**Correction First Onsite Control of English (2024/2025)**

**Master of Materials Chemistry**

**Task One: give the right concept to the following definitions: (2.5pts)**

1. **Paragraph**: is a group of sentences about one topic or idea. It forms the building blocks of an essay or any piece of academic writing.
2. **Topic sentence:** is the first sentence in a paragraph. It introduces the main idea of the paragraph.
3. **Supporting sentences:** They come after the topic sentence, making up the body of a paragraph.
4. **Concluding sentence:** is the last sentence in a paragraph. It restates the main idea of your paragraph.
5. **Communication**: the process by which information is exchanged between individuals through a common system of symbols, signs, or behaviour.

**Task Two: Complete the following definitions with the right concepts from the list in the boxes bellow (6.5pts)**

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

**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.

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

**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.

**Task Three: translate the following passages from French into English**. **(6pts)**

**1.** L’écart énergétique des bandes est réduit par la présence d’une impureté.

Une impureté donneur fournit des électrons supplémentaires (extra) et crée un niveau d’énergie (donneur d’électrons) qui facilite l’excitation : un semi-conducteur de type-n (porteur de charge négative).

Une impureté accepteur produit des trous (un manque d’électrons de valence) et crée un niveau d’accepteur d’électrons facilitant l’excitation : un semi-conducteur de type-p (porteur de charge positive)

***The energy gap of the bands is reduced by the presence of an impurity.***

***A donor impurity provides additional (extra) electrons and creates an energy level (electron donor) that facilitates excitation: an n-type semiconductor (negative charge carrier).***

***An acceptor impurity produces holes (a lack of valence electrons) and creates an electron acceptor level facilitating excitation: a p-type semiconductor (positive charge carrier).***

**2.** Résines époxydes : Résines synthétiques produites par copolymérisation de composés époxydes avec des phénols. Ils contiennent des liaisons -O- et des groupes époxydes et sont généralement des liquides visqueux. Ils peuvent être durcis par l’ajout d’agents, tels que des polyamines, qui forment des liaisons croisées. On peut aussi utiliser des catalyseurs pour induire une polymérisation plus poussée de la résine. Les résines époxy sont utilisées dans l’équipement électrique et dans l’industrie chimique (en raison de la résistance aux attaques chimiques). Ils sont également utilisés comme adhésifs.

***Epoxy resins: Synthetic resins produced by copolymerizing epoxide compounds with phenols. They contain –O– linkages and epoxide groups and are usually viscous liquids. They can be hardened by addition of agents, such as polyamines, that form cross-linkages. Alternatively, catalysts may be used to induce further polymerization of the resin. Epoxy resins are used in electrical equipment and in the chemical industry (because of resistance to chemical attack). They are also used as adhesives.***

**Task Four**: **Reorder the following statements to get a meaningful paragraph**. (**5pts)**

Materials science is a field of engineering. It involves analyzing the properties and structure of all solid materials. It also involves the discovery and development of new solid materials. Materials science is used to analyze the properties and structure of solid materials. It is also used to discover and design new solid materials and to apply these materials to create technological advances in the day-to-day lives of humans and society. Materials are classified based on their chemical, mechanical, and physical properties. Ceramics, Metals, Polymers, and Composites are the four main classifications of materials.