

## SL & HL Questions on The periodic table

1. When Mendeleev first discovered the periodic table he placed the elements in order of their atomic weight (now known as atomic mass). Explain why modern periodic tables contain the elements placed in order of their atomic number.
2. Explain what is meant by the term *periodicity*.
3. In Mendeleev's first periodic table the elements were arranged into seven separate groups. Explain why modern periodic tables contain the elements arranged into eighteen separate groups.
4. What information about the electron configurations of aluminium, silicon, and phosphorus can be deduced from the fact that all three elements are located in the same period in the periodic table?
5. What information about the electron configurations of beryllium, magnesium, and calcium can be deduced from the fact that all three elements are located in the same group in the periodic table?
6. Potassium, K, is a metal that is located in group 1 in the periodic table. What information about the electron configuration of potassium can be deduced from this information?
7. Sulfur, S, is a non-metal that is located in group 16 and in period 3 in the periodic table. Deduce the atomic number of sulfur using **only** this information.
8. Suggest reasons why hydrogen is sometime located:
  - i. at the top of group 1 in the periodic table.
  - ii. at the top of group 17 in the periodic table.
  - iii. on its own at the top of the periodic table.
  - iv. together with helium at the top of the periodic table.
9. Use the periodic table to deduce the electron configuration of:
  - i. selenium ( $Z = 34$ )
  - ii. the vanadium(III) ion,  $V^{3+}$
  - iii. the zinc(II) ion,  $Zn^{2+}$
  - iv. the  $As^{3-}$  ion