

**READING COMPREHENSION**

**Task 1: Read the text carefully. Complete the task on the next page.**

**Hacking – a Weapon of War?**

Most of our critical infrastructure, it seems, can be hacked. The computer systems of our airports, banks, companies, hospitals, and nuclear power plants can be deactivated and even controlled simply through bugs in the software used to operate them. Nicole Perlroth has been reporting from the front lines of this cybercrime battlefield for over a decade. As the lead cybersecurity reporter at *The New York Times*, she investigated Russian hacks of elections and petrochemical plants; North Korea's cyberattack against Sony Pictures, and Iranian attacks on oil companies, banks, and dams. As an example of the type of havoc that cybercriminals cause, Perlroth points to the attack by the cybercrime group DarkSide on the Colonial Pipeline in 2021. The pipeline carries gasoline and jet fuel to the southeastern area of the U.S. The hackers used a breached employee password to shut down part of the pipeline and demand 75 bitcoins in ransom (\$4.4 million). After Colonial Pipeline paid the ransom, services were slowly restored. But the U.S. could have afforded only "three to five more days of the Colonial Pipeline being down before it ground the country – our economy – to a halt," says Perlroth. "It was because Colonial Pipeline paid this ransom and the criminal group honoured their hostage note that they were able to eventually get these operations running, but it is worth pausing to think that all it would take to bring the world's richest economy to its knees is one stolen password," Perlroth has said in interviews.

**Is this how the world ends?**

In 2021, Perlroth answered that question in her book, *This Is How They Tell Me the World Ends*, a terrifying bestseller about the global cyber arms race, which looks at some of the worst cybersecurity breaches in history and reveals how vulnerable we are to cyberattacks. Her book focuses on how governments are using hacking as a weapon of war. Jim Goslar, one of the people she interviews, pioneered research into detecting computer code vulnerabilities in the 1980s, focusing on the code that controlled America's nuclear arsenal. As Perlroth writes, he demonstrated that the code was "at once a hacker's paradise and a national security nightmare." In the 1990s, working at the Clandestine Information Technology Office of the Central Intelligence Agency (CIA), Goslar's role was to show that no computer program can ever be faultless. In her book, Perlroth writes: "And yet here we were, entrusting our entire digital lives – passwords, texts, love letters, banking records, health records, credit cards – to this mystery box, whose inner circuitry most of us would never fully understand." For seven years, Perlroth investigated the market in what are known as "zero-days" (or 0-days). A zero-day is a computer software or hardware vulnerability for which there is no existing patch. Although such a vulnerability may be harmless, in the hands of malicious actors, they can become weapons. Using a zero-day, a hacker or government agency can spy on your iPhone, dismantle the safety controls at a chemical plant, destroy the servers of a film company, or change the results of an election. Companies and governments pay hackers to find zero-days so that they can be fixed or exploited.

**The worm turns**

To understand how this happened, let's return to the late 1960s, when computers, which had been used to store and process information, also became communication devices. By 1972, the year ARPANET (the forerunner of the internet) was publicly demonstrated, James P. Anderson of the Pentagon's Defense Science Board Task Force on Computer Security argued that communication by computers offered a "unique opportunity" for espionage and sabotage, as they were virtually undefended and "totally inadequate to withstand attack." At that time, the U.S. Navy, the National Security Agency (NSA), and the CIA were undertaking Operation Ivy Bells, which saw divers place a tap on a Soviet cable on the ocean floor north of Japan. The tap was a valuable source of information, until it was discovered in 1981. By the 1990s, cyberattacks had become regular occurrences. In 2008, Russia

## READING COMPREHENSION – CONTINUED

hacked a Pentagon network. In 2010, Stuxnet – a computer worm, devastated Iran’s nuclear program. Although neither country has openly admitted responsibility, the worm is believed to be a cyberweapon built jointly by the U.S. and Israel.

**Our vulnerable world**

Nicole Perlroth left *The New York Times* in 2021 to join the Department of Homeland Security’s CyberSecurity Advisory Committee. But her book remains highly relevant. We live in a world in which most hackers will sell to the country that hands them the largest pile of cash. Every second, in the U.S. alone, 127 new devices, ranging from refrigerators and thermostats to iPads, vacuum cleaners, and bicycles, are plugged into the internet. Yet, not one of those devices is safe from hacking. Think about that before you make your next mouse click.

Source: *Spotlight*, May 23, pages 23-25 (abridged)

**Task:** Based on what you have read in the article, complete the statements below. You must fill in between one and four words (the number of missing words is indicated). You must use words from the article or forms derived from them. The statements do not follow in the same order as the information appears in the article.

1. Perlroth’s bestselling book analyses our ..... to destructive hackers’ attacks. (1 word)
2. If hackers decide to apply a zero-day, they can even deconstruct the ..... on industrial premises. (2 words)
3. According to Perlroth, the U.S. economy could have been halted due to a/an ..... (2 words)
4. In the second half of the sixties, computers turned into ..... (2 words)
5. Nicole Perlroth, as an investigative journalist, examined hacking of industrial machinery and ..... by Russia. (1 word)
6. The ..... placed on a Soviet cable in the deep ocean was a tool for spying. (1 word)
7. Even such common devices as vacuum cleaners might be subject to cyberattacks since they are ..... (4 words)
8. One of the experts interviewed by Perlroth investigated the code which was responsible for managing the ..... of the United States. (2 words)
9. External interference with software may cause ..... and even ..... of essential infrastructure. (2 words)
10. James P. Anderson predicted that the predecessor of the internet could bring about such major issues as ..... and ..... (2 words)

..... / 10 pts

**V O C A B U L A R Y**

**Task 1: In the text below, decide which word (a, b, c, or d) best fits the gap. Then underline the correct word or phrase.**

**Popular Writer Is Environmentally Friendly**

J. K. Rowling has agreed to print her books on paper which is environmentally friendly. The multi-millionaire author, whose novels about a teenage wizard have (1) ..... 6.5 million trees so far, is one of a number of high-profile authors who have (2) ..... their support for the environment by stipulating that only recycled paper should be used for their books.

1. (a) absorbed                      (b) exhausted                      (c) erased                      (d) consumed  
 2. (a) secured                      (b) contracted                      (c) pledged                      (d) undertaken

..... / 2 pts

**Task 2: Fill in each blank space in the article below with the correct form of the word in capital letters at the end of the line.**

**Changes in the Concept of Science**

The image of science has undergone radical change. An enormous technological explosion, together with a number of very real ..... (3) about the environment, have ..... (4) put science at the centre of public debate. The 20<sup>th</sup> century began with a challenge to the ..... (5) that human knowledge was approaching completion. It might be surprising to all of us to realise that the emergence of this highly ..... (6) process came both from within and outside science. New scientific theories ..... (7) reveal the limitations of the old perspective. Now, we can move in a number of opposing directions. We can re-evaluate all knowledge ..... (8) and decide that it is eternally ..... (9) and full of a vast number of ..... (10), or we can be more positive and view all phenomena as new challenges still to come.

**ANXIOUS**

**QUESTION**

**ASSUME**

**DESTROY**

**OVERWHELM**

**PESSIMISM**

**FRAGMENT**

**PERFECT**

..... / 8 pts

..... / 10 pts

**GRAMMAR****Task 1: Fill each of the numbered blanks in the passage with one suitable word.*****International Marine Project***EXAMPLE: (0) *has*

A huge international project to explore the Arctic Ocean (0) ..... begun. It is expected to discover thousands of new species of marine animals, many of (1) ..... have been completely cut (2) ..... from the rest of the world for thousands of years. Scientists claim that the study of the unknown depths of the Arctic Ocean is now urgent because of the growing threat (3) ..... its unique marine life posed by global warming. The Arctic Ocean is unusual as much of it is capped (4) ..... ice and there is land all around it. "It is as (5) ..... the Arctic Ocean is inside a box which has a lid of ice on the top. There's (6) ..... other place in the world like it", says chief scientist Ron O'Dor. A particular focus planned for the project he is undertaking will be the Canada Basin, an underwater hole 3,800 metres deep (7) ..... life has remained isolated (8) ..... millennia. This Arctic exploration project is part of the *Census of Marine Life*, a collaboration of more than 300 scientists from 53 countries, (9) ..... aim is to address our ignorance of (10) ..... lives in the sea. (11) ..... the *Census* began several years ago, more than 500 new species of fish have been identified. However, scientists believe (12) ..... could be ten times as many (13) ..... to be discovered.

..... / 13 pts

**Task 2: Complete the second sentence so that it has a similar meaning to the first one, using the word given. Do not change the word given and use between six and eight words, including the word given.****14.** Do you mind if I watch you while you rehearse?**OBJECTIONS**

Do you ..... you while you rehearse?

**15.** It was Paul's advice that saved me from bankruptcy.**IT**

Had ..... , ..... have gone bankrupt.

..... / 2 pts

..... /15 pts

**LISTENING – TASKS**

*You will hear an interview with Charlene Chua, a renowned illustrator. Fill in the missing words in the sentences below which summarize the interview. Use only words you have heard. (The number of missing words is given in brackets). You will hear the recording twice.*

1. Initially, Charlene and her husband planned to move to Vancouver because of its closeness to ..... (1 word)
2. After some research, Toronto became their preferred choice due to its business character and reasonable ..... (2 words)
3. According to Charlene, potential artists should develop their skills and have ..... (2 words)
4. Pathfinder provides a set of tools for creating ..... (2 words)
5. Charlene suggests using some websites with tutorials which can instruct future artists on how to use the ..... (1 word)
6. In Charlene's opinion, the major benefit of being employed is a/an ..... (2 words)
7. Charlene thinks that when artists are employed, their ..... is "used" by their employers. (2 words)
8. Charlene considers dealing with clients to sometimes be ..... and ..... (2 words)
9. A capable agent can help an illustrator handle every new ..... (2 words)
10. The illustrator can also benefit from their agents' ..... into the industry. (1 word)

..... / 5 pts

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