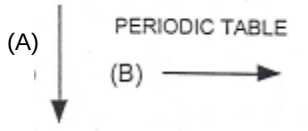
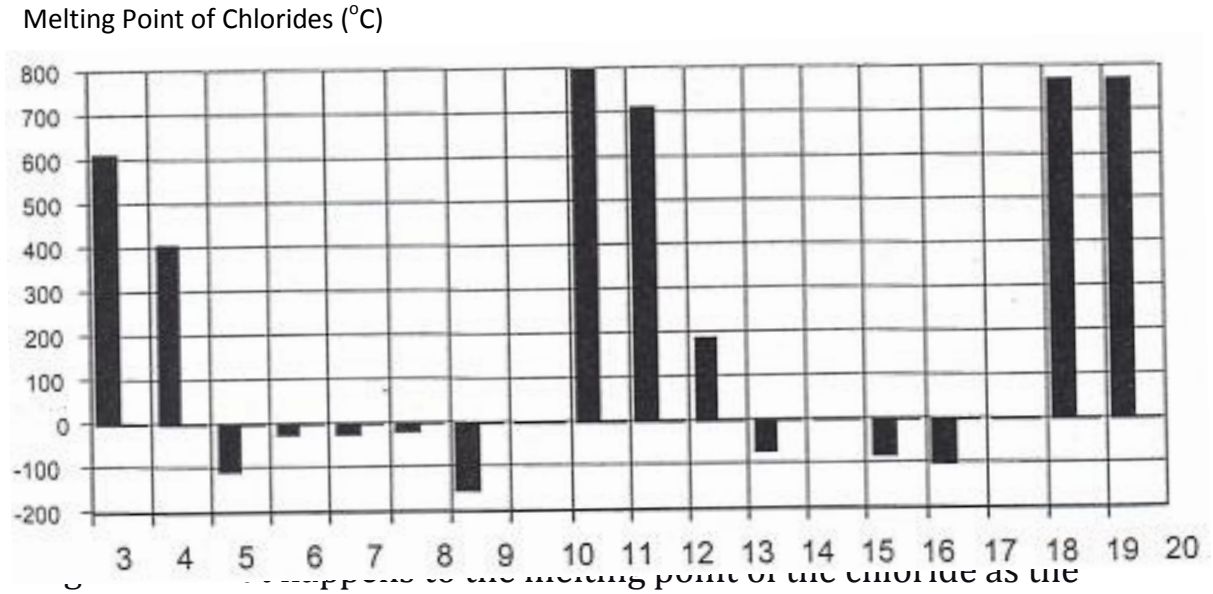
1. In developing the modern form of the periodic table which two important factors did Mendeleev take into account when arranging the elements in order of increasing atomic mass?

2. a ) Which arrow (A) or (B) indicates correctly a decrease in atomic size?

   b) Explain why atomic size decreases in this was




3. The bar chart shows the melting points of chlorides of elements 3 to 20 (with no bars for 10, 15 and 18).




a) [illegible] Group Number increases

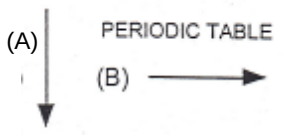
b) Explain why no values are given for elements 10 and 18.

c) From the bar chart, state which of the chlorides has the weakest forces between the molecules.

d) Predict a value for the melting point of the chloride of element 15.

4. a What is meant by "The first ionisation energy"

b. Which arrow (A) or (B) indicates correctly a decrea.se in the first ionisation energy of elements?




c. Give two reasons why the ionisation energy decreases in this way.

5. Explain why the third ionisation energy of magnesium (7750 kJ $mol^{-1}$) is so much greater than the third ionisation energy of aluminium (2760 kJ $mol^{-1}$).

6. a Copy and complete the following statements.

i. Electronegativity is a measure of the . . . . . an atom involved in a covalent bond has for the . . . . . electrons of the bond.

ii. In the periodic table, electronegativity . . . . . across a period and . . . . . down a group.

b In each of the following pairs determine the element with the greater electronegativity. (*you may wish to use a data booklet.)*

i phosphorus or carbon ii) silicon or nitrogen