

JUNIOR SECONDARY CERTIFICATE

ENGLISH FIRST LANGUAGE

1101/1

PAPER 1 Reading and Directed Writing

2 hours

Marks 60

2014

Additional Materials: Answer Book

INSTRUCTIONS AND INFORMATION TO CANDIDATES

- Write your answers in the separate answer book provided.
- Write your Candidate Number and Name in the spaces on the answer book.
- Write in dark blue or black pen.
- Do not use correction fluid.

- Answer **all** questions.

- You should pay attention to spelling, punctuation and handwriting.
- The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **8** printed pages.



Republic of Namibia
MINISTRY OF EDUCATION

SECTION A

Read the following passage carefully and answer Questions 1 – 13.

Passage 1**ECONOMY: Namibia embarks on nuclear policy**

By Brigitte Weidlich, Inter Press Service

Namibia is set to develop its rich uranium resources and intends to pursue uranium enrichment locally. It also plans to build its own nuclear electricity plant.

Nuclear energy experts from Finland's Nuclear and Radiation Authority are currently helping the Ministry of Mines and Energy (MME) to draft Namibia's first ever nuclear policy, which is to be completed by mid-2011, together with relevant laws. Namibia plans to generate electricity from its own nuclear reactor by 2018.

"It is the express decision of the Namibian government to seriously consider the development of nuclear power in order to complete the national energy mix and provide sufficient energy for our development," said Mining Minister Isak Katali at an introductory nuclear policy conference. "The uranium and nuclear energy policy to be developed will cover the entire nuclear fuel cycle, being uranium exploration, mining, milling and nuclear energy (generation)," Katali added.

The nuclear policy will include the establishment of a nuclear waste management fund, black economic empowerment through equity participation in the uranium sector, skills transfer to Namibians and using uranium only for peaceful purposes. Namibia produces about 5000 tons of uranium annually and was the fourth-largest producer in 2009, providing nearly 10 % of the global needs.

"It is no secret that our government made the decision to develop nuclear power locally – the demand for energy is growing," says Joseph Iita, permanent secretary in the MME. "We have big uranium resources, and we work together with the International Atomic Energy Agency (IAEA) to achieve a strong policy framework for a safe and efficient nuclear policy for peaceful purposes only."

Namibia is a signatory to the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), Comprehensive Safeguards Agreement in Connection with the NTP and Protocol Additional to the Safeguards Agreement. The country established the Namibian Atomic Energy Board in February 2009.

Some 66, mostly foreign, companies from Australia, Canada and China, have exclusive exploration licences (EPLs) for uranium exploration in Namibia, mainly in the coastal Erongo Region. Only four uranium companies obtained uranium mining licences, with two mines operational and two mines under construction among them. The oldest mine, Rössing Uranium of British Rio Tinto, started in 1976, only to be joined three decades later in 2007 by Langer Heinrich Uranium (LHU). LHU is owned by Australian mining outfit Paladin Energy, which produced 1 170 tons of processed uranium (called yellow cake) in 2009. At least five more uranium mines are in the pipeline within the next three to four years. The national utility NamPower is already expanding its power grid and electricity generation ability.

The new uranium mining areas are partly located in a proclaimed national park and one of the most popular tourist hotspots in the country. “Unless all this is well managed and the necessary safeguards are in place, the uranium rush will negatively affect the environment – both at individual mine level and on a cumulative basis, which will affect sense of place, tourism, lives and livelihoods,” says Peter Tarr, one of the experts who completed an in-depth study on the impact of the future uranium industry.

Peter Versfeld works for a tourism company in the Namib Desert and takes visitors to breathtaking views over the rugged mountain ranges called the ‘Moon Landscape’ and to the famous Welwitschia desert plants, some of them being thousands of years old. “We are very worried about the bad impact the uranium boom will have on the beautiful landscape here and the possibility of a nuclear reactor being built. It will negatively affect our tourism sector at the coast and the nearby desert,” says Versfeld.

However, Johannes Goraseb, whose family has lived for generations in humble dwellings some 80 kilometres east of the coastal town of Swakopmund near another tourism hotspot – the Spitzkopje Mountains with their ancient rock paintings – looks forward to getting a job. “There are not enough tourists coming here to sustain all of us. So when the uranium mine under construction nearby becomes operational, I hope I will get a job there,” he says. “Already Areva, which owns the new mine, has donated water tanks to us. They bring development as they will also build a mining village for their staff and this will bring development here in the desert,” he added.

Erongo Regional Governor Samuel Nuuyoma maintains uranium mining is an important economic pillar and is expected to grow from 5.54% of the Namibian GDP in 2008 to 14.78% by 2015.

Mike Leech, president of the Chamber of Mines, said, “Uranium-producing countries such as Namibia are inevitably surrounded by questions of health, environmental and radiation safety, waste and non-proliferation.”

With new uranium mines on the horizon and expansion projects at existing mines, it is estimated that thousands of jobs may be created in the Erongo Region.

(Adapted and abridged, Inter Press Service 2011)

In answering Questions 1 – 6 write down the number of the question and the correct answer next to it, for example 1. A.

1 A nuclear plant is used to generate

A electricity.

B hydroelectric power.

C nuclear weapons.

D solar energy.

[1]

2 Namibia plans to build its own nuclear reactor by

A 2011.

B 2015.

C 2018.

D 2030.

[1]

- 3 Namibia is helped to draft a nuclear policy by
A Finland’s Nuclear and Radiation Authority.
B NamPower.
C the Ministry of Mines and Energy.
D the International Atomic Agency. [1]
- 4 The abbreviation IAEA stands for
A Comprehensive Safeguards Agreement.
B International Atomic Energy Agency.
C International Atomic Energy Boards.
D Nuclear and Radiation Authority. [1]
- 5 When Minister Katali referred to “the entire nuclear fuel cycle”, he meant
A uranium exploration, mining and milling.
B uranium exploration, mining, milling and nuclear energy generation.
C uranium mining, uranium processing and exporting it.
D uranium mining, waste removal and nuclear generation. [1]
- 6 Using uranium for peaceful purposes excludes
A creating job opportunities.
B generating electricity.
C increasing the country’s GDP.
D producing atomic weapons. [1]
- 7 Quote **two** phrases from the passage above to prove that Namibia holds a place in world production of uranium. [2]
- 8 Choose the correct meaning from the three answers given below of the expression “Non-Proliferation of Nuclear Weapons” (Paragraph 6).
Write down only the correct letter of your answer.
A Nuclear weapons are being abolished.
B Nuclear weapons are being promoted.
C The number of nuclear weapons is not increasing rapidly. [1]
- 9 Name the **two** most prominent uranium mines in Namibia at the time of the article going to press. [2]

- 10 Why does the location of the mines give rise to concern? [2]
- 11 What was the result of the in-depth study conducted amongst others by Peter Tarr? [2]
- 12 Johannes Goraseb's view on the opening of another uranium mine is different.
Explain in which ways? [3]
- 13 Mike Leech's statement (Paragraph 12) is cautious. Explain why. [2]

[20]

SECTION B

Read the following passage carefully and answer Questions 1 – 6. Questions 1 – 6 should be answered in full sentences and in your own words as far as possible.

Passage 2

The following are excerpts from the *Strategic Environmental Assessment (SEA) of the Central Namib Uranium Rush*. The document addresses the unusual challenge of the Uranium Rush. The likely impacts of the Uranium Rush are presented in a clear and thorough way, presenting both likely negative impacts and potential positive benefits.

Mining

In Namibia, both uranium ore types occur on and close to the surface in the central Namib and therefore can be mined from surfaces as opencast or open pit operations. The hard rock alaskites generally extend to depth and are typically mined in an open pit using drilling and blasting techniques. These pits can become quite large – for example, the current Rössing pit is over 3 km long, 1.2 km wide and about 345 m deep. The alaskite pits are developed downwards and will remain as permanent deep holes in the ground surrounded by huge waste rock dumps.

Secondary calcrete-hosted uranium mineralisation tends to occur at shallower depths but over larger areas. The Langer Heinrich pit, for example, will only reach a maximum of 30 m deep and the Trekkopje pit is planned to be 15 km long by 1-3 km wide and up to a maximum of 30 m deep. The shallower calcrete pits have much less waste rock and can be filled with tailings (residue) and overburden (top layers) as the pit proceeds laterally. This has significant implications in terms of the total mine footprint, with the calcrete mines having a much larger area of disturbance during operations but with a smaller final footprint. The Rössing pit, with the surrounding waste rock dumps, has become a permanent feature that cannot be rehabilitated to the original landscape.

The secondary deposits, however, are all associated with shallow current drainage lines to the north and south of the Khan-Swakop drainage system. These plains appear featureless, but they support a relatively high biodiversity, including lichens, plants, birds, mammals and reptiles. Of particular significance is the occurrence of the protected, rare and ancient *Welwitschia* plants in these drainage lines.

The typical direct impacts resulting from open pit mining are

- Noise (blasting, hauling);
- vibration (blasting);
- dust (blasting, excavating, loading, hauling, waste rock dumps);
- radon emissions (blasting, excavating, loading, low grade stockpile);
- pollution of groundwater (runoff/seepage from waste rock dumps and open pit);
- visual impact (open pit and waste rock dumps);
- loss of biodiversity (open pit and waste rock dumps);
- light.

Noise and vibration are localised and sporadic impacts, but dust, radon (a radioactive gas), groundwater pollution, loss of biodiversity and visual impact could all contribute to a regional cumulative impact if not properly controlled through on-site environmental management plans. The visual impact might have an effect on tourism, especially where current tourism activities overlap with existing and proposed mines, e.g. Etango (Moon Landscape), Rössing South (Welwitschia Flats), Langer Heinrich (Bloedkoppie) or where several mines may be located in a relatively small area: Rössing, Rössing South, Etango and Tubas. Etango and Rössing South are likely to have the greatest impact on tourists coming to the Namib to see the *Welwitschia mirabilis* plant, a Namib biodiversity icon.

Although Rössing mine attracts some 2 000 tourists per year to see the huge open pit, there are few additional opportunities for cooperation between mining and tourism, and tourism offsets need to be investigated by each mine where current tourist activities will be affected. This presents an opportunity for future collaboration between mining, tourism and nature conservation to develop and protect new sites of tourist interest.

Ore processing

Irrespective of the rock type, the ore has to be crushed to a finer size before the uranium can be extracted. Crushing circuits usually have several stages (typically up to 4) in which the ore is progressively reduced to a fine particle size. In spite of noise weakening systems and dust extraction systems, crushers usually have noise, radon and dust impacts. All workers in the crushers have to wear respirators to minimise their exposure to radiation and particulates. These impacts are all localised and do not have regional implications.

(Abridged and adapted, SEA of the Central Namib Uranium Rush, pp. 28-30)

- 1 Why does the Strategic Environmental Assessment refer to a 'Uranium Rush'? [2]
- 2 What disadvantage does the Rössing pit hold for its surrounding? Why? [3]
- 3 What difference, in lasting effect, will the Langer Heinrich pit show? [5]
- 4 Mention **three** direct impacts from openpit mining that contribute to weakening the condition of the environment with the resultant effect on the region. [4]
- 5 What is the significance of the *Welwitschia* plant being in close proximity to the uranium mines? [3]
- 6 Explain why workers in the crushers are exposed to health hazards. [3]

[20]

- 7 A friend of yours is delighted at the news that another company, Rössing South, will start mining uranium soon. You, however, know that the mining will take place in the close vicinity of the Welwitschia Flats. You cannot show any enthusiasm for this development. In fact, you are totally against it.

The two of you engage in a heated conversation about the advantages and disadvantages of uranium mining in the Namib Desert.

Write the dialogue that ensues between you and your friend.

Draw on both Passage 1 and Passage 2 for substantiation of your argumentation.

Your dialogue should be about **200** words in length.

[20]