NAMIBIA SENIOR SECONDARY CERTIFICATE

ENGLISH AS A SECOND LANGUAGE HIGHER LEVEL 8315/1

PAPER 1 Reading and Directed Writing — 2 hours 30 minutes

Marks 50 — **2020**

Additional Materials: Answer Book

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Write your answers on the Answer Book provided.
- Write your Centre Number, Candidate Number and Name in the spaces on the Answer Book.
- Write in dark blue or black pen.
- Do not use correction fluid.
- **Start each part on a separate page.**

- Answer **all** questions.

- The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **9** printed pages and **3** blank pages.

Republic of Namibia

MINISTRY OF EDUCATION, ARTS AND CULTURE

PART 1

Read the following extract and then answer Questions **1** – **4.**

The Plant Whisperer

A food shortage crisis is looming. Professor Stephen Long's work aims to feed the masses by supercharging the plants we eat

In the middle of the twentieth century, many parts of the world were facing extreme food shortages. This was caused in part to a growing global population but also to many other environmental factors. As the consequences were so serious, a response to the issue was urgently required. The lives of more than a billion people were saved by 'Green Revolution': this was a period during which scientists adopted many different approaches to improve food productivity and farming methods. The industrialised world offered the benefits of advanced technology to the developing world, where many people were victims of the food crisis. To this end, improvements were achieved by introducing irrigation and also **hybridised** seeds, the development of stronger and more productive types of seeds. In addition, yields were improved by greater use of fertilisers and pesticides.

Today, we are facing a similar crisis. "The United Nations Food and Agriculture Organization says that we are going to need 70 percent more food by 2050, and with current rates of crop improvement we are not going to get there," says Professor Stephen Long, Director of a project which aims to spur a second Green Revolution by engineering crops so that they are able to photosynthesise more efficiently. In the past, scientists have always believed that photosynthesis (the process by which green plants combine carbon dioxide and water and use energy from light to produce their own food) could ***not*** be made more efficient. However, Long claims that the goal of evolution is really about survival and reproduction, not maximum output of the weeds and fruits that humans eat. Meanwhile, we are living in a different environment from the time of the first Green Revolution: "A major molecule involved in photosynthesis is carbon dioxide, and in the last fifty years the concentration has increased by 25%. This is a very short time for evolution to adapt to a change," says Long. So, Long and his team set about proving that it was possible to improve the efficiency of photosynthesis.

Funded by the Bill and Melinda Gates Foundation, Long's team started tinkering with tobacco, a plant that is relatively easy to engineer. Initially, genes were transferred from a plant called Arabidopsis thaliana, more commonly known as 'thale cress', to the tobacco in the hope of helping it to get rid of heat energy more efficiently. When three different versions of these engineered plants were grown, their yields were 13.5%, 19%, and 20% greater than normal tobacco. Long admitted that "Photosynthesis is a complicated process, even though we understand it now. It is over 160 separate steps. The first part of the project was actually reproducing the whole thing on a computer. We could then try billions of manipulations, mathematically, to see where might be the best place to intervene."

The impressive improvements were achieved with hardly any increases in resource costs. The engineered tobacco plants required about 1 to 2% more nitrogen than the unmodified plants, and no increase in water use. "It is not only the efficiency with which they use light, but it is also the efficiency with which they use water and nitrogen. So, in most cases, we are getting more productivity for the same amount of water, and minimal increases in nitrogen." The big question is whether these gains in tobacco can be transferred to food crops and there is reason to believe that they can.

Photosynthesis works in the same way in tobacco as it does in many food crops, so tests are planned to see if similar modifications can deliver increases in yields of basic foodstuffs such as rice, cowpeas, and cassava.

"Any recent achievements are going to take about 20 years to be available to farmers at the scale we need," says Long. "So, while 2050 sounds a long way off, in terms of improving crop productivity, it's quite close."

Other 'food shortage fighters' are also registering some success. In South Africa, researchers at Wits University have been employing the Zygo beetle to reduce the spread of a vicious weed which interferes with farmers' crops by using the beetle as a natural herbicide to prevent other plants from growing near it. Researchers are hoping that the beetle can establish itself throughout the problematic areas and control the growth of the weed. Geneticists at the Chinese Academy of Sciences have discovered how to restructure wheat genes to make the crops immune to powdery mildew, while researchers at King Abdullah University of Science and Engineering gave tomatoes immunity against the yellow leaf curl virus. Finally, a team from the US Geological Survey has designed a system that uses satellite data to detect the unusual spikes in land temperatures that often cause crop failure. During the testing phase in Ethiopia, the project was able to provide several weeks more preparation time to act before families began to go hungry and animals started to die.

(Adapted from "The Plant Whisperer", Very Interesting Magazine, Issue 42)

Glossary:

hybridised -	cross bred under scientifically controlled conditions to produce strong characteristics from two different plants
photosynthesis -	the process in which green plants combine carbon dioxide and water, by using energy from light to produce their own food.
molecule -	the smallest part of an element.
tinker -	to make small changes to something in order to improve or repair it.

Answer the following questions **in your own words** as far as possible.

1 Explain how the first 'Green Revolution' helped to prevent widespread food shortages in the twentieth century. [2]

2 Apart from the increase in crop yield, **briefly** identify **two** other advantageous results of Long's research using tobacco plants. [2]

3 Identify **one** similarity and **two** differences between the first 'Green Revolution' and the situation in the world today. [3]

4 According to the writer, some projects to fight food shortages are helpful. From information provided, which **three** projects seem most successful? Give a reason for your choice in each case. [3]

[10]

PART 2

Read the following article and then answer Questions **5 – 15**.

Can '*Likes*' become votes?

A certain marketing firm convinced its customers that they could use data from a social media to influence people's votes. Do their psychological profiling techniques really work?

Personal information which we enter willingly into social networking sites could be revealing more than you realise. However, could it be used to persuade you to change your vote? A certain data-driven marketing and political consulting firm hoped it could. However, when details of how users' data was collected came to light, a legal enquiry into the firm's actions took place after it was revealed that it had collected data on tens of millions of users.

The data had come from a personality quiz app, originally created by a neuroscientist research student. If you gave the app permission to use your *social networking* data, thanks to the way social networks worked at the time, it was able to gain access to all of your friends' data as well. It did not require users to give their explicit consent to the collection of this data which was then given to the marketing firm, enabling them to create 'psychographic' profiles for tens of millions of voters.

Just like demographics, psychographics splits people up into groups. However, instead of basing the groupings on characteristics such as age and gender, psychographic data is concerned with your personality. The theory is that by knowing your psychological particulars, researchers can show you advertisements to which you are more likely to respond. Creating an advertisement using psychographic data isn't illegal but the marketing company allegedly obtained *its* data from a third-party app developer without most of the users' explicit consent. It is thought that just under 300,000 people installed the personality quiz app, yet the data of 87 million people was collected. Eventually, the company was suspended from the social network.

At the same time, another data-driven marketing company was suspended after it was reported to have links with the other company. At the time of going to print, the American Congress had investigated the matter of data breaches and how such breaches had occurred.

There is research showing that targeting adverts to people's personality traits does work. A 2017 study tailored online adverts for cosmetics, based on whether the researchers thought someone was extroverted or introverted. For extroverts the advert read "Dance like nobody's watching" but introverts saw an advert saying "Beauty doesn't have to shout". These carefully designed advertisements reached 3.5 million people through social media. It paid off: people were 40% more likely to click on the advertisement and 50% more likely to buy something when the advert they were shown matched their personality. "It's very likely that psychological targeting works," said a lead author of the study. "But we don't know how effective it is in comparison to other targeting methods." Targeted advertising isn't new. The gold standard is behavioural targeting, where companies look at your past actions in an attempt to figure out how you might be likely to act in the future. "If someone has expressed an interest in travelling in the past you know they might be a good candidate to receive advertisements for travel," the study analyst said. Psychographic targeting is an extension of this, but instead of looking at individual behaviours, companies look at a range of behaviours and label them as a personality trait.

However, there's not enough evidence yet to say if that extra step is worthwhile. In fact, psychographic targeting could have more room for error as it relies upon translating your digital footprint into a personality type.

While *social media* doesn't allow advertisers to target people based on personality, it does let advertisers target people based on things they have 'Liked'. Luckily for companies that want to try psychographic targeting, there's research showing that your *so-called* 'Likes' can be revealing.

In 2007, a leading psychologist at a British University, created a personality quiz app, but he collected data only for academic research purposes. It assessed your psychology based on a selection of personality traits known as the 'Big Five': openness, conscientiousness, extroversion, agreeableness and neuroticism. And it collected all your social networking 'Likes' data to compare it with the results of the quiz. Using these two sets of data, the psychologist and his team figured out which 'Likes' predict which traits. For instance, liking the TV show *Stargate* suggested introversion, while liking philosophy meant you probably scored highly for openness. In 2013, this research team published a paper showing that social networking 'Likes' could reveal your sexual orientation, ethnicity, and other personal information.

The psychologist said that he thinks the research on psychographic targeting should translate to the political field. "I think people probably make political decisions in a way that is not so dissimilar to the way they make consumer decisions," he said. The designer of the 2007 study agrees. "Everything we know from persuasion literature is that it usually works across contexts."

However, a psychologist at New York University, isn't sure that getting people to vote at all, let alone change their vote, would be as easy as getting them to buy cosmetics. "Getting people to vote is one of the toughest things social psychologists have yet to crack," she said. She points out that even things like rain on polling day is known to reduce the turnout.

As for designing messages to influence people to change their minds, when it comes to politics, people prefer an echo chamber. "The number one driver of what kind of information is going to be persuasive to someone is something that's consistent with their ideology," she said. "It's very hard to change people's minds."

Either way, the British psychologist doesn't think that marketing companies' technology is influencing elections just yet. "I don't think this affected the US presidential elections in 2016, but I think it could affect future elections as it becomes more sophisticated,' he said. That's not to say we have nothing to be worried about at the moment. Research has shown that you can predict people's personalities from all sorts of data. "Tweets, emails, web searches, bank records – all sorts of companies could predict people's personalities from the data they've got," he said. "This isn't just about marketing companies and 'Likes' on social media."

(Adapted from an article, "Can Likes become votes?" in Very Interesting Magazine, Issue 47.)

Glossary:

Demographics: (noun) the study of statistics and information, for example about births, deaths, disease etc,which show the condition of the life of a community.

Extroversion: (noun) people's tendency to be confident and outgoing and to enjoy the company of other people.

Introversion: (noun) people's tendency to be quiet and shy and to prefer being alone.

N.B.The glossary continue on the next page

Neuroticism: (noun) people's tendency to worry too much about everything

Ideology: a set of beliefs or principles, especially one on which a political system is based

Ethnicity: (noun) the state of belonging to a social group that has a common national or cultural tradition

Psychographics: the study and classification of people according to their attitudes, hopes, and other psychological factors, especially in market research

For questions **5 – 10** write down the letter **A**, **B**, **C**, or **D** to indicate the answer which you regard as most appropriate to the question.

5 Legal action was taken against the marketing firm because

A it was trying to change people's votes.

B it was using information from *social media*.

C it used information without people's permission.

D it gained access to information for friends of social media targets. [1]

6 The purpose of 'psychographics' in marketing campaigns is

A to separate people's information into separate groups.

B to help identify effective advertising approaches to consumers.

C to identify individual user's personality.

D to build up a data base for millions of users. [1]

7 The major difference between the 2017 cosmetics study and that done by the British psychologist is

A one produced convincing results, the other was limited.

B one used a targeted advertisement, the other a quiz.

C one had a commercial objective, the other academic.

D one determined personality traits and the other did not. [1]

8 The relationship between behavioural targeting and psychographic targeting is

A behavioural targeting is considered to be superior.

B behavioural targeting was developed before psychographic targeting.

C only behavioural targeting looks at a range of different behaviour.

D psychographic targeting develops one aspect of behavioural targeting. [1]

9 Using psychographics as a marketing tool is considered favourably by the designer of the study because

A she was the leader of the research study in 2017.

B the 2017 cosmetics research study established statistics to support her premise.

C the study was based upon a large group of people on social media sites.

D she had not compared results to other targeting methods. [1]

10 The writer's attitude to psychographics as an influence upon people is

A supportive.

B impressed.

C cautious.

D suspicious. [1]

11 Explain what the writer means in the reference to 'your digital footprint' in **paragraph 6**. [2]

12 Analyse **two** major differences between the activities of the neuroscientist and the British psychologist. [4]

13 In your own words, explain in **one** sentence why the British psychologist thinks that psychographics research is appropriate for politics. [2]

14 Why does the writer feel that the reader has some reason to be "worried" about the current access to people's personal data? [3]

15 To what extent does the writer answer the question posed by the title? Support your conclusions by reference to ideas in the article. [3]

[20]

PART 3

Read the following article and answer Question **16**.

You are not Alone

Loneliness is worse for you than smoking and more harmful than obesity. As the number of lonely people increases, we investigate why feeling alone literally hurts.

"We know from population studies that there are two big peaks of loneliness over our lifespan: one in young adulthood and one in older age," says psychiatrist Dr Farhana Mann. While causes of loneliness in later life may seem obvious, provoked by the loss of community bonds that can come with retirement and mobility problems, loneliness in adolescence happens for different reasons. "Chronic loneliness exists in young people, particularly those who are not accepted by others. The social world of adolescents is problematic because, frankly, that is the most status-conscious period of our individual development. That is when young people can feel least valued by their peers. There is an incredible level of competition that comes from the most active reproduction system, and people who don't fare well feel incredibly cut off and deprived," says Professor Steve Cole, researcher at the University of California, Los Angeles. For Dr Juliet Wakefield, senior lecturer in Psychology at Nottingham Trent University, the question is less about age and more about life stage. "The risk of loneliness is especially high during times of transition in our lives: when we become a student, a parent, a retiree, a widow. At these points there is the risk of us losing our connection with groups we belonged to before the transition," she says.

Scientists, doctors, charity workers and politicians from across the political spectrum all agree that loneliness is a big problem. A report published in December 2017 by the Jo Cox Commission revealed the extremely surprising level of loneliness in the U.K.: almost one-quarter of parents surveyed by the charity *Action for Children* said that they were "always or often lonely". Over the course of a year more than 4 000 children called ***Childline*** because they felt unbearably lonely – some as young as six years' old. One recent study found that nine million adults in the UK suffer from chronic loneliness: if all the lonely people moved to one city, it would be bigger than London.

Professor Steve Cole stresses the impact that loneliness has upon the immune system so that the body cannot fight viruses. The body switches into fight-or-flight response and, long-term, this leads to higher levels of inflammation, which can contribute to cancer, heart attacks, Alzheimer's, and depression. When these inflammatory signals reach the brain, they affect the brain's response, making us more defensive, prickly and guarded – hardly in a party mood. Researchers have discovered that lonely people respond faster to a social threat (like bullying, for example) than they would to a physical threat (like a shark attack, for example). The longer the loneliness lasts, the more threatening the body language and facial expression of other people can appear to become. This can make us more suspicious and less inclined to interact with others.

It turns out that we remain lonely, even in our sleep. A recent study into 2 000 young adults by Dr Matthews at King's College London, found that lonelier people reported poorer sleep than non-lonely peers, and were 24% more likely to feel tired and have difficulty concentrating during the day.

The link was almost 70% stronger among those who had been exposed to severe violence in their teenage years. "When you feel as though you are on your own, the world seems like a more threatening place, which could make it harder to sleep restfully," says Matthews.

A television documentary saw a group of young children and pensioners brought together every day for six weeks to enjoy various activities. The experiment aimed to see whether the well-being and mental health of the elderly people would improve because of inter-action with the children. It was such a success that they were all re-united for a Christmas carol concert and a snowball fight.

Recent research has indicated that increasing social networks of lonely people is not always the answer. Loneliness and social isolation are not the same: many individuals feel lonely even when surrounded by people. "Some people have cognitive biases that make them interpret their relationship as not being satisfying or truly meaningful, so those friends are not really true friends somehow," says Prof. Louise Arsenault, a development psychologist. "I think that people should not focus on how many friends they have, but should focus on one or two relationships only, to make those satisfying and meaningful, so that they can really discover the meaning of friendship."

(Adapted from an article in Very Interesting Magazine, Issue 42)

Glossary:

Alzheimer's - a serious illness affecting your brain that makes it difficult for you to remember things and becomes worse as time passes.

16 You have been appointed to support and help a learner who has recently arrived at your school but, despite your best efforts, the learner is cold and unfriendly with everybody. Various hints have led you to believe that the learner is suffering from chronic loneliness.

Write a formal letter to your school Principal in which you express your concerns and emphasise the following points:

- provide examples of behaviour which relate to the causes of loneliness as outlined in the passage;
- outline what you have learned about the serious nature of loneliness from your observations and association with this learner;
- recommend intervention by the school and suggest the forms that this could take.

Your letter should be between **300** and **350** words. You should begin with the **salutation**, "Dear Mr/Mrs …" **Do not include addresses**.

[20]

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