1.2.2 EXERCISE 6 - MOLECULAR SHAPES, POLARITY AND INTERMOLECULAR FORCES

1. Draw dot-cross diagrams for the following molecules and hence sketch their shapes:
2. Cl2
3. HCl
4. CO2
5. H2O
6. H2S
7. SiCl4
8. PCl3
9. NH3
10. SO3
11. SO2
12. Using the electronegativity values in your book, deduce which of the bonds in the above molecules are going to be polar, and draw the correct dipoles on all the relevant bonds. (Classify a covalent bond as polar if the electronegativity difference between the two atoms is greater than 0.5)
13. Now deduce which of the molecules will have an overall permanent dipole, and hence deduce the type of intermolecular force that can exist between the molecules