ELECTRON AFFINITIES

1. The first electron affinity of oxygen is -142 kJ mol^{-1}.

   a) What does the negative sign in front of the 142 kJ show?

   b) Define first electron affinity in words.

   c) Write the equation which shows the change taking place in the reaction for the first electron affinity for oxygen.

2. The first electron affinities of the halogens are:

	First EA (kJ mol^{-1})
F	-328
Cl	-349
Br	-324
I	-295

   a) Explain the trend in the Group from chlorine to iodine. You should consider the effect of nuclear charge, distance of the electron from the nucleus, and the effect of screening.

   b) Explain why fluorine doesn't follow this trend.

3. Why is the first electron affinity of oxygen (-142 kJ mol^{-1}) smaller than that of fluorine (-328 kJ mol^{-1})?

4. a) Write the equation which shows the change which takes place in the reaction representing the second electron affinity of oxygen.

   b) The first electron affinity of oxygen is -142 kJ mol^{-1}; its second electron affinity is +844 kJ mol^{-1}. Explain why the second electron affinity has a large positive value.

   c) The corresponding values for the first and second electron affinities of sulphur are -200 and +532 kJ mol^{-1}. Explain why the two oxygen values are respectively less negative and more positive than sulphur's.