First name……………………….... Last name…………………………. Major………..

**Examen d’Anglais Technique et Terminologie 1h15**

Crystallography, branch of [science](https://www.britannica.com/science/science) that deals with [discerning](https://www.britannica.com/dictionary/discerning) the arrangement and bonding of [atoms](https://www.britannica.com/science/atom) in crystalline [solids](https://www.britannica.com/science/solid-state-of-matter) and with the geometric structure of [crystal](https://www.britannica.com/science/crystal) lattices. Classically, the optical properties of [crystals](https://www.britannica.com/science/crystal) were of value in [mineralogy](https://www.britannica.com/science/mineralogy) and [chemistry](https://www.britannica.com/science/chemistry) for the identification of substances. Modern crystallography is largely based on the analysis of the [diffraction](https://www.britannica.com/science/diffraction) of [X-rays](https://www.britannica.com/science/X-ray) by [crystals](https://www.britannica.com/science/crystal) acting as optical gratings. Using X-ray crystallography, chemists are able to determine the internal structures and bonding arrangements of [minerals](https://www.britannica.com/science/mineral-chemical-compound) and [molecules](https://www.britannica.com/science/molecule), including the structures of large complex molecules, such as [proteins](https://www.britannica.com/science/protein) and [DNA](https://www.britannica.com/science/DNA).

In single crystals, the effects of the crystalline arrangement of atoms is often easy to see macroscopically because the natural shapes of crystals reflect the atomic structure. In addition, physical properties are often controlled by crystalline defects. The understanding of crystal structures is an important prerequisite for understanding [crystallographic defects](https://en.wikipedia.org/wiki/Crystallographic_defect). Most materials do not occur as a single crystal, but are poly-crystalline in nature (they exist as an aggregate of small crystals with different orientations). As such, [powder diffraction](https://en.wikipedia.org/wiki/Powder_diffraction) techniques, which take diffraction patterns of samples with a large number of crystals, play an important role in structural determination.

1. **Read the text and answer the questions**
2. Give a title to this passage?

…………………… **Crystallography** ………**0.5pt**……………………………………...

1. What is the main property of crystallography?

……….**The main property of crystallography is the identification of substances** **0.5pt**…...

…………………………………………………………………………………………………...

1. What’s the difference between crystallography and the [diffraction](https://www.britannica.com/science/diffraction) of [X-rays](https://www.britannica.com/science/X-ray)?

**The**[**diffraction**](https://www.britannica.com/science/diffraction)**of**[**X-rays**](https://www.britannica.com/science/X-ray)**by**[**crystals**](https://www.britannica.com/science/crystal) **is the modern crystallography and it help for the determination of the internal structures and bonding arrangements of**[**minerals**](https://www.britannica.com/science/mineral-chemical-compound)**and**[**molecules**](https://www.britannica.com/science/molecule)**, including the structures of large complex molecules, such as**[**proteins**](https://www.britannica.com/science/protein)**and**[**DNA**](https://www.britannica.com/science/DNA)……………**1pt**

1. How does most of the materials occur?

**Most of the materials occur as poly-crystalline in nature (they exist as an aggregate of small crystals with different orientations)**…**1pt**…………………………………………….

1. Give the synonyms of these words from the text?

Field = **branch** **0.5** Necessary condition = **important prerequisite** **0.5** Happen = **occur 0.5**

1. Give the opposite of these words from the text?

Advantage ≠ **defects** **0.5pt** Ancient ≠ **Modern** **0.5pt** Absorb ≠  **reflect 0.5pt**

1. Give the adjective of these words

Process: **processed** **0.5pt** Procedure: **procedural 0.5pt** distillation: **distilled 0.5pt**

1. Give the noun of these words

Convey: **conveyance**  **0.5pt** Reduced: **reduction 0.5pt** Procedural: **procedure 0.5pt**

1. **Complete each of these sentences with a word from this list below**

Polymers, Condensation, Ceramics, Vaporization and Metals.

* Opaque and lustrous (or shiny) elements that are good conductors of heat and electricity, it said to **Metals** **0.5**
* Change of the state of matter from the gas phase into the liquid phase, it said to **Condensation 0.5pt**
* Generally made by taking mixtures of clay, earthen elements, powders, and water and shaping them into desired forms, it said to **Ceramics 0.5pt**
* The liquid state changes into the vapour state, it said to **Vaporization 0.5pt**
* Substances that are solid and nonmetallic; a polymer is composed of small molecules that repeat like links in a chain, it said to **Polymers 0.5pt**

1. **Give a brief definition of these words**

* **Desalination: removal of dissolved salts from seawater 0.5**
* Convection: **process by which heat is transferred by movement of a heated fluid such as air or water**… **1pt**
* Recycling: **is the recovery and reprocessing of waste materials for use in new products0.5**
* Polymerization: **Polymerization is the method of creating synthetic polymers by combining monomers, into a chain held together by covalent bonds** …**1pt**
* Greenhouse gases: **are gases in the earth’s atmosphere that trap heat exp: CO2**….**0.5pt**

1. **Mention the main steps to write an effective work report**

* Identify your audience………………………………………………………..
* Decide which information you will include …………………..
* Structure your report: Title, executive summary, table of contents, Introduction, a body with details……..
* Use a concise and professional language………………..
* Proofreading and edit your report…..

1. **In few lines explain how do your studies align with your goals?**

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