

EXAMEN DE FIN D'ÉTUDES SECONDAIRES – Sessions 2024**QUESTIONNAIRE**

Date :	24.05.24	Horaire :	14:15 - 17:15	Durée :	180 minutes	
Discipline :	Anglais	Type :	écrit	Section(s) :	GA3D / GACV / GIG / GIN / GSE / GSN / GSO	
					Numéro du candidat :	

Part A – Known texts (30 marks)

You may not use a dictionary for this part!

Essential Articles (15 marks)**Refugee Children – fleeing from danger into danger**

1. What alarming observations has the United Nations Commissions for Refugees made?
Briefly explain the reasons presented for this. (7 marks)

The class ceiling is worse than the glass ceiling ever was.

2. What is the class ceiling? In how far is the class ceiling visible in education? (8 marks)

Short Stories (15 marks)**The Third and Final Continent, by Jhumpa Lahiri**

3. Explain how the narrator's relationship with his wife evolves over time. (8 marks)

The Doll's House, by Katherine Mansfield

4. Why are the Kelveys outsiders? Explain what sets them apart from the others. (7 marks)

Part B – Unknown Text and Development Question

The use of a dictionary for this part is allowed.

Japan to launch world's first wooden satellite to combat space pollution

Japanese scientists have created one of the world's most unusual spacecraft – a tiny satellite that is made of wood.

The satellite has been built by researchers at Kyoto University and the logging company Sumitomo Forestry in order to test the idea of using biodegradable materials such as wood to see if they can act as environmentally friendly alternatives to the metals from which all satellites are currently constructed. "All the satellites which re-enter the Earth's atmosphere burn and create tiny aluminium particles, which will float in the upper atmosphere for many years," Takao Doi, a Japanese astronaut and aerospace engineer with Kyoto University, warned recently. "Eventually, it will affect the environment of the Earth."

Recent research from the University of British Columbia, in Canada, shows that aluminium like this is a risk to the ozone layer - which protects the Earth from the Sun's harmful radiation. This should not be a problem with satellites built of wood, like LignoSat, which, when it burns up as it re-enters the atmosphere after completing its mission, will produce only a fine spray of biodegradable ash.

To tackle the problem of aluminium in the atmosphere, Kyoto researchers set up a project to evaluate types of wood to determine how well they could withstand the rigours of space launch and lengthy flights in orbit round the Earth. The first tests were carried out in laboratories that recreated conditions in space, and wood samples were found to have suffered no measurable changes in mass or signs of decomposition or damage. "Wood's ability to withstand these conditions astounded us," said Koji Murata, head of the project. After these tests, samples were sent to the ISS, where they were subjected to exposure trials for almost a year before being brought back to Earth. Again, they showed little signs of damage, a phenomenon that Murata attributed to the fact that there is no oxygen in space which could cause wood to burn, and no living creatures to cause it to rot.

Several types of wood were tested, including Japanese cherry, with wood from magnolia trees proving to be the most robust. This has now been used to build Kyoto's wooden satellite, which will contain a number of experiments that will determine how well the spacecraft performs in orbit, said Murata. "One of the missions of the satellite is to measure the deformation of the wooden structure in space. Wood is durable and stable in one direction but may be prone to dimensional changes and cracking in the other direction," he told the *Observer*.

Murata added that a final decision had still to be made on the launch vehicle, with choices now narrowed down to a flight this summer on an Orbital Sciences Cygnus supply ship to the ISS or a similar SpaceX Dragon mission slightly later in the year. It is expected that the probe – which is the size of a coffee mug – will operate in space for at least six months before it is allowed to enter the upper atmosphere. If the LignoSat performs well during its operation in orbit, then the door could be opened for the use of wood as a construction material for more satellites.

(529 words)

Sources: adapted from The Guardian, 17th February 2024 and bbc.com 18th February 2024

I. Comprehension Questions (15 marks)

1. Why are traditional satellites bad for the environment? How does LignoSat combat this problem? (5 marks)
2. Describe the testing process behind LignoSat. What explanation is given for the result? (6 marks)
3. What is the purpose of LignoSat's mission? (4 marks)

II. Development Question (15 marks)

Please write a structured essay of 250 words (+/- 10%) on the following topic. Do not use ideas from the text. Please indicate the number of words used.

Should companies be forced to make products more sustainable in the future?