**Technical English In-Class Writing**

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| Date of in-class writing: 17.11.2020 |
| Student name: Aleksandar Jevtic if20b014 |
| Study program and group: L4 |
| Lecturer's assessment of points earned of 40: |
| Time: 90 minutes Format: open book on laptop  Submission: upload to Turnitin gateway session 9 Grade: 40% of course grade  Grading scheme: see below – each answer contributes equally |

**In both tasks you will be assessed on the degree to which your text is:**

- written in formal English

- written in coherent and cohesive paragraphs

- written using correct grammar, punctuation and spelling

- written using a style and vocabulary that is appropriate for advanced B1 level English.

\*\*Please note that while you are primarily being assessed on the criteria above, you are expected to write a meaningful, intelligent and relevant text about the topics specified below. It is for you to decide the length of your answer given that you should know the characteristics of the ideal paragraph. Likewise, it is for you to know how to structure the extended text and for this (extended) text your writing should contain no more than 500 words. \*\*

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1. **Paragraph: Write a paragraph, which is fully developed, unified and coherent on one section (either the introduction or one step) of a process description using one of the three topics below, which you do not use for your process description.**

Ensure that your paragraph:

- includes at least four different devices of cohesion (please underline)

- consists of a topic sentence, explanation, example and conclusion (please underline)

- is written in formal English

- is coherently structured.

*Your answer:*

## A🡪 How a website functions

### Introduction

Websites are an essential way to host information in today’s age, however, not everyone understands the fundamental process behind typing a webpage into the address line and the connection to that website. There are multiple computers and protocols involved in the process of building a connection between web browsers of clients and a server. Servers are specific computers which host all the necessary data for a website and have a unique IP address which is a string of numbers. A domain name, typically stored on a DNS-Server, references this IP address is. Suppose a web browser wants to display the website www.google.com for example. In that case, multiple protocols establish first a connection between the web browser, the DNS-server, then the DNS-server and the Google server, which hosts the content of the website and ultimately, the web browser and the Google server. In this paper, we explore how websites work in detail to build our own.

Legend:

- includes at least four different devices of cohesion (please underline)

- consists of a topic sentence, explanation, example and conclusion (please underline)

- is written in formal English

- is coherently structured.

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1. **Extended Writing: Write a process description of one of the following topics:**
2. **How a website functions**
3. **How the Covid-19 Virus spreads**
4. **How solar panels work**

*Your answer:*

## C 🡪 Solar panels

### Abstract

Earth is struck by an enormous amount of potential energy daily by the sun, and solar panels are the answer to convert it. Different types of silicon are used for the conversion process, which consists of multiple single steps as well as other materials to protect the components. During the conversion of solar energy into electrical energy, commercial solar cells still face a staggering inefficiency as well as problems of logistical nature.

### Introduction

Much of the surface of Earth intercepts much solar power daily. About ten thousand times than the planet’s population needs to be exact. To harness the power of the sun, we use solar panels to convert solar energy to electrical energy. This document focuses on the single steps in the process and the components of a cell. Afterwards, a conclusion is drawn whether we can be reliant on solar power only.

### Sunlight emission & Entering a solar cell

Sunlight – photons – are emitted from the sun to the Earth’s surface. Solar panels are set up in a position to capture most of the sun’s light rays. Each solar panel consists of an array of solar cells, which are mainly responsible for the transformation process. A photon, when it hits a solar cell, travels through the first layer of a solar cell which consists of transparent toughened glass. This glass is primarily there to protect the internal components from other solid objects. The next layer improves the efficiency of the solar cell and consists of an antireflection layer. Without this layer, 30 % of the captured sunlight would be reflected and therefore reducing the efficiency of the cell significantly.

### Electron travel

The next layers deal with the conversion of solar power to electrical power. In a solar cell, crystalline silicon, an abundant element on Earth and semiconductor, is used for the top and bottom layers, which are connected with conductive materials. Each silicon atom has four strong connections to its neighbours, keeping electrons in place so no current can flow. However, the silicon also consists of 3 layers. The bottom layer consists of negative-type silicon (n-type) and has extra electrons while the top layer uses positive-type (p-type) silicon and has additional spaces for electrons. A depletion layer sits in between these two, which accelerates electrons from the p🡪n way but blocks the electrons from the n🡪p direction.

### The Photons role

Photons can deorbit an electron in the top layer from their silicon-atoms, creating travelling electrons and empty holes in the n-type layer. An Electron can snap back into an open hole in the same layer where nothing happens, or they reach the depletion layer, where they are accelerated towards the n-type layer. This creates a potential difference (aka. Voltage) between the n-type layer and the p-type layer as the top layer becomes positively charged while the bottom layer becomes negatively charged.

### Creating electricity

From this position, electrons can pass through the conductive material at the bottom through an external circuit connected. At this step, electrical power is generated: Electrons perform electric power in the external circuit and flow back to the top layer. Currently, a single solar cell can put out 0.5 Volts. For this reason, the conductive material connects multiple cells to create a more appropriate amount of electrical power, which forms the solar panel.

### Conclusion

As we have seen, solar power is a great way to generate renewable power. Is it, therefore, plausible to be reliant on solar power? The two most important aspects of solar power are presented in step Electron Travel. Solar power has both a renewable power source as well as a high life expectancy as the only moving part in a solar panel is the electron itself. However, there are still plenty of problems that need to be solved. For one, current commercial solar systems have a total efficiency of about 20% and very expensive. Secondly, as we have seen in step Sunlight emission & entering the solar cell, solar power is neither evenly distributed, nor consistent because power generation depends on the weather, daytime and geolocation. Solar power might become the new way to power our cities in the coming decades as innovation drives the efficiency of solar cells forward and the cost per cell drops down.

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**Overall assessment for both texts (for student information/use by examiner)**

**1) Content and process**

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| 8 points | Text reflects complete understanding of the task (topic, specific requirements); presents a clear analytical perspective; most of the steps are easy to follow and supported by examples; argument and examples are directly relevant to the matter and geared toward the intended audience; the text may digress slightly and/or appear unfocused at times |
| 5 points | Text reflects partial understanding of the task, i.e. only parts dealt with; are identifiable, however, they are not or not sufficiently supported; examples and evidence are missing or partly off topic and/or redundant. |
| 1 points | Text does not deal with the task and/or reflects a misunderstanding of the task; steps are limited in number, content and relevance. |
| 0 points | Text fails to address the task. 🡪 Leads to 0 in all other categories. |

**2) Organization and Structure**

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| 8 points | Text is visibly structured into paragraphs that follow the logic of the content of the process, consisting of an introduction, a body and a conclusion; paragraphs have a clear message, steps of the process are clear and include a result/transition; the paragraph can stand alone and make sense through its clear description and development; limited number of linking structures. |
| 5 points | Text shows structure on the surface but the introduction is missing or fails due to lacking substance, clarity, focus, is too general or includes irrelevant details (i.e. biographical comments, …); OR: text shows no paragraphs even though the content may follow a logical structure. |
| 1 points | Text is not at all structures into paragraphs and has no internal organization or logical development; the content is hard to follow; no or very few linking structures beyond and/or/but. |
| 0 points | No organization of process is visible. |

**3) Level of Language (vocabulary, terminology, expression...)**

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| 8 points | Text shows mostly clear and fitting word choices; some paraphrases or synonyms are used, repetition is limited to a minimum; the text is scientific in tone and neutral in register (not abstract-formal, not colloquial) |
| 5 points | Text shows word choices that are often unclear or non-fitting; limited range in available, fitting vocabulary leads to missing paraphrasing and few synonyms; the text is repetitive and non-scientific in tone and/or non-neutral in register. |
| 1 points | Text shows no fitting vocabulary; limited vocabulary range; the text is not scientific |
| 0 points | Vocabulary is rudimentary and not appropriate for the task. |

**4) Correctness of Language (grammar, syntax, spelling...)**

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| 8 points | Some mistakes that do not interfere with readability and result from the writer’s intention to use advanced, complex language max. two spelling mistakes. |
| 5 points | Repeated grammar or syntax mistakes; some may strain the reader, forcing him/her to pause; six or more spelling mistakes. |
| 1 points | Numerous, repeated mistakes that strain the reader, and harm the text’s readability. |
| 0 points | Basic grammar and sentence structure mistakes and show grave issues in clear language expression |

**5) Formal Aspects (text form, numbering, word count, …)**

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| 8 points | Font, size, line spacing are, with only a few exceptions, consistent; the extended text carries a fitting title that encapsulates the presented argument; word count is stated at the end and within the limit. |
| 5 points | Font, size, line spacing are not or only partly visible in the text; a text title may be there but it does not relate to the argument presented; word count is over or under the limit by over 10%. |
| 1 points | Font, size, line spacing are not consistent; the text title is missing; word count is over or under the limit by over 10%. |
| 0 points | Some elements are there but not consistent; decorative elements that distract from the argument (pictures, brackets, smileys, hand-written comments, decorative quotes) are present |