**Quantum Numbers – Formula Sheet:**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| $$n$$ | $$l$$ | $$m\_{l}$$ | $$Orbital$$$$Notation$$ | $$m\_{s}$$ | $$\# of Orbitals$$$$in Subshell (l)$$ | $$\# of Orbitals$$$$in Shell (n)$$ | $$\# of electrons$$$$in Subshell (l)$$ | $$\# of electrons$$$$in Shell (n)$$ |
|  | $$l\leq n-1$$ | $$-l\leq m\_{l}\leq +l$$ |  |  | $$2l+1$$ | $$n^{2}$$ | $$4l+2$$ | $$2n^{2}$$ |
|  |  |  |  |  |  |  |  |  |
| **1** | 0 | 0 | **1s** | $$\pm 1/2$$ | 1 | **1** | 2 | **2** |
|  |  |  |  |  |  |  |  |  |
| **2** | 0 | 0 | **2s** | $$\pm 1/2$$ | 1 | **4** | 2 | **8** |
| 1 | -1, 0, +1 | **2p** | $$\pm 1/2$$ | 3 | 6 |
|  |  |  |  |  |  |  |  |  |
| **3** | 0 | 0 | **3s** | $$\pm 1/2$$ | 1 | **9** | 2 | **18** |
| 1 | -1, 0, +1 | **3p** | $$\pm 1/2$$ | 3 | 6 |
| 2 | -2, -1, 0, +1, +2 | **3d** | $$\pm 1/2$$ | 5 | 10 |
|  |  |  |  |  |  |  |  |  |
| **4** | 0 | 0 | **4s** | $$\pm 1/2$$ | 1 | **16** | 2 | **32** |
| 1 | -1, 0, +1 | **4p** | $$\pm 1/2$$ | 3 | 6 |
| 2 | -2, -1, 0, +1, +2 | **4d** | $$\pm 1/2$$ | 5 | 10 |
| 3 | -3, -2, -1, 0, +1, +2, +3 | **4f** | $$\pm 1/2$$ | 7 | 14 |
|  |  |  |  |  |  |  |  |  |
| **5** | 0 | 0 | **5s** | $$\pm 1/2$$ | 1 | **25** | 2 | **50** |
| 1 | -1, 0, +1 | **5p** | $$\pm 1/2$$ | 3 | 6 |
| 2 | -2, -1, 0, +1, +2 | **5d** | $$\pm 1/2$$ | 5 | 10 |
| 3 | -3, -2, -1, 0, +1, +2, +3 | **5f** | $$\pm 1/2$$ | 7 | 14 |
| 4 | -4, -3, -2, -1, 0, +1, +2, +3, +4 | **5g** | $$\pm 1/2$$ | 9 | 18 |
|  |  |  |  |  |  |  |  |  |