**Part 1: The Neutral Atom**

* *Complete the missing information in the table below*.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Atomic Number (Z) | Mass Number (A) | # of protons (p+) | # of neutrons (n0) | # of electrons (e-) | Charge | Atomic Symbol | Name of Element |
| 11 |  |  | 12 |  | 0 |  |  |
|  |  | 4 | 5 |  |  |  |  |
|  | 40 |  |  | 20 |  |  |  |
|  |  |  |  |  |  |  |  |
|  | 32 | 16 |  |  |  |  |  |
|  | 39 |  |  | 19 |  |  |  |
|  | 1 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  | 55 |  |  | 25 |  |  |  |

**Part 2: Ions**

* *Complete the missing information in the table below.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Atomic Number (Z) | Mass Number (A) | # of protons (p+) | # of neutrons (n0) | # of electrons (e-) | Charge | Atomic Symbol | Name of Element |
|  |  |  | 12 |  |  | 1+ |  |
| 15 |  |  |  |  |  | 3- |  |
|  | 11 | 5 |  | 2 |  |  |  |
| 12 |  |  |  |  | +2 |  |  |
|  | 127 | 53 |  | 54 |  |  |  |

**Part 3: Isotopes**

* *Complete the missing information in the table below.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Atomic Number (Z) | Mass Number (A) | # of protons (p+) | # of neutrons (n0) | # of electrons (e-) | Charge | Atomic Symbol | Name of Element |
|  |  | 3 | 6 |  | 0 |  | Lithium-9 |
| 10 | 21 |  |  |  |  |  |  |
|  |  |  | 35 |  |  |  | Nickel-63 |
|  | 235 |  |  | 92 |  |  |  |
|  |  |  | 150 |  |  |  | Plutonium-244 |
|  |  | 82 | 122 |  |  |  |  |
|  |  |  | 12 |  |  |  | Sodium-23 |
|  | 26 |  |  |  |  |  | Sodium-26 |
|  |  |  | 20 | 16 |  |  | Sulfur |

**Part 4: Neutral Atoms, Ions, & Isotopes**

* *Complete the missing information in the table below.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Atomic Number (Z) | Mass Number (A) | # of protons (p+) | # of neutrons (n0) | # of electrons (e-) | Charge | Atomic Symbol | Name of Element |
|  |  |  | 12 | 10 |  |  | Magnesium |
| 9 |  |  |  |  | -1 |  |  |
|  |  |  |  |  |  | 3- |  |
|  | 41 |  |  |  |  |  | Calcium-41  |
|  |  | 16 | 15 |  |  |  |  |
| Atomic Number (Z) | Mass Number (A) | # of protons (p+) | # of neutrons (n0) | # of electrons (e-) | Charge | Atomic Symbol | Name of Element |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  | -2 |  | Oxygen |
| 19 |  |  |  | 18 |  |  |  |
| 18 |  |  |  |  | 0 |  |  |
|  | 10 | 5 |  |  |  |  |  |
|  |  | 1 | 2 |  |  |  |  |
|  |  |  |  |  |  | 3+ |  |
|  | 29 |  |  |  |  |  | Silicon-29 |
|  |  |  | 6 | 6 |  |  | Carbon  |
|  | 63 | 29 |  |  |  |  |  |

*Describe the following terms in your own words:*

**Neutral Atom:**

**Ion:**

**Isotope:**