**5.7 CLASS WORKSHEET – OXIDISING AND REDUCING AGENTS**

**Questions 1 – 5 will be assessed as Classwork (10 points)**

1. Explain the meaning of the terms:

|  |  |
| --- | --- |
| Oxidising agent |  |
| Reducing agent |  |

1. Consider the reaction: Ca + Cl2 🡪 CaCl2

Charges on each atom: 0 +1 +2, -1

|  |  |
| --- | --- |
| Which atom is being oxidised? |  |
| Which atom is being reduced? |  |
| Which species is the oxidising agent in this reaction? |  |
| How do you know? |  |
| Which species is the reducing agent in this reaction? |  |
| How do you know? |  |

1. Consider the following reaction; write in the charge on each atom and hence identify the oxidising agent and the reducing agent in the reaction:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Reaction: | Mg | + | 2H+ | 🡪 | Mg2+ | + | H2 |
| Charge on each atom |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| Oxidising agent: |  |
| Reason: |  |
| Reducing agent: |  |
| Reason: |  |

1. Consider the following reaction; write in the charge on each atom and hence identify the oxidising agent and the reducing agent in the reaction:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Reaction: | Cl2 | + | 2Br- | 🡪 | 2Cl- | + | Br2 |
| Charge on each atom |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| Oxidising agent: |  |
| Reason: |  |
| Reducing agent: |  |
| Reason: |  |

1. Consider the following reaction; write in the charge on each atom and hence identify the oxidising agent and the reducing agent in the reaction:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Reaction: | Zn | + | CuCl2 | | 🡪 | ZnCl2 | | + | Cu |
| Charge on each atom |  |  |  |  |  |  |  |  |  |

|  |  |
| --- | --- |
| Oxidising agent: |  |
| Reason: |  |
| Reducing agent: |  |
| Reason: |  |

**Questions 6 – 7 will be assessed as Homework (10 points)**

1. **For each of the three equations below, identify the:**

* atom which is oxidised
* atom which is reduced
* the oxidising agent
* the reducing agent

1. 2Mg + O2 🡪 2MgO

|  |  |
| --- | --- |
| Atom oxidised |  |
| Atom reduced |  |
| Oxidising agent |  |
| Reducing agent |  |

1. 2Fe3+ + Sn2+ 🡪 2Fe2+ +Sn4+

|  |  |
| --- | --- |
| Atom oxidised |  |
| Atom reduced |  |
| Oxidising agent |  |
| Reducing agent |  |

1. CuO + Zn 🡪 ZnO + Cu

|  |  |
| --- | --- |
| Atom oxidised |  |
| Atom reduced |  |
| Oxidising agent |  |
| Reducing agent |  |

1. Oxidising and reducing agents can be both **useful** and **dangerous.**

Conduct some internet research. Identity a useful oxidising agent and state why it is useful. Identity a useful reducing agent and state why it is useful.

|  |  |  |
| --- | --- | --- |
|  |  | Reason for usefulness |
| Useful oxidising agent |  |  |
| Useful reducing agent |  |  |