**Activity of terminology**

Complete the following definitions with the adequate concepts from the boxes bellow:

|  |
| --- |
| **electricity- aluminium –** **oxides-** **positive- Metal- types- soft- conductors-**  **electropositive- negative - elements – contrasted- less- harder- mercury – amphoteric** |

1. …………………. any of a class of chemical ……………………. that are typically lustrous solids that are good …………………….. of heat and……………….. Not all metals have all these properties (e.g. ………………..is a liquid). In chemistry, metals fall into two distinct…………………. Those of the *s*- and *p*-blocks (e.g. sodium and………………………) are generally ………………….silvery reactive elements. They tend to form …………………. ions and so are described as…………………... This is……………………. with typical non-metallic behaviour of forming …………………..ions. The \*transition elements (e.g. iron and copper) are ……………………. substances and generally………………… reactive. They form coordination complexes. All metals have ……………….that are basic, although some, such as aluminium, have …………………….. properties.

**Metal** any of a class of chemical **elements** that are typically lustrous solids that are good **conductors** of heat and **electricity**. Not all metals have all these properties (e.g. **mercury** is a liquid). In chemistry, metals fall into two distinct **types**. Those of the s- and p-blocks (e.g. sodium and **aluminium**) are generally **soft** silvery reactive elements. They tend to form positive ions and so are described as **electropositive**. This is **contrasted** with typical non-metallic behaviour of forming **negative** ions. The \*transition elements (e.g. iron and copper) are **harder** substances and generally **less** reactive. They form coordination complexes. All metals have **oxides** that are basic, although some, such as aluminium, have \***amphoteric** properties.

|  |
| --- |
| **below-** **pellets- ethanal –** **fuel- acid- Metaldehyde-** **The compound.** |

1. ……………………..a solid compound, C4O4H4(CH3)4, formed by polymerization of ………………………… (acetaldehyde) in dilute………………….. solutions …………………..0°C. …………………., a tetramer of ethanal, is used in slug ………………….. and as a …………………….for portable stoves.

**Metaldehyde** a solid compound, C4O4H4(CH3)4, formed by polymerization of **ethanal** (acetaldehyde) in dilute **acid** solutions below 0°C. **The compound**, a tetramer of ethanal, is used in slug **pellets** and as a **fuel** for portable stoves.

|  |
| --- |
| **failure - increases - stress - fatigue- strength - required – corrosion- repeated- causing-** |

1. Metal………………: a cumulative effect ………….a metal to fail after ………………applications of…………………., none of which exceeds the ultimate tensile strength. The fatigue ……………..…….(or fatigue limit) is the stress that will cause………………… after a specified number (usually 107) of cycles. The number of cycles ……………………..to produce failure decreases as the level of stress or strain…………………... Other factors, such as……………………, also reduce the fatigue life.

Metal **fatigue:** a cumulative effect **causing** a metal to fail after **repeated** applications of **stress**, none of which exceeds the ultimate tensile strength. The fatigue **strength** (or fatigue limit) is the stress that will cause **failure** after a specified number (usually 107) of cycles. The number of cycles **required** to produce failure decreases as the level of stress or strain **increases**. Other factors, such as **corrosion**, also reduce the fatigue life.

|  |
| --- |
| **ions- electrical - freely - metal -Metallic-** **electrons - valence- bonding- ionized - atoms-** |

1. **…………………… bond:** a chemical bond of the type holding together the ………………… in a solid ………………… or alloy. In such solids, the atoms are considered to be…………………….., with the positive ………………. occupying lattice positions. The ……………………. electrons are able to move ………………….. (or almost freely) through the lattice, forming an ‘electron gas’. The …………….. force is electrostatic attraction between the positive metal ions and the…………………… . The existence of free electrons accounts for the good …………..……. and thermal conductivities of metals.

**Metallic** bond: a chemical bond of the type holding together the **atoms** in a solid **metal** or alloy. In such solids, the atoms are considered to be **ionized**, with the positive **ions** occupying lattice positions. The **valence** electrons are able to move **freely** (or almost freely) through the lattice, forming an ‘electron gas’. The **bonding** force is electrostatic attraction between the positive metal ions and the **electrons**. The existence of free electrons accounts for the good **electrical** and thermal conductivities of metals.

|  |
| --- |
| **found - alloys -atoms - interstitial - crystal- crystalline** |

1. Metallic………………: a ………………….solid in which the……………… are held together by \*metallic bonds. Metallic crystals are …………… in some \*………………. compounds as well as in metals and…………………..

Metallic **crystal**: a **crystalline** solid in which the **atoms** are held together by \*metallic bonds. Metallic crystals are **found** in some \***interstitial** compounds as well as in metals and **alloys**.

|  |
| --- |
| **Crystals- Silicon- Macromolecular- molecule- hardness- point -substances- covalent-**  **solid- linked-.** |

1. ……………….. crystal: a crystalline ………….. in which the atoms are all ……….…..together by …………………….bonds. Carbon (in diamond), boron nitride, and ………………… carbide are examples of ……………………. that have macromolecular…………………… . In effect, the crystal is a large ……………….. (hence the alternative description giantmolecular), which accounts for the ……………… and high melting ……………. of such materials.

**Macromolecular** crystal: a crystalline **solid** in which the atoms are all **linked** together by **covalent** bonds. Carbon (in diamond), boron nitride, and **silicon** carbide are examples of **substances** that have macromolecular **crystals**. In effect, the crystal is a large **molecule** (hence the alternative description giantmolecular), which accounts for the **hardness** and high melting **point** of such materials.

|  |
| --- |
| **Polymers- synthetic- Macromolecule- haemoglobin- Natural- large** |

1. ……………………. a very ……………… molecule. ………………and …………….. …………………… have macromolecules, as do such substances as……………………… .

**Macromolecule**: a very large **molecule**. **Natural** and **synthetic** polymers have macromolecules, as do such substances as **haemoglobin**.