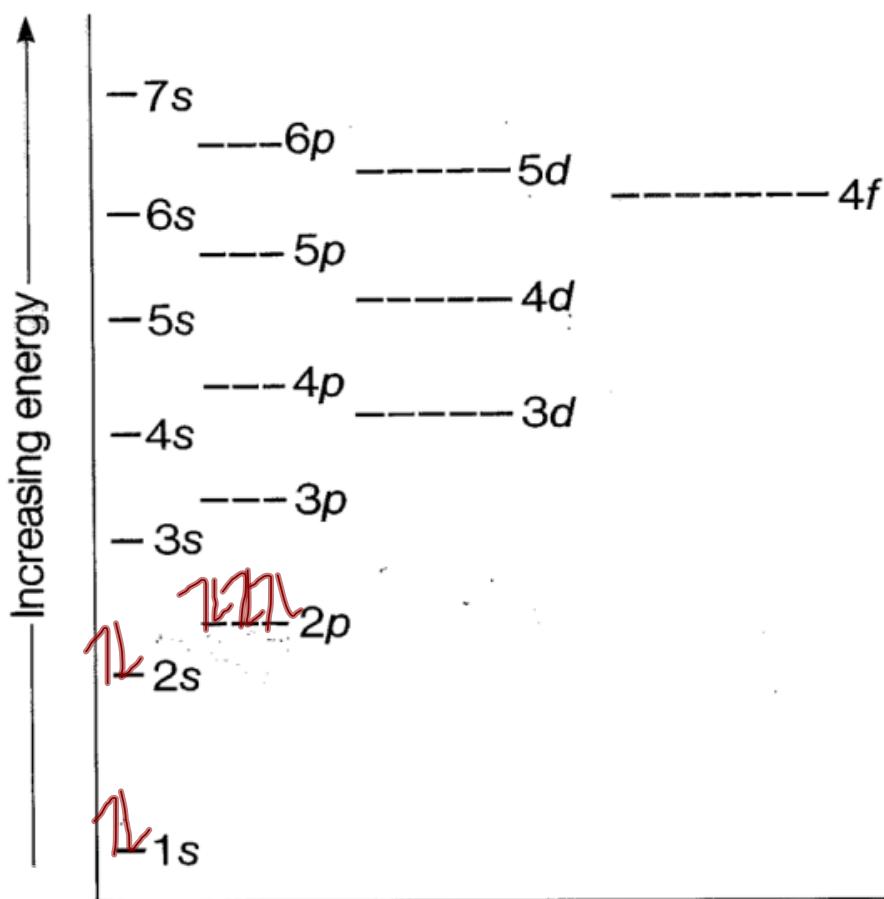
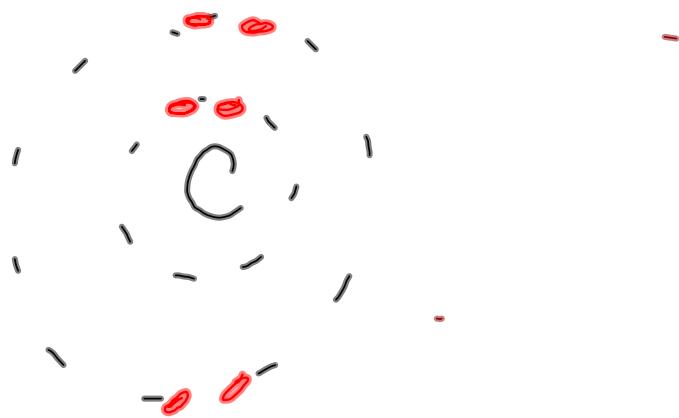


Exceptional Electron Configurations

Although half-filled sublevels are not as stable as filled sublevels, they are more stable than other configurations.

- more likely to occur at higher principal quantum numbers, because of the small energy differences between sublevels.





Cu

$1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$

(29)

Increasing energy ↑

-7s

--- 6p

-6s

--- 5p

-5s

----- 4d

1 -4s

--- 4p 11111

3d

1 -3s

--- 3p 1111

1 -2s

--- 2p 1111

1 -1s

Cr
(24)

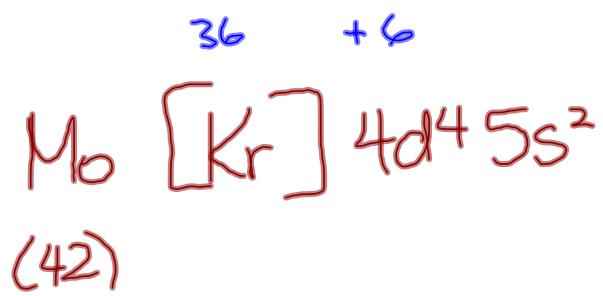
$1s^2 2s^2 2p^6 3s^2 3p^6 \underset{\approx}{3d^5} 4s^1$

Abbreviated Electron Configurations

| | | | | | | | | | | | | | | | | | |
|----------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|
| 1 H | | | | | | | | | | | | | | | 2 He | | |
| 3 Li | 4 Be | | | | | | | | | | | | | | | | |
| 11 Na | 12 Mg | | | | | | | | | | | | | | | | |
| 19 K | 20 Ca | 21 Sc | 22 Ti | 23 V | 24 Cr | 25 Mn | 26 Fe | 27 Co | 28 Ni | 29 Cu | 30 Zn | 31 Ga | 32 Ge | 33 As | 34 Se | 35 Br | 36 Kr |
| 37 Rb | 38 Sr | 39 Y | 40 Zr | 41 Nb | 42 Mo | 43 Tc | 44 Ru | 45 Rh | 46 Pd | 47 Ag | 48 Cd | 49 In | 50 Sn | 51 Sb | 52 Te | 53 I | 54 Xe |
| 55 Cs | 56 Ba | | 72 Hf | 73 Ta | 74 W | 75 Re | 76 Os | 77 Ir | 78 Pt | 79 Au | 80 Hg | 81 Tl | 82 Pb | 83 Bi | 84 Po | 85 At | 86 Rn |
| 87 Fr | 88 Ra | | 104 Rf | 105 Db | 106 Sg | 107 Bh | 108 Hs | 109 Mt | 110 Ds | 111 Rg | 112 Cn | 113 Uut | 114 Uuq | 115 Uup | 116 Uuh | 117 Uus | 118 Uuo |
| 57 La | 58 Ce | 59 Pr | 60 Nd | 61 Pm | 62 Sm | 63 Eu | 64 Gd | 65 Tb | 66 Dy | 67 Ho | 68 Er | 69 Tm | 70 Yb | 71 Lu | | | |
| 89 Ac | 90 Th | 91 Pa | 92 U | 93 Np | 94 Pu | 95 Am | 96 Cm | 97 Bk | 98 Cf | 99 Es | 100 Fm | 101 Md | 102 No | 103 Lr | | | |

54 22

Os $[Xe] 4f^{14} 5d^6 6s^2$
(76)



Homework

Section 5.1 & 5.2 p. 128 - 137

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Electron Configuration worksheet