd^9$    |                           | $^2D$                               |                           |  |                      |       |
| $nd^2$        | $nd^8$    | $^1S, ^1D, ^1G$           |                                     | $^3P, ^3F$                |  |                      |       |
| $nd^3$        | $nd^7$    |                           | $^2P, ^2D, ^2F, ^2G, ^2H$           |                           |  | $^4P, ^4F$           |       |
|               |           |                           | 2                                   |                           |  |                      |       |
| $nd^4$        | $nd^6$    | $^1S, ^1D, ^1F, ^1G, ^1I$ |                                     | $^3P, ^3D, ^3F, ^3G, ^3H$ |  |                      | $^5D$ |
|               |           | 2 2 2                     |                                     | 4 2                       |  |                      |       |
|               | $nd^5$    |                           | $^2S, ^2P, ^2D, ^2F, ^2G, ^2H, ^2I$ |                           |  | $^4P, ^4D, ^4F, ^4G$ | $^6S$ |
|               |           |                           | 3 2 2                               |                           |  |                      |       |
|               | $nd^{10}$ | $^1S$                     |                                     |                           |  |                      |       |