NAME: _____Student No. _____

GEN E205F Essential Skills for IELTS

Spr 2021 Presentation

In-class Assignment 2 Academic Reading

In the actual IELTS test you would be given 1 hour to complete the Reading Test

INSTRUCTIONS TO CANDIDATES

Do not open this question paper until you are told to do so.

Write your name and student number in the spaces at the top of this page. Read the instructions for each part of the paper carefully.

Answer all the questions.

Write your answers on the answer sheet.

At the end of the test, hand in both this question paper and your answer sheet.

INFORMATION FOR CANDIDATES

There are 40 questions on this question paper. Each question carries one mark.

READING PASSAGE 1

You should spend about 20 *minutes on* ***Questions*** **1-13,** *which are based on Reading Passage* 1 *below.*

The source of all power?

The average 21st century citizen can be almost guaranteed to have about their person, in their bag or in their back pocket, a gadget powered by highly controversial piece of technology. The lithium-ion rechargeable battery (also known as the li-ion battery or LIB) has become the source of power for nearly all the mobile devices modern citizens routinely equip themselves with. A number of factors account for the popularity of the LIB including size, weight, energy density and flexibility.

Other types of rechargeable battery are generally heavier, larger and less energy efficient. This is a result of the materials used to construct the LIB. Lithium and carbon are both lightweight elements. Lithium is also highly *reactive*, meaning that a lot of energy can be stored in its atomic structure. Battery storage capacity is measured in terms of relative *energy density* and described by reference to number of watt-hours of electricity per kilogram. The relative energy of li-ion batteries is very high, as much as six times that of a conventional lead-acid battery. Other reasons for the popularity of the LIB relate to its flexibility. They can hold a charge longer than the competition, and can be charged, discharged and recharged hundreds of times without deterioration in the short term. Unlike earlier mobile batteries, they do not have a *memory effect*, meaning that they do not have to be completely discharged before being re-charged.

The controversy surrounding the LIB is related to one highly publicized disadvantage – under certain very rare circumstances it is liable to catch fire and even explode. Youtube, the case of the grounded Boeing 787 Dreamliner and the CBC article 'Summer of the exploding laptop' have exaggerated the chances of this happening. In fact, there is less than a one in a million probability of fire and it can be avoided altogether with careful use of the battery. There are other disadvantages including their relatively short lifespan, sensitivity to heat and the fact that they need an on-board computer to manage the battery which raises the cost.

Though relatively new and packing some advanced features, lithium-ion batteries operate according to the basic principles of all batteries, with chemical reactions producing electrical power. The first known batteries may date from 250BC to AD640. Ancient artefacts found in Iran include the "Parthian jar" which features an iron rod surrounded by a copper cylinder. When filled with an electrolyte such as vinegar it produces a small voltage. Maybe this was used for electroplating, but the actual purpose of the jar is unknown. While the purpose of the Parthian jar is debated, a cell developed in eighteenth century Italy is generally recognized as the first real battery. The invention of this battery is credited to Alessandro Volta (1745-1827). In 1800, he demonstrated a voltaic cell: a stack of alternating copper and zinc discs in an acidic solution, producing an electric current. His name lives on in the unit of measure, voltage.

Various forms of battery have since been developed, using metals including lead, zinc, cadmium, nickel and lithium. Lithium batteries have proven especially attractive as they produce high power relative to their size. This is mainly because lithium atoms are tiny – with just three protons, they are larger only than hydrogen and helium – and have a high electrical potential, meaning they readily lose an electron to become ions. In a charged lithium-ion battery, there are lithium atoms within an anode material, which is usually carbon. There is an electrolyte containing lithium ions, and a cathode with a chemical that can accept lithium ions. The result is a stable chemical reaction. When an electrical circuit links the anode and cathode, electrons flow from the lithium in the anode, and lithium ions

move from the carbon to the cathode. Recharging – using external electrical power – reverses this process.

Though the basic concept of lithium ions seems simple, development of such batteries proved challenging. Work began in 1912, yet it was not until the 1970s that lithium batteries became commercially available. Sony was first to commercialise rechargeable lithium-ion batteries in 1991. While Volta stacked metal discs along with electrolyte, lithium-ion batteries cannot be as simple. Using a mobile phone or laptop shows these batteries can become warm or hot during use. If discharge rates become too high, they can overheat, perhaps exploding, so the batteries have safety features, including voltage-limiting devices and vents to release excess pressure.

Even with such features, the Dreamliner batteries had problems. And as each weighed 28.6kg, an internal fire could prove catastrophic. Now, a redesigned version supposedly prevents fires. 'Everyone feels very comfortable with what we are doing,' Ray Conner, Boeing's chief executive of commercial aircraft, said this month. 'I plan to fly on the very first flight.' Research is under way to improve lithium-ion batteries. A version using a combination of lithium and sulphur shows promise, as it packs more electrical power for a given volume. A version in which lithium reacts with oxygen from the air may prove more revolutionary, and is the focus of an IBM project. Yet while the concept is appealing, the science and technology director at IBM Research, USA, said: 'We picked the path with the biggest risks and the biggest rewards.'

Questions 1-5

Do the following statements agree with the information given in Reading passage 1?

Write	***TRUE***	*if the statement agrees with the information*
	FALSE	*if the statement contradicts the information*
	NOT GIVEN	*if there is no information on this*

(1) Lithium-ion batteries are lighter, smaller and more energy efficient than other battery types.

(2) The likelihood of the LIB catching fire is low.

(3) Like the LIB, other rechargeable batteries need to be controlled by an onboard computer.

(4) Lithium-ion batteries operate in a fundamentally different way to traditional batteries.

(5) The origin of the term "voltage" can be traced back to the "Parthian jar".

Questions 6-9

Complete the summary below.

*Choose **NO MORE THAN ONE WORD** from the text for each answer.*

Power is released from a (6) _____ Lithium-ion battery by means of a chemical reaction. Recharging the battery is done by connecting it to an (7) _____ power source. When this happens, the (8) _____ of the reaction which takes place when the battery is being used to (9) _____ an appliance, occurs.

Questions 10-13

Choose the correct letter – A, B or C

(10) It is surprising that development of the LIB took nearly 60 years because

A the first battery dates back 200 years.
B development proved challenging.
C it is fundamentally simple in design.

(11) The Sony Corporation in Japan

A found that mobile phones became hot.
B was the first to market the LIB.
C copied Volta's design.

(12) Lithium-ion batteries can be made safe by

A keeping them in a cool environment.
B restricting their power output.
C ensuring that they are pressurised.

(13) The type of LIB which caused the Boeing 787 incident

A was overweight.
B had a voltage limiter.
C has been discontinued.

READING PASSAGE 2

You should spend about 20 *minutes on* ***Questions*** 14 – 26, *which are based on Reading Passage 2 below.*

Questions 14-19

The text on the following pages has six paragraphs, **A-F.**

Choose the correct heading for each paragraph from the list of headings (i-ix) below.

List of Headings

(i) Tackling the issue using a different approach
(ii) A significant improvement on last time
(iii) How robots can save human lives
(iv) Examples of robots at work
(v) Not what it seemed to be
(vi) Why timescales are impossible to predict
(vii) The reason why robots rarely move
(viii) Following the pattern of an earlier development
(ix) The ethical issues of robotics

(14) Paragraph A

(15) Paragraph B

(16) Paragraph C

(17) Paragraph D

(18) Paragraph E

(19) Paragraph F

Dawn of the robots

They're already here – driving cars, vacuuming carpets and feeding hospital patients. They may not be walking, talking, human-like sentient beings, but they are clever ... and a little creepy.

A At first sight it looked like a typical suburban road accident. A Land Rover approached a Chevy Tahoe estate car that had stopped at a kerb; the Land Rover pulled out and tried to pass the Tahoe just as it started off again. There was a crack of fenders and the sound of paintwork being scraped, the kind of minor mishap that occurs on roads thousands of times every day. Normally drivers get out, gesticulate, exchange insurance details and then drive off. But not on this occasion. No one got out of the cars for the simple reason that they had no humans inside them; the Tahoe and Land Rover were being controlled by computers competing in November's DARPA (the U.S. Defence Advanced Research Projects Agency) Urban Challenge.

B The idea that machines could perform to such standards is startling. Driving is a complex task that takes humans a long time to perfect. Yet here, each car had its on-board computer loaded with a digital map and route plans, and was instructed to negotiate busy roads; differentiate between pedestrians and stationary objects; determine whether other vehicles were parked or moving off; and handle various parking manoeuvres, which robots turn out to be unexpectedly adept at. Even more striking was the fact that the collision between the robot Land Rover, built by researchers at the Massachusetts Institute of Technology, and the Tahoe, fitted out by Cornell University Artificial Intelligence (AI) experts, was the only scrape in the entire competition. Yet only three years earlier, at DARPA's previous driverless car race, every robot competitor – directed to navigate across a stretch of open desert – either crashed or seized up before getting near the finishing line.

C It is a remarkable transition that has clear implications for the car of the future. More importantly, it demonstrates how robotics sciences and Artificial Intelligence have progressed in the past few years – a point stressed by Bill Gates, the Microsoft boss who is a convert to these causes. 'The robotics industry is developing in much the same way the computer business did 30 years ago,' he argues. As he points out, electronics companies make toys that mimic pets and children with increasing sophistication. 'I can envision a future in which robotic devices will become a nearly ubiquitous part of our day-to-day lives,' says Gates. 'We may be on the verge of a new era, when the PC will get up off the desktop and allow us to see, hear, touch and manipulate objects in places where we are not physically present.'

D What is the potential for robots and computers in the near future? 'The fact is we still have a way to go before real robots catch up with their science fiction counterparts,' Gates says. So what are the stumbling blocks? One key difficulty is getting robots to know their place. This has nothing to do with class or etiquette, but concerns the simple issue of positioning. Humans orient themselves with other objects in a room very easily. Robots find the task almost impossible. 'Even something as simple as telling the difference between an open door and a window can be tricky for a robot,' says Gates. This has, until recently, reduced robots to fairly static and cumbersome roles.

E For a long time, researchers tried to get round the problem by attempting to re-create the visual processing that goes on in the human cortex. However, that challenge has proved to be singularly exacting and complex. So scientists have turned to simpler alternatives: 'We have become far more pragmatic in our work,' says Nello Cristianini, Professor of Artificial Intelligence at the University of Bristol in England and associate editor of the *Journal of Artificial Intelligence Research*. 'We are no longer trying to re-create human functions. Instead, we are looking for simpler solutions with basic electronic sensors, for example.' This approach is exemplified by vacuuming robots such as the Electrolux Trilobite. The Trilobite scuttles around homes emitting ultrasound signals to create maps of rooms, which are remembered for future cleaning. Technology like this is now changing the face of robotics, says philosopher Ron Chrisley, director of the Centre for Research in Cognitive Science at the University of Sussex in England.

F Last year, a new Hong Kong restaurant, Robot Kitchen, opened with a couple of sensor-laden humanoid machines directing customers to their seats. Each possesses a touch-screen on which orders can be keyed in. The robot then returns with the correct dishes. In Japan, University of Tokyo researchers recently unveiled a kitchen "android" that could wash dishes, pour tea and make a few limited meals. The ultimate aim is to provide robot home helpers for the sick and the elderly, a key concern in a country like Japan where 22 per cent of the population is 65 or older. Over US$l billion a year is spent on research into robots that will be able to care for the elderly. 'Robots first learn basic competence – how to move around a house without bumping into things. Then we can think about teaching them how to interact with humans,' Chrisley said. Machines such as these take researchers into the field of socialised robotics: how to make robots act in a way that does not scare or offend individuals. 'We need to study how robots should approach people, how they should appear. That is going to be a key area for future research,' adds Chrisley.

Questions 20-23

Look at the following statements (Questions 20-23) *and the list of people below.*

Match each statement with the correct person, A, B or C.

***NB** You may use any letter more than once.*

A Bill Gates
B Nello Cristianini
C Ron Chrisley

(20) An important concern for scientists is to ensure that robots do not seem frightening.

(21) We have stopped trying to enable robots to perceive objects as humans do.

(22) It will take considerable time for modern robots to match the ones we have created in films and books.

(23) We need to enable robots to move freely before we think about trying to communicate with them.

Questions 24-26

Complete the notes below.

*Choose **NO MORE THAN THREE WORDS** from Reading passage 2 for each answer.*

Robot features	
DARPA race cars have	(24) _____ to provide maps and plans for routes
Electrolux Trilobite	builds an image of a room by sending out (25) _____
Robot Kitchen humanoids	have a (26) _____ to take orders.

READING PASSAGE 3

You should spend about 20 minutes on Questions 27-40, which are based on Reading Passage 3 below.

Does cultural disharmony reduce creativity?

In today's global work environment, companies need to employ culturally diverse teams if they are to succeed. Both scientific studies and common sense tell us that having people with different viewpoints onboard increases the creativity that teams will employ in solving problems. Of course, this assumes that all members of the team are pulling in the same direction. But what if they are not? Can being exposed to intercultural conflicts and tensions have an impact even on observers who are not directly involved in these disharmonies?

Harvard Professor Roy Chua started asking those questions a few years ago, when writing a case about a Chinese luxury clothing company. The firm had members from China, Hong Kong, Germany, and France, who were all working together to meld Chinese elements with Western fashion. As he observed them, however, Chua saw tension and miscommunication based on cultural differences. 'Even though, when you asked them, they didn't think it was a problem, I wondered if it could have an indirect impact on people observing these tensions,' he says.

Chua compares it to the kind of "hostile work environment" that occurs in cases of sexual harassment or racial discrimination – in which co-workers' morale or performance suffers even when they are not the direct targets of abuse. He coined a term for the phenomenon, "ambient cultural disharmony", which he discusses in depth in a paper published this month in the *Academy of Management Journal*.

'A lot of times when we study cultural conflict, it is about people directly involved in conflict,' says Chua. 'The key word here is "ambient", looking at the effect that cultural conflicts can have on an observer. That flows more through the perceptions we have about other cultures.'

The effect of indirect conflict happens all the time. Children who witness conflict between parents may develop negative ideas about marriage, just as citizens of the United States and China may develop bad feelings about each other from watching their leaders squabble. So why would the same thing not happen in the workplace?

Chua tested the concept in a series of studies. In the first study, he asked a group of online participants to list the important people in their social networks, noting their cultural backgrounds and whether they liked each other. Then he asked them to do a word association exercise that compared their ability to connect disparate ideas across cultures – a precursor to creativity in a global context. For example, when given the words "Great", "Street", and "Berlin", they should correctly answer "Wall", connecting the Chinese "Great Wall", American "Wall Street", and German "Berlin Wall".

After tallying the length of time it took for participants to come up with the right answers, he found those who had more people in their social network from different cultures who disliked each other did about 23 percent worse on the test. This makes sense, says Chua. 'Just as a child observing parents not getting along may develop the notion that marriage is very difficult, those seeing conflict around them by involving people of different cultures may develop the idea that ideas from those cultures are incompatible and cannot be easily combined.'

In another study, Chua asked participants to call to mind two friends or acquaintances from the same or a different cultural background who did or did not get along with other people. Participants were then asked to read Chua's business case on the Chinese fashion house, and afterward told to come up with ideas for next year's collection that would blend Asian and Western styles.

When expert fashion designers judged the creativity of the ideas, they determined that the least creative ones came from participants who had called to mind acquaintances from different cultural backgrounds with disharmonious relationships. Interestingly, while ambient cultural disharmony decreased creativity, ambient cultural *harmony* (that is, observers experiencing people from other cultures having a good relationship) did not promote creativity. That reflects human nature, Chua says. 'As human beings, we pay more attention to negative information because it is a signal of danger. Positive information tends to be given less weight.'

For those working in culturally diverse business environments, these experiments demonstrate the risk of bringing people from different cultural backgrounds together – and the importance of actively creating an environment that minimizes intercultural disharmony, says Chua. 'It is inevitable to have conflict when you bring people from different cultural backgrounds together,' he says. 'It is about how you manage the conflict. A lot of times managers try to put together a multicultural workplace without trying to integrate people better.'

Questions 27-29

Which **THREE** of the following questions did Professor Chua **NOT** ask?

A Do companies need to employ culturally diverse teams in order to be successful?

B Does the employment of culturally diverse teams lead to the emergence of different viewpoints?

C Are people affected by being in the presence of conflict and tension caused by cultural differences?

D Does the existence of different viewpoints automatically enhance workplace creativity?

E What is the impact on creativity if all members of a team are not collaborating well?

Questions 30-34

Do the following statements agree with the information given in Reading passage 3?

Write	***TRUE***	*if the statement agrees with the information*
	FALSE	*if the statement contradicts the information*
	NOT GIVEN	*if there is no information on this*

(30) Chua discussed sexual harassment and racial discrimination in his paper.

(31) Chua's study of ambient cultural disharmony does not focus on the people directly involved in conflict.

(32) The writer provides both family and political examples of the effects of conflict.

(33) Chua tested the concept of marital and political disharmony.

(34) Chua's article is entitled 'Hostile working environments and ambient cultural disharmony.'

Questions 35-38

Complete the notes below.

*Choose **TWO WORDS** from Reading passage 3 for each answer.*

Two of the studies Professor Chua conducted came up with similar findings. In both, participants (35) _____ to think about important people, friends or acquaintances from similar and different cultural backgrounds who either did or did not enjoy harmonious relationships with (36) _____. Those who called

(37) _____ people who experienced cross-cultural disharmony

(38) _____ on the tests that followed, than those who recalled people enjoying harmonious cross-cultural relationships.

Questions 39-40

Choose the correct letter – A, B or C

(39) Ambient cultural disharmony is similar to the reaction of a child

A who quarrels with his or her parents.

B whose parents quarrel with each other.

C whose parents are culturally different.

(40) Managers considering bringing together people from different cultures should

A avoid running the risk altogether.

B be prepared for the inevitable conflict.

C work hard to avoid ambient cultural disharmony.