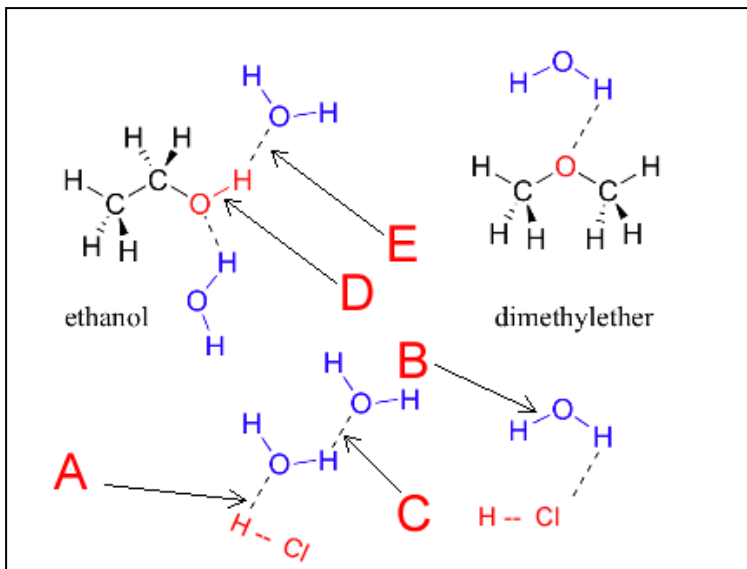


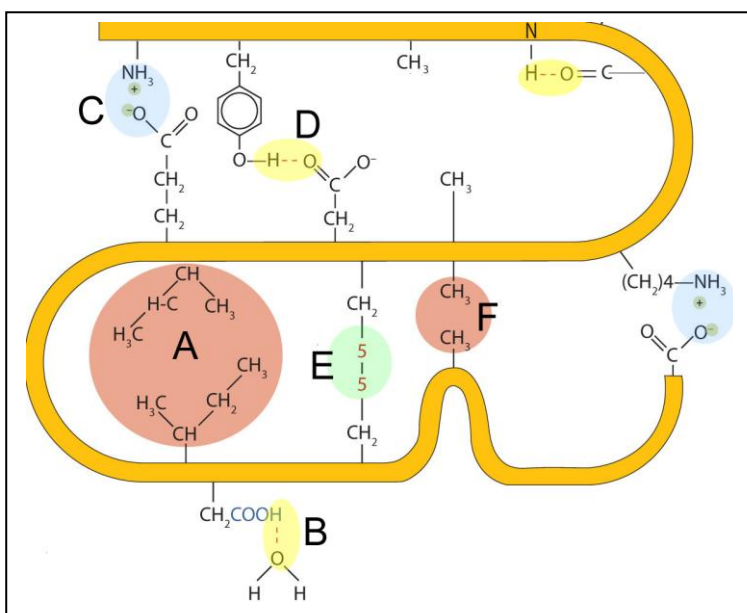
Revision Unit 1

- 1) Consider the image on the right. It shows three molecules, hydrochloric acid, ethanol and dimethyl ether interacting with water molecules. Identify the following.
- Hydrogen bond
 - Dipole-dipole bond
 - Polar covalent bond.



- 2) On the right is a section of a protein. Identify the type of bonding depicted by:

- A _____
 B _____
 C _____
 D _____
 E _____
 F _____



- 3) Below are neutral atoms of five different elements with their electronic configurations.

A	B	C	D	E
$1s^2 2s^2 2p^4$	$1s^2 2s^2 2p^6 3s^2 3p^4$	$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$	$1s^2 2s^2 2p^6 3s^2 3p^5 4s^1$	$1s^2 2s^2 2p^6 3s^2 3p^6 3d^2 4s^1$

- Which is the electronic configuration of an excited atom?
- What two elements will combine to form a brittle solid that melts at temperatures above 800 °C? Give the formula of the compound.
- What elements are most likely to conduct electricity in the solid state?
- What two elements will combine to form a molecular substance?
- What two elements are found in group 1 of the periodic table?
- What element has similar properties to "A"?
- Which neutral atom is inert?
- Draw a Lewis dot diagram of the substance formed between element A and carbon. In your diagram label the lone pairs, bonding electrons and give the shape of the molecule.

4) Below is a table of elements and their electronegativity values.

Element	Electronegativity
Carbon	2.5
Nitrogen	3.0
hydrogen	2.1
Oxygen	3.5
Fluorine	4.0
Chlorine	3.0
δ^+	δ^-

- a) Using the symbols shown above draw the orientation of
- two molecules of NH_3 . Identify the intra and inter molecular bonding
 - two molecules of HCl . Identify the intra and inter molecular bonding
- b) Explain why HF , being a smaller molecule than HCl , has a boiling temperature of $19.5\text{ }^\circ\text{C}$, while HCl boils at $-85.05\text{ }^\circ\text{C}$.
- c) Describe the intermolecular and intramolecular bonding that exists in liquid O_2