

## GLOSSARY OF USEFUL TERMS FOR UNIT 1

### Topic 1.1

**Atomic number:** the number of protons in the nucleus of an atom

**Mass number:** the total number of protons and neutrons in the nucleus of an atom

**Isotopes:** atoms with the same atomic number but different mass numbers  
or atoms with the same number of protons but different numbers of neutrons

**Relative isotopic mass:** the ratio of the mass of one atom of that isotope to  $1/12^{\text{th}}$  of the mass of one atom of carbon-12

**Relative atomic mass:** the ratio of the average mass of an atom to  $1/12^{\text{th}}$  of the mass of one atom of carbon-12

**Relative molecular mass:** the ratio of the average mass of a molecule (or formula unit) to  $1/12^{\text{th}}$  of the mass of carbon-12

**First ionisation energy:** the heat energy required to remove one electron from each of a mole of free gaseous atoms of that element

**Second ionisation energy:** the heat energy required to remove one electron from each of a mole of free gaseous unipositive ions of that element

### Topic 1.2

**Avogadro's number:** the number of elementary particles that there are in 12.000 grams of carbon-12

**Mole:** the amount of a substance containing the same number of elementary particles as there are in 12.000 grams of carbon-12

**Molar mass:** the mass of a substance containing the same number of elementary particles as there are in 12.000 grams of carbon-12

**Empirical formula:** the simplest whole number ratio in which the atoms of each element in a compound are found

**Molecular formula:** the number of atoms of each element in one molecule of the substance

### Topic 1.3

**Ionic bond:** an attraction between oppositely charged ions

**Covalent bond:** a pair of electrons shared between two atoms

**Dative covalent bond:** a pair of electrons shared between two atoms, one of which provides both of the electrons

**Metallic bond:** an attraction between a cation and a sea of delocalised electrons

**Electronegativity:** the ability of an atom to attract electrons towards itself in a covalent bond.

**Polar bond:** the existence of partial positive and negative charges on each end of the bond as a result of the unequal sharing of electrons

### Topic 1.4

**s-block element:** an element with s-electrons only in its outer shell

**p-block element:** an element with p-electrons in its outer shell

**d-block element:** an element with s and d-electrons but no p-electrons in its outer shell

### Topic 1.5

**Homologous Series:** series of compounds with the same functional group in which the molecular formula varies by  $-\text{CH}_2-$  from one member to the next

**Isomerism:** a number of different structures having the same molecular formula

**Structural Isomerism:** the same molecular formula, but a different arrangement of covalent bonds

**Chain Isomerism:** the same molecular formula, but a different arrangement of carbon atoms in the chain

**Positional Isomerism:** the same molecular formula, but the functional group in a different position

**Functional Isomerism:** the same molecular formula, but a different functional group

**Functionaal group:** an atom or group of atoms which confer specific physical and chemical properties to the molecule