

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

2019

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 provided 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 extracts and then answer Questions 1 – 4.

The Carmine Bee-eaters of Kalizo**Extract 1**

On 22 August, give or take a day or two, the bright red carmine bee eaters, also known as 'carmines', arrive in their thousands to do their annual breeding at Kalizo. While local residents wait with great expectation and anticipation, Kalizo is on fire for this incredible happening every year. However, like in-laws, the departure of the birds is not that predictable, taking place from early November until late December. From here, they spread throughout northern Namibia, and in early autumn they gather to return for their third and final movement of the season back to central Africa, although a few birds remain in the area during winter.

The Southern Carmine Bee-eaters may be considered a unique group of birds. According to lodge owners, Danny and Val, Kalizo is one of the largest breeding sites of carmines in Africa (between two and five thousand birds) and, for that matter, in the world. In Namibia, apart from this very large colony at Kalizo, there are also colonies on the Okavango River at Shamvura and in the Bwabwata Game Park on the banks of the Kwando River.

One of the most interesting facts about carmines is their sociable communal breeding. The same site is used annually, although new tunnels are dug each year. The nest is either in the face of the bank of the river and is slightly sloped to prevent water from entering, or on top of the bank. The nesting area is separated from the tunnel by a small lip, to prevent the eggs from rolling out. The nests on top of the embankment have a much longer tunnel, probably an anti-predator invention.

Whether this phenomenon of building the nests on the flats is a consequence of previous incidents where the nests in the wall were damaged by floods is uncertain but this could well be a new development. The nests become dirty from faeces and regurgitation, a rather smelly and unpleasant situation, but this might also serve to protect nests from predators.

The carmines' prey consists mainly of aerial insects. In three different studies it was found that their diet differs, depending upon location. The common denominator was flying insects. The birds' wings are pointed and the tail is long to enable fast and manoeuvrable flight, which is important for their hunting style. After they have caught their prey, the birds either eat it quickly in flight or return to a resting place where the prey is either squeezed or rubbed on a branch to remove any venom or sting.

Danny and Val have started a master plan to protect the colony at Kalizo from predators, but this will require funding. The carmines might become endangered because of preventable factors. Their traditional predators are snakes, water monitors, rats mongooses, and the ever-lurking Yellow-billed Kites (*Milvus aegyptius*).

While I was watching the carmines at their colony for an extended period, a Yellow-billed Kite did a hunt over the area at least every 30 minutes and its efforts were usually quite successful. Interestingly, the visits by a water monitor excited much more aggression from the carmines, although this was also in vain, because the monitor emerged from the nest with its victim. Unfortunately, their main threat is from humans.

On various occasions humans have been caught removing the nests to capture both birds (mostly done with fishing nets) and the eggs. The effect and impact of this is much more devastating than the odd few birds taken by traditional predators. I sincerely hope that we are not going to be foolish and let the carmines disappear, owing to our ignorance, by allowing the river of greed to flood this beautiful bird-breeding colony.

(Adapted from an article in Travel News Namibia, September 2017)

Extract 2

Roberts' Birds of Southern Africa:	the Carmine Bee-eater
Identification:	size large; mostly rose red; crown and undertail coverts blue; rump light green
Habits:	Highly communal at all times, in flocks of hundreds of birds
Breeding:	August to November in Zimbabwe; September to October in Mozambique; Nest: straight slightly declined burrow, 1.5 to 2 metres long in vertical river bank.

Glossary:

Faeces:	(n) solid waste that comes out of the bottom of an animal or a person
Manoeuvrable:	(a) moving in a careful or skilled way
Regurgitation:	bringing back swallowed food into the mouth

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

Where the question instruction specifies the use of your own words, you must be aware that this is necessary in order to gain full marks on the question.

- 1 Using your own words, explain what you think the writer means when he refers to Kalizo being 'on fire' every year in August. [2]
 - 2 Identify features of the Carmine Bee-eater that could be considered interesting or unique. [2]
 - 3 Explain briefly **two** procedures that the birds use to keep themselves safe. [3]
 - 4 According to the writer, which threats can be prevented and which cannot? [3]
- [10]**

PART 2

Read the following extract and then answer Questions 5 – 14.

An Ocean of Plastic

A new study has found that by 2050 there could be more plastic waste in the ocean than fish. Boyan Slat is determined to prevent that. The 22-year-old Dutch inventor has developed a breakthrough technology to stop our seas from suffocating. Boyan Slat has been working for four years on *The Ocean Cleanup*, a project that aims to rid the world's seas of plastic. Millions of tons of plastic are currently floating around in the ocean.

The motorboat moves the 100-metre floating barrier into position. Boyan Slat watches from the ferry. "This is a historic moment," says the 22-year-old. After four years of hard work and thorough laboratory testing, it's almost there: the plastic collection system he has developed is being trialled for the first time under real-life conditions on the open sea, 23 kilometres off the Dutch coast. "The North Sea is particularly rough at this point of the storm season," says Slat. His prototype (the first example of something), dubbed "Boomy McBoomface", needs to resist harmful ultra violet (UV) radiation, salt water, and the destructive force of the stormy sea – for a whole year. The Dutchman is convinced: "It's pretty safe to say that if it survives here it will survive anywhere." However, even if the waves crush the barrier, he'll still continue his mission.

With a team of 150 experts, including biologists and fluid mechanics experts, Slat has developed a system that removes large pieces of plastic off the sea surface before they break down into micro-particles and sink into the muddy depths forever. The Phase 1 pilot project involves testing the 100-metre prototype in the North Sea. The barrier is made of vulcanised rubber, polyester, and fabric and has a moveable underwater curtain that can hold 80 tons of plastic waste and can catch micro-particles as small as 1 millimetre. Technicians had to attach the barrier to huge yellow floats. Phase 2 involves installing a 2 kilometre long catchment barrier off the coast of Tsushima Island in Japan. Powered by solar panels, the filtration system will fish plastic out of the ocean for two years. The plan for Phase 3 is a 100-kilometre final version which will enter service in the Pacific Ocean in 2020. Held in place by huge plastic ropes, anchored 4 000 metres down on the seabed, the barrier will skim 150 tons of plastic per day and pump it into a 58-metre container. A ship will arrive every six weeks to carry the waste away to be sorted.

Could one of the biggest problems facing mankind have been solved by an eighteen-year-old teenager? Experts claim that the ocean cannot be cleaned; we can only try to reduce the amount of plastic in it. Today there are roughly 150 million tons of plastic floating in the sea. In one square kilometre, there can be up to 48 000 particles that can take centuries to decompose. Environmentalists warn that if the trend does not stop, there will be one ton of plastic to every three tons of fish by 2025, with more plastic in the ocean than fish by 2050.

It would be fatal: this toxic waste is not just a threat to the millions of birds and fish that eat it and die in agony. "It really is a ticking time bomb," explains Slat. "If the large pieces would break down and the toxins enter the food chain, mankind would have a real problem." Studies have shown that the process only takes a year and poisonous chemicals are released when UV radiation, the salt water and physical forces break them down. Once they enter the body, they attack the hormonal system, which can lead to allergies, infertility, and even cancer.

Some eight million tons of plastic enter the world's oceans every year, which is equal to the volume of two Empire State buildings every week, says inventor Boyan Slat. The Dutchman claims that it would take 75 000 years to fish the rubbish out of the sea using ships and nets. Slat wants to control the power of the oceans' currents and leave the plastic to drift into a V-shaped catchment barrier, which has a thin curtain that reaches down 3 metres into the sea. Fish can simply swim under the barrier while the plastic is simply filtered out of the ocean and collected in containers. Slat estimates that 24 of such facilities will be needed to reduce the amount of floating waste by half in ten years.

Ocean currents mean that most of the plastic meets in five big vortexes. The largest of these rotating ocean currents extend over 250 000 square miles in the north Pacific. "We have to collect the bits of plastic floating on the surface before they breakdown into micro-particles and sink into the depths where we can't reach them," warns Slat. He realised the seriousness of the situation four years ago during a diving holiday in Greece. "I saw more plastic bags than fish", recalls Slat. Shocked, he began his mission straight away. He terminated his studies and, in 2013, founded *The Ocean Clean-up*, a company based upon a strikingly simple concept. "Why should we chase after the plastic? Why not wait for it to come to us and then simply pick it up?" Like all good ideas, the Dutchman's is a simple one. He suggests using a series of rubber booms anchored to the seabed. These will form a V-shaped barrier on the ocean surface that will collect plastic floating against it.

If the North Sea prototype works and the larger system designed for operation near Japan is successful then the full-scale 100-metre barrier will tackle The Great Pacific Garbage Patch. "Much of the plastic waste is easy to locate because it collects in five rotating ocean currents, which are often thousands of kilometres wide. The largest vortex is located between Hawaii and California and is the size of central Europe. Around a third of the plastic waste that has ever been thrown into the sea is there," says Slat.

The problem facing Slat is that his mega system would be the largest human construction ever to float on the sea and would cost nearly £300 million. The North Sea prototype was paid for by a three-month crowd-funding campaign that saw 38 000 people from 160 countries donating over \$2million. However, to bring the final version to life there needs to be a larger-scale solution and the inventor already has an idea: "We can re-cycle the old plastic into commodities like crude oil." According to information on industry website, letsrecycle.com, every ton of plastic can bring in up to £340. The 150 million tons of plastic floating in the ocean is potentially worth about £50 billion, then – many times the amount the Dutchman needs for his project.

Slat is aware that a large number of people doubt that his mission will be successful, but he does not let their views discourage him. "History is full with stories of things that could not be done – and then were done," he smiles, as he watches his vision become a reality from a ferry in the North Sea. He is convinced that his prototype is only the first step and has tackled his critics head-on with a feasibility report backed by 70 scientists and engineers.

To save the oceans though, he needs more help – or, as the Dutch State Secretary for the Ministry of Infrastructure and the Environment, Sharon Dijksma, puts it, "We need a whole army of Boyans."

(Adapted from 'The Young man and the sea', *Wonderpedia*, Issue 53, October 2017)

Glossary:

- Vulcanised:** (adj) treated with Sulphur to increase strength
Vortex: (n) mass of writhing fluid, especially a whirlpool fluid moving strongly in circles.
Boom: (n) a floating barrier
Mega: (adj) large
Feasibility: (n) assessment of what is possible.

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

- 5** Boyan Slat feels that the positioning of the 100 metre floating barrier is a 'historic moment' because
A he has been working and testing his system for four years.
B now his system is embarking upon a real-life trial.
C the system would be challenged by rough seas.
D Slat believes that his system will survive anywhere. [1]
- 6** The writer feels that Slat has embraced an enormous challenge because
A he is still just a teenager.
B it is important to clean the ocean.
C other experienced people think Slat will fail.
D plastic rubbish is one of the greatest problems in the world. [1]
- 7** According to Slat the reason that toxic waste is particularly problematic is that
A it threatens the lives of millions of fish.
B it will, in future, cause disaster.
C toxins can enter the human body causing illnesses.
D the toxins will enter the food chain. [1]
- 8** Boyan Slat estimates the input of plastic into oceans to be
A 8 million tons.
B 75 000 tons.
C 80 tons.
D 150 million tons. [1]
- 9** Slat believes that the most effective system to reduce plastic rubbish in the ocean would be
A 6 weeks, using container ships.
B 2 years, using a 2 km catchment barrier.
C 10 years, using 24 of his facilities.
D 75 000 years using ships and nets. [1]

- 10** Why does Slat think it is imperative to take action immediately?
- A** He felt that plastic bags will exceed the number of fish.
 - B** It is important to halt the creation of micro-particles.
 - C** It was useful to use the ocean currents.
 - D** He was shocked at what he discovered on his Greek holiday. [1]
- 11** Explain what the writer means when he claims that the seas are ‘suffocating’ in **line 3** and suggest why he expressed the idea in this way. [3]
- 12** In your own words, describe the **three** key features of Slat’s catchment systems. [3]
- 13** *Ocean Clean-Up* rests upon two creative simple ideas of Slat’s. Explain briefly these **two** ideas. [4]
- 14** Identify and explain **two** differences between Slat’s pilot project and his Phase 3 project. [4]
- [20]**

PART 3

Read the following passage and then answer Question 15.

Job Hunt for Mars

This is likely to be the greatest adventure in the history of mankind: *National Aeronautics and Space Administration (NASA)* is looking for volunteers for its first manned mission to Mars.

Mankind's greatest adventure of the twenty-first century begins, somewhat ironically, with an understatement: "Applicants must be willing to travel and not be afraid of heights." Anyone applying now for the next class of astronauts has the chance to become the first person to set foot on the red planet. "We are looking for talented men and women from different backgrounds and every walk of life to help us get there," explains *NASA* administrator and former astronaut, Charles Bolden.

Mars is 250 million miles away, to be precise, through the risky -270°C vacuum of the solar system. Space is the ultimate death zone for simple humans: step outside the craft without a space suit and the radiation would burn the skin in seconds, the lungs would burst owing to the drop in pressure, and the body's cells would disappear from the inside out. On Mars itself a serious threat will be the huge 250 miles per hour dust storms that can cover the whole planet.

Working conditions might be a lot less comfortable than you might expect from a multi-billion-dollar company like *NASA*. The astronauts will spend at least 200 days squeezed into a space suit filled with cold air, while being 'up close and personal' with five other crew members in a capsule no bigger than a couple of camper vans. The job description in the advertisement reads like something from a science fiction novel: successful applicants will control the propulsion system of the space craft to land on Mars before beginning the search for extra-terrestrial life in the Martian soil. They will control robots used for carrying and lifting, carry out astrophysical experiments such as recording the reaction of the human body to life in space, and wear special spacesuits to take part in activities outside the transport vehicles. To prevent their muscles wasting away in the low gravity environment, they will also need three hours of exercise per day.

However, before they climb aboard *NASA's Orion Multi-Purpose Crew Vehicle*, which will serve as their exploration craft on the red planet, the prospective astronauts will need to prove that they have certain qualities. The minimum requirement is a Bachelor's degree in either Engineering, Science, Mathematics, Information Technology, Biology or Physics, together with three years' professional experience in these areas. Pilots with 1000 hours of flight time to their credit will also be considered.

Certain conditions will need to be met: to fit in the \$25 million spacesuit, applicants cannot be taller than 190 cm or shorter than 157 cm. An uppermost weight limit is not specified, although anything goes in zero gravity – as long as the cardiovascular system is healthy. *NASA* cannot be accused of being ageist – indeed, it is actively encouraging older people who meet the physical demands to apply. It is felt that they have the long-term mental stability needed for a long-term mission to Mars. This has also been shown in the previous space programmes: the average age of the 12 men to visit the moon was 39.8 years.

Basically every astronaut is somewhat of a career changer who has previously done something completely different. Brian Kelly, Director of Flight Operations at *NASA's Johnson Space Centre in Houston*, explains, "We want and need a diverse mix of individuals to ensure that we have the best astronaut group possible." Applicants are tested on one particular important requirement before training even begins – patience. It will take NASA's selection panel several months to choose its candidates: over 18 300 people applied for the 2017 intake between December 2015 and February 2016.

For the lucky few selected at the end of the first application phase, several years of lecture theatres, gyms, laboratories and construction halls lie ahead. Candidates' mental aptitude will be examined in a series of medical and psychological interviews. Even if NASA is officially planning to return its astronauts to Earth, the mission is not without risks – and bringing them back might not be possible. It's a troubling thought that all of the applicants must deal with from the outset. Those who can't will be rooted out. At the end of the exhausting selection and training only a handful of men and women will remain. These élite astronauts will be the vanguard of the human race, the first to venture into a completely unknown world.

According to Brian Kelly, many astronauts under-estimate the scope of the Mars astronaut training. Everyone in the crew must be able to do everything. Astronaut Ulrich Walter, who flew on board Columbia in 1993, says there will be no help from the outside. "During a Mars mission you can't just turn around if there's an emergency. Once you're on the way, there's no going back." To prepare for all eventualities, every candidate will have to carry out hundreds of flight hours, acquire medical and surgical expertise, and become an expert on plants. They'll need to change themselves into a kind of space farmer, finding new ways of growing fresh food.

One of the most difficult and unpredictable tasks for the new Martians will be to build their own home. They will endure at least 300 days on Mars before it and the Earth are in the right orbital position for a return flight. Not only will they have to build secure living quarters, they'll also need to draw out water from the frozen ground and cultivate edible plants.

(Adapted from 'Job Hunt for Mars', Wonderpedia, Issue 53, October 2016.)

Glossary:

Propulsion: (n) driving or pushing forward

Vanguard: (n) leaders of a movement

15 Imagine that a NASA recruitment officer has come to Namibia to interview Namibian applicants.

Write the transcript/dialogue of one such interview. In your transcript/dialogue you should ensure that your interviewer's questions focus on the following:

- information about the applicant's background which might excite interest in the applicant;
- questions to which the answers indicate desirable personal qualities;
- the applicant's responses to the dangers and risks which may make life difficult.

You are invited to include your own ideas but these must be relevant.

The content of your transcript/dialogue should be between **350** and **400** words.

[20]

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