



This set consists of 3 problems and the total points is 4.

1. (2.1 point) Write down the English name (0.1 point), the electron configuration (0.1 point) and the number of their valence electrons (0.1 point) of element Li, Be, B, C, N, O, F

5.31. (1 point) Photoelectron spectroscopy studies have determined the orbital energies for fluorine atoms to be

1s	-689 eV
2s	-34 eV
2p	-12 eV

(a) Estimate the value of Z_{eff} for F in each of these orbitals.

(b) explain why the energy of F2p is higher than F2s. (*the name of the effect and explain the effect*)

5.39. (0.9 point) Without consulting any tables, arrange the following substances in order and explain your choice of order:

(a) Mg^{2+} , Ar, Br^- , Ca^{2+} in order of increasing radius;

(b) Na, Na^+ , O, Ne in order of increasing ionization energy;

(c) H, F, Al, O in order of increasing electronegativity.