

NOM : RIFKI KENZA

groupe : 110

total / 60 points



/ 20

**Epreuve : une heure trente, sans documents, sans outils électroniques
Répondre sur le dossier-même, en écrivant à l'encre.
Exécuter la rédaction sur une copie d'examen.**

Part 1 – read the text below and answer the questions that follow.

TU Delft's ambulance drone

27 October 2015 by *Webredactie Communication*

Graduate student Alec Momont of TU Delft has designed an unmanned, autonomously navigating mini aeroplane that can quickly deliver a defibrillator to where it is needed. A network of such drones could **significantly** increase the chance of survival following a cardiac arrest: from 8% to 80%!

Drone

Alec Momont of TU Delft's Faculty of Industrial Design Engineering designed his prototype for an ambulance drone together with the Living Tomorrow innovation platform as part of his graduation programme. When the emergency services receive a cardiac arrest call, this unmanned, autonomously navigating aeroplane can quickly **deliver** a defibrillator to the emergency scene. Via a live stream video and audio connection, the drone can also provide direct **feedback** to the emergency services and the persons on site can be instructed how to treat the patient. The drone finds the patient's **location** via the caller's mobile phone signal and makes its way there using GPS. The drone can fly at around 100 km/h, weighs 4 kg and can carry another 4 kg.

Heart failure

'It is essential that the right medical care is provided **within** the first few minutes of a cardiac arrest,' says Alec Momont. 'If we can get to an emergency scene faster we can save many lives and facilitate the recovery of many patients. This especially applies to emergencies such as heart failure, drowning, traumas and respiratory problems. It has become possible because life-saving technologies, such as defibrillators, can now be small enough to be transported by a drone.'

Defibrillator

So Momont set to work and designed a new type of drone: a compact flying 'medical toolbox', which carries essential medical equipment that anybody can use. This first prototype has been designed to transport a defibrillator.

Webcam

The communications channel (a webcam) built into the drone is also very important. This allows the emergency operators to see what is going on and provide instructions to the person applying the defibrillator, who in their turn can also ask the emergency operator questions. 'Currently, only 20% of untrained people are able to successfully **apply** a defibrillator,' says Momont. 'This rate can be **increased** to 90% if people are provided with instructions at the scene. Moreover, the presence of the emergency operator via the drone's loudspeaker helps to reduce the panic of the situation.'

Five years before implementation

Momont proposes expanding the existing emergency medical infrastructure with a network of fast and compact drones that have communication capabilities and can carry medical auxiliary equipment. 'The costs should not be **an issue**; I have calculated these at approximately €15,000 per drone, which is clearly a reasonable amount if you consider the number of lives that could be saved.'

'There are still a number of obstacles in the way of the development of the ambulance drone,' says Momont. The drone can fly autonomously, however, this is still not allowed by law. New Dutch legislation in this area is expected to be passed in 2016. Moreover, the drone has not yet been tested on 'real' patients, and the object avoidance system to go round obstacles in the drone's path needs improvement. But Momont still thinks his invention could be **implemented** within five years. A number of parties in the medical sector have already **registered** their interest in the project.

Question 1: vocabulary – **circle** the correct synonyms for the words in bold type in the text – 10 points

1. Significantly =	1) badly	<input checked="" type="checkbox"/> 2) greatly	3) rarely	4) often
2. Deliver =	1) liberate	<input checked="" type="checkbox"/> 2) send	3) take	4) receive
3. Feedback =	<input checked="" type="checkbox"/> 1) information	2) food	3) water	4) power
4. Location =	1) rental	2) situation	3) condition	<input checked="" type="checkbox"/> 4) address
5. Within =	1) before	2) after	3) over	<input checked="" type="checkbox"/> 4) during
6. Apply =	1) develop	2) work hard	3) plug	<input checked="" type="checkbox"/> 4) use correctly
7. Increased =	<input checked="" type="checkbox"/> 1) augmented	2) improved	3) counted	4) dropped
8. Issue =	1) argument	<input checked="" type="checkbox"/> 2) problem	3) exit	4) condition
9. Implemented =	1) installed	<input checked="" type="checkbox"/> 2) finished	3) deployed	4) ready
10. Registered =	<input checked="" type="checkbox"/> 1) declared	2) recorded	3) explained	4) denied

Question 2: read the definitions below and find the words that they correspond to, in the text (5 points)

1. Prolonged immersion in a liquid that can lead to death = *drowning*
2. An unmanned light aeroplane = *A drone*
3. A set of equipment designed and gathered for a special task = *toolbox*
4. A person who needs or receives medical attention = *patient*
5. A life-threatening situation needing urgent response = *emergency*

Question 3: are the following statements RIGHT or WRONG? Write R or W at the end of each line and justify with a short quote from the text (5 points)

- 1. Delft Technological University is located in Germany ...R... X
Quote: "New Dutch legislation in this area..."
- 2. Alec Momont is a first-year student ...W... ✓
Quote: "... part of his graduation programme."
- 3. The drone can carry its own weight in equipment ...R... ✓
Quote: "weighs 4kg and can carry another 4kg."
- 4. The law needs to be changed for the project to succeed ...R... ✓
Quote: "this is still not allowed by law"
- 5. Defibrillators are designed to help people suffering from respiratory problems ...W... ✓
Quote: "...following a cardiac arrest..."

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Question 4: some prepositions have been removed from the text below, and put in the box; put them back in their correct places in the text (10 points)

into	with	to	by	at	between
in	within	since	on	of	

Harry Potter is a series of seven fantasy novels written by the British author J. K. Rowling. The series chronicles the adventures of a young wizard, Harry Potter, and his friends Ronald Weasley and Hermione Granger. They are students at Hogwarts, a school of Witchcraft and Wizardry. The main story concerns Harry's quest to overcome Voldemort, the Dark wizard

who aims to become immortal, conquer the wizarding world, subjugate non-magical people, and destroy all those who stand in his way !

Since the release of the first novel, *Harry Potter and the Philosopher's Stone*, on 30 June 1997, the books have gained immense popularity, critical acclaim, and commercial success worldwide. As of July 2013, the books had sold between 400 and 450 million copies, making them one of the best-selling book series in history, and had been translated into seventy-three languages. The last four books consecutively set records as the fastest-selling books in history, with the final instalment selling approximately 11 million copies in the United States within the first twenty-four hours of its release.

Excellent!
(10)

Part 2 – Essay: write approximately 200 words on one of the topics below – choose ONLY ONE topic. (30 points)

1. Explain why you have decided to study computer science , your career prospects etc...
2. Describe a place or a country you like, and say why you like it.
3. Who would you select as the Greatest Person of 2016 ? Justify your choice .
