**Redox Concise Notes**

**1. Oxidation Number (Oxidation State)**

**1.1 Rules for Assigning Oxidation Numbers (O.N.)**

**Rule 1** The oxidation number of an atom in its elemental state is **zero**.

0 0 0 0 0

Ca Fe Cl2 H2 O2

**Rule 2** The oxidation number of any **monoatomic** ion is equal to the **charge on the ion**.

N3- : Oxidation number of N = -3

Cl- : Oxidation number of Cl = -1

**Rule 3** The **sum** of the oxidation numbers of all the elements in a compound is **zero**.

Al2O3 : sum of oxidation numbers = 2(+3) + 3(-2) = 0

**Rule 4** In a **polyatomic ion**, the algebraic **sum** of the oxidation states of all elements is equal to the **charge of the ion**.

Cr2O7 2: sum of oxidation numbers = 2(+6) + 7(-2) = -2

**Rule 5** In any compound, the **more electronegative** atom has the **negative** oxidation number while the **less electronegative** atom has the **positive** oxidation number.

Electronegativity **increases** across the period and **decreases** down the group in the Periodic Table.

+4 -2 +5 -1

NO2 , PCl5

**Rule 6**: The oxidation numbers of groups I, II, III and VII elements, hydrogen and oxygen are

listed in the table. Note the **exceptions.**

**Please contact 98639633 for complete concise notes with exam questions as examples**