**Exercise 1:** Fill the gap by cited the type of chemical bond?

1- …………. between a Metal and Non-Metal

2-………….. between a Non-Metal and Non-Metal

3- …………. between a Metal and Metal

**Exercise 2:** multiple-choice questions

**Which of the following types of interactions is a part of weak chemical bonds?**

* A) Dipole-dipole interactions
* B) Covalent bonds
* C) Ionic bonds
* D) Metallic bonds

**What role do weak chemical bonds play in biological systems?**

A) They provide the primary structure of proteins.

B) They are responsible for the stability of DNA and protein structures.

C) They are the main source of energy in biochemical reactions.

D) They form rigid cell walls in plants.

**Which of the following describes van der Waals forces?**

* A) Strong attractions between fully charged ions.
* B) Weak attractions that occur due to temporary dipoles in molecules.
* C) Bonds formed by the sharing of electrons.
* D) Strong covalent bonds between non-metals.

**What type of bond is formed by the sharing of electron pairs between atoms?**

A) Ionic bond.

B) Covalent bond.

C) Metallic bond.

D) Hydrogen bond.

**Exercise 3:** Fill in the table?

|  |  |  |  |
| --- | --- | --- | --- |
| **Compound** | **Name** | **Oxidation states of each atom** | **Bond Type** |
| NO2 |  |  |  |
| NaCI |  |  |  |
| SO2 |  |  |  |
| MgBr2 |  |  |  |
| CaO |  |  |  |
| H2O |  |  |  |
| k2o |  |  |  |
| Cu-Zn alloy |  |  |  |
| O2 |  |  |  |

**Exercise 4**: Arrange these compounds in order of increasing ionic character of their bonds: LiF, Li Br, KCI, KI?

The electronegativities of atoms:

Lithium (Li) has an electronegativity of about 1.0.

Fluorine (F) has an electronegativity of about 4.0.

Bromine (Br) has an electronegativity of about 2.8.

Potassium (K) has an electronegativity of about 0.8.

Chlorine (Cl) has an electronegativity of about 3.0.

Iodine (I) has an electronegativity of about 2.5.