

- Write down the ground state electron configuration of the iron atom.

**1**

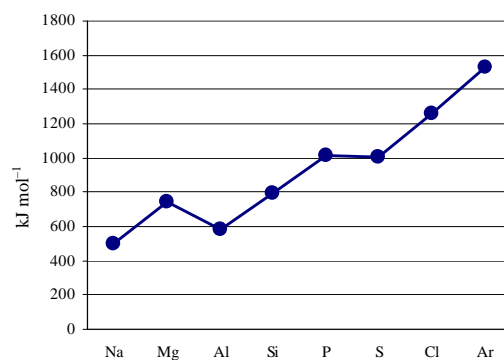
--

- In general terms, which elements in the periodic table are likely to be essential elements for living species and which ones are likely to be toxic. Explain.

**Marks**  
**2**

- The diagram below shows the general trend for the first ionisation energy for some *s* and *p* block elements.

**3**



How will the general trend differ for the second ionisation energy of these elements (*i.e.*  $X^+(g) \rightarrow X^{2+}(g) + e^-$ )? Explain.