

## Chemical Bonding FAQ 1

In which of the following sequences are the molecules quoted in order of decreasing boiling points?

- A Ti, K, Ca
- B I<sub>2</sub>, HF, HCl
- C SCl<sub>2</sub>, AlCl<sub>3</sub>, MgCl<sub>2</sub>
- D CCl<sub>4</sub>, CH<sub>4</sub>, CH<sub>2</sub>Cl<sub>2</sub>

I<sub>2</sub> though non-polar, contain a lot of electrons  
∴ strongest vd-w which outweighs the absence of H-bond.

HF has H-bonds

HCl is polar with much fewer electrons than I<sub>2</sub>  
∴ weak vd-w.

BP of Ti > Ca > K  
due to decreasing metallic bond.

BP of MgCl<sub>2</sub> > AlCl<sub>3</sub> > SCl<sub>2</sub>  
ionic.

BP of CCl<sub>4</sub> > CH<sub>2</sub>Cl<sub>2</sub> > CH<sub>4</sub>  
non-polar but lots of electrons      polar but not as many electrons.

Ans (B)