Note for graphite, both covalent and intermolecular force of attraction applies. (Pure)
When explaining the high temperature in which graphite melts, we say that they are breaking strong covalent bonds. (Pure)
When explaining why graphite act like a lubricant, we say that the graphite molecules are arranged in layers which are held by weak IMF therefore can slide over each other easily. GET IT? (Pure)

Bonding and Structures
Chemical bond is a force of attraction holding atoms together in a molecule or crystal
Three types of chemical bonds
• Ionic bonding
• Covalent bonding
• Metallic bonding

Ionic bonding – involving metal and non-metal elements. Force of attraction between oppositely charged ions. Only exception is compounds like ammonium salts. Although ammonium is made up entirely of NON\_METAL, it is still an Ionic compound because it contains charges.

Covalent bond – formed between 2 combining atoms of non-metallic by mutual sharing of one or more electrons

Metallic bonding – type of chemical bond that holds the atoms together in a solid metal. It’s the attraction between the sea of electrons and the positive metal ions. (more important for pure chem.)

Covalent compounds
- simple molecular compounds like hydrogen molecule, water molecule etc.
- giant molecular structure like diamonds and silicon dioxide (pure)
- graphite
Ionic compounds – self explanatory
Metallic substances – pure metals and alloys

Types of substances
Simple molecular
Types of bonds broken during change of state: Intermolecular forces of attraction.
Strength of the bond broken:Weak
Melting point and Boiling point:Low

Giant molecular or Giant Covalent
Types of bonds broken during change of state:Covalent
Strength of the bond broken:Strong
Melting point and Boiling point:High

Ionic Compounds
Types of bonds broken during change of state:Ionic Bonds
Strength of the bond broken:Strong
Melting point and Boiling point:High

Metals Types of bonds broken during change of state:Metallic Bonds
Strength of the bond broken:Strong
Melting point and Boiling point:High

Atomic Structure
Particle
Proton
Relative mass 1
Relative Charge +1

Neutron
Relative mass 1
Relative Charge 0

Electron
Relative mass 1/2000 or appro = 0 or 1/1840
Relative Charge -1

Proton number = Number of protons or neutrons in an atom
Nucleon number = sum of number of neutrons and protons in an atom. (Note this is not the same as relative atomic mass although in our syllabus it is the same for most atoms)
Isotopes are atoms of the same element having the same atomic number but different number of neutrons
Remember anything more than proton number 20, you CANNOT draw the electronic configuration. If the questions or number of valence electrons, LOOK AT GROUP NUMBER!!