Province of the
EASTERN CAPE
EDUCATION

# NATIONAL SENIOR CERTIFICATE

## GRADE 11

## NOVEMBER 2020

# GEOGRAPHY P2 EXEMPLAR

**MARKS:** **150**

**TIME:** **2 hours**

*IGEOGE2*

This question paper consists of 10 pages.

## INSTRUCTIONS AND INFORMATION

1. This question paper consists of THREE questions.
2. All diagrams are included in the ANNEXURE.
3. Where possible, illustrate your answers with labelled diagrams.
4. Leave a line between subsections of questions answered.
5. Start EACH question at the top of a NEW page.
6. Number the questions correctly according to the numbering system used in this question paper.
7. Do NOT write in the margins of the ANSWER BOOK.
8. In SECTION B you are provided with a 1 : 50 000 topographical map (2527BD HARTBEESPOORT DAM) and an orthophoto map of a part of the mapped area.
9. Show ALL calculations and formulae, where applicable. Marks will be allocated for these.
10. Indicate the unit of measurement in the final answer of calculations, e.g. 10 km; 2,1 cm.
11. You may use a non-programmable calculator and a magnifying glass.
12. The area demarcated in RED and BLACK on the topographical map represents the area covered by the orthophoto map.
13. Write neatly and legibly.

 

## SECTION A: DEVELOPMENT GEOGRAPHY, RESOURCES AND SUSTAINABILITY

### QUESTION 1

1.1 Choose the correct word(s) from those given in brackets which will make each statement geographically CORRECT. Write only the word(s) next to the question numbers (1.1.1–1.1.8).

1.1.1 According to the Brandt report, 80% of the world's income is earned in the (north/south).

1.1.2 (MEDCs/LEDCs) export mainly raw materials.

1.1.3 A limitation of (Rostow's/Friedman's) model is that it does not take population growth rate into consideration.

1.1.4 Finding a vaccine for the coronavirus (COVID-19) is an example of development from a (regional/global) context.

1.1.5 (Top down/Bottom up) approach is often a more successful approach in community-based development.

1.1.6 The sustainability model involves the (core and periphery/economy and environment).

1.1.7 Development in (MEDC/LEDC) countries is achieved by a market economy. (7 x 1) (7)

1.2 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (1.2.1–1.2.8) in the ANSWER BOOK, for example 1.2.9 A.

1.2.1 … is the world's most traded commodity.

A Cotton
B Wheat
C Oil
D Gold

1.2.2 Aid from donor countries that includes masks and ventilators in times of a medical crisis, is an example of … aid.

A technical
B conditional
C export
D humanitarian

1.2.3 … forms the basis of an export-led approach to development.

A Technology
B Manufacturing
C Mining
D Construction

 

1.2.4 … is/are an example of a trading relationship that protects local products from foreign competition.

A Trade barriers
B Free trade
C Fair trade
D Unfair trade

1.2.5 A Gender Inequality Index (GII) of … indicates more equality among males and females.

A 0,83
B 0,48
C 0,21
D 0,64

1.2.6 Trade blocs encourage …

A fair trade
B unfair trade.
C free trade.
D trade barriers.

1.2.7 … describes the relationship between the value of a country's exports and imports.

A Terms of trade
B Balance of trade
C Balance of payments
D Gross national product

1.2.8 … is the world's fastest developing economy.

A South Africa
B Japan
C China
D India (8 x 1) (8)

 

1.3 Refer to the cartoon in FIGURE 1.3 showing an economic indicator of development.

1.3.1 What is the *Gini coefficient*? (1 x 1) (1)

1.3.2 How does the cartoon portray the Gini coefficient? (1 x 1) (1)

1.3.3 Would the Gini coefficient in this cartoon show a statistical score closer to zero (0) or one (1)? (1 x 1) (1)

1.3.4 Discuss THREE ways in which a country can improve on sharing wealth in a country. (3 x 2) (6)

1.3.5 Explain how THREE positive demographic indicators can show an improvement of the economic level of development in a country. (3 x 2) (6)

1.4 Read the article in FIGURE 1.4 referring to globalisation.

1.4.1 According to the article, how did globalisation aid in the spread of the COVID-19 pandemic? (1 x 1) (1)

1.4.2 Quote ONE advantage of globalisation from the article. (1 x 1) (1)

1.4.3 Name ONE example of a multinational corporation (MNC) in the article. (1 x 1) (1)

1.4.4 Discuss how the COVID-19 pandemic would be a disadvantage to multinational corporations (MNCs). (2 x 2) (4)

1.4.5 Write a paragraph of approximately EIGHT lines explaining why globalisation is still viewed as the main stimulus of economic growth in the world. (4 x 2) (8)

1.5 Read the case study in FIGURE 1.5 on community development in Zambia and answer the questions that follow.

1.5.1 State whether the case study refers to rural or urban community development. (1 x 1) (1)

1.5.2 Describe TWO examples to prove that Veronica's quality of life has improved. (2 x 2) (4)

1.5.3 The improved quality of life for these individuals will probably have positive ripple effects in their community. Suggest TWO positive ripple effect for Veronica's community. (2 x 2) (4)

1.5.4 Describe THREE advantages of using this type of technology referred to in the case study. (3 x 2) (6)

**[60]**

 

## QUESTION 2

2.1 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question numbers (2.1.1–2.1.7) in the ANSWER BOOK, for example 2.1.8 A.

2.1.1 ... is the only commercial nuclear power station in South Africa.

A Kusile
B Arnot
C Koeberg
D Lethabo

2.1.2 Green energy is ...

A produced from fossil fuels.
B renewable.
C non-renewable.
D a product from greenhouse gases.

2.1.3 ... is the power utility producing most of South Africa's electrical energy.

A Telkom
B Sasol
C Eskom
D Koeberg

2.1.4 The amount of carbon dioxide emitted into the atmosphere by an individual is referred to as ...

A greenhouse footprint.
B green movement.
C carbon footprint.
D environmental footprint.

2.1.5 The ... signed in 1997 requires countries to reduce the amount of their greenhouse gas emissions.

A Paris accord
B COP 17
C BRICS treaty
D Kyoto Protocol

2.1.6 Energy gained from hot rocks below the earth's surface is called ... energy.

A biomass
B geothermal
C wind
D biofuel

 

2.1.7 ... is the mineral needed for the generation of nuclear power.

A Coal
B Gold
C Uranium
D Platinum (7 x 1) (7)

2.2 Choose the correct word(s) from those given in brackets which will make each statement geographically CORRECT. Write only the word(s) next to the question numbers (2.2.1–2.2.8).

2.2.1 The (D/R) horizon is the deepest soil horizon in the soil profile.

2.2.2 A (steep/gentle) topography results in well-drained and steeper soils.

2.2.3 Deforestation is a (human/physical) agent of erosion.

2.2.4 Soil colour is influenced by (time/parent material).

2.2.5 Humus content is mostly found in the (top soil/sub soil).

2.2.6 The main agent of soil erosion is (water/drought).

2.2.7 (Renewable/Non-renewable) resources are produced by nature constantly.

2.2.8 Partially weathered rock material is found in the (regolith/subsoil).
(8 x 1) (8)

2.3 Refer to the cartoon in FIGURE 2.3 showing the relationship between resources and economic development.

2.3.1 Name the natural resource being depleted in the cartoon. (1 x 1) (1)

2.3.2 According to the cartoon, why is this natural resource being depleted?
(2 x 1) (2)

2.3.3 How does the depletion of this natural resource affect the environment?
(2 x 1) (2)

2.3.4 Discuss the positive economic impact that the depletion of this resource has for development in a country. (2 x 2) (4)

2.3.5 Explain how countries could implement more sustainable strategies to protect their natural resources. (3 x 2) (6)

 

2.4 Refer to FIGURE 2.4 showing South Africa's energy plan.

2.4.1 What percentage of South Africa's energy plan would coal make up in 2030? (1 x 1) (1)

2.4.2 Name any TWO other conventional sources of energy that will be a part of South Africa's energy plan in 2030. (2 x 1) (2)

2.4.3 Why would South Africa still be so reliant on coal in 2030? (2 x 1) (2)

2.4.4 Discuss the impact that South Africa's reliance on coal would have on the environment. (2 x 2) (4)

2.4.5 Explain why nuclear energy would not play a major role in South Africa's energy plan in 2030. (3 x 2) (6)

2.5 Refer to FIGURE 2.5 which illustrates non-conventional sources of energy.

2.5.1 Why are solar and wind energy examples of non-conventional sources of energy? (1 x 1) (1)

2.5.2 Give TWO pieces of evidence from the sketch to support the statement that the source of non-conventional energy is relatively cheap. (2 x 1) (2)

2.5 3 How can solar energy be advantageous to South Africa's current energy sources? (2 x 1) (2)

2.5.4 Describe the negative impact that wind turbines, used to generate wind energy, have on the environment. (1 x 2) (2)

2.5.5 In a paragraph of approximately EIGHT lines, explain the impact of the non-conventional sources of energy, depicted in the sketch, on the economy of South Africa. (4 x 2) (8)

**[60]**

## SECTION B: GEOGRAPHICAL SKILLS AND TECHNIQUES

The questions below are based on the 1 : 50 000 topographical map 2527 DB HARTBEESPOORT DAM, as well as the orthophoto map of a part of the mapped area.

3.1 3.1.1 The scale of the topographic map is 1 : 50 000. Write down the scale as a word scale. (1 x 1) (1)

3.1.2 What is the straight-line distance from trigonometrical station 104 in block **C2** to spot height 1521 in block **B3**? Give your answer in metres. (2 x 1) (2)

3.2 3.2.1 Calculate the magnetic declination of Hartbeespoort Dam for 2020. Show ALL calculations. Marks will be awarded for calculations. (5 x 1) (5)

3.2.2 Compare the magnetic declination for 2020 to the magnetic declination for 2012 and indicate which one is bigger. (1 x 1) (1)

3.2.3 Motivate your answer to QUESTION 3.2.2. (1 x 1) (1)

3.3 3.3.1 The feature at **5** on the orthophoto map is/are a/an …

A rugby fields.
B tennis courts.
C open-parking area.
D purification plant.

3.3.2 The primary economic activity at **P** in block **A1** is a/an …

A sports fields.
B excavations.
C cultivation.
D non-perennial river.

3.3.3 Identify the environmental factor affecting the area in block **C5**:

A River
B Dam
C Sewage works
D Road (3 x 1) (3)

 

3.4 Refer to the FACT FILE (FIGURE 3.4) on the Hartbeespoort Dam and the topographical map:

The Schoemansville town council has decided to try and improve the level of development of this area through tourism. Discuss how the council would promote this area using evidence from blocks **B2** and **B3**. (2 x 2) (4)

3.5 Refer to block **E1** on the topographical map.

3.5.1 Identify the environmental problem found in the area. (1 x 1) (1)

3.5.2 What TWO sustainable strategies can be implemented to prevent and control the impact identified in QUESTION 3.5.1? (2 x 2) (4)

**GEOGRAPHICAL INFORMATION SYSTEMS (GIS)**

3.6 Refer to FIGURE 3.6 taken of the Hartbeespoort Dam found in block **B2** on the topographical map, and answer the following questions.

3.6.1 Is the photograph a raster or a vector image? (1 x 1) (1)

3.6.2 Give a reason for your answer to QUESTION 3.6.1. (1 x 2) (2)

3.6.3 What type of spatial object is the dam wall in block **B2** on the topographical map? (1 x 1) (1)

3.7 Refer to the orthophoto map.

3.7.1 Does the orthophoto map have a *low* or *high* resolution? Give a reason for your answer. (1 + 1 x 2) (3)

3.7.2 Name ONE factor in the remote sensing process that will affect the resolution of the orthophoto map. (1 x 1) (1)

**[30]**

**GRAND TOTAL: 150**

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# GEOGRAPHY P2 ANNEXURE EXEMPLAR

*IGEOGE4*

This annexure consists of 7 pages.

## FIGURE 1.3: ECONOMIC INDICATOR OF DEVELOPMENT


[Source: internationalmoneyreform.org/news]

## FIGURE 1.4: GLOBILISATION

**An epidemic of globalisation – and the globalisation of an epidemic**
Apr 03 2020 20:11
**John Luiz**

The extraordinary events associated with the spread of the COVID-19 virus over the past few months has highlighted various weaknesses associated with globalisation. We have gained from this, but with COVID-19 we are experiencing one of many drawbacks associated with this model. We have seen the globalisation of an epidemic – now a pandemic – that respects no borders. In many respects we have been fortunate that something matching this scale has not happened earlier despite previous hints at this.

The other perspective is that of the epidemic of globalisation itself and what has been exposed as a result of this virus. The benefits of globalisation in manufacturing has lowered costs and facilitated specialisation associated with presumed competitive advantages.

To give two examples: The giant Boeing 787 Dreamliner has massive plants in Italy, Japan and United States manufacturing the one-piece composite fuselage barrels and wings and these aspects need to be completely in-sync and integrated across the globe. A major American notebook computer has its LCD display manufactured in South Korea or Taiwan, the microprocessor and motherboard in China, the memory in Japan, the hard disk drive in Singapore, Thailand or the Philippines, and the battery in Malaysia or Mexico.

[Source: www.fin24.com]

**FIGURE 1.5: COMMUNITY DEVELOPMENT**

## VERONICA BUILDS A HOUSE WITH TOMATOES

Veronica Sianchenga was one of the first in her village to buy the Mosi-o-Tunya, a low cost irrigation system that is manufactured in Zambia. It costs less than the imported pumps and produces a higher output because it was designed for the specific local topography of rural Zambia. Using their Mosi-o-Tunya, Veronica's family has already started reaping the benefits of additional income from irrigated produce thanks to IDE's links to wholesalers and caterers in Livingstone.

Hard work and keen entrepreneurial instincts have resulted in a dramatically improved quality of life for Veronica and her family. Due to an increased productivity and sales, in less than one year, she has been able to build a new house and send her children to school.

Easy to use tread pump can pump water from a well or a river and easily transported.

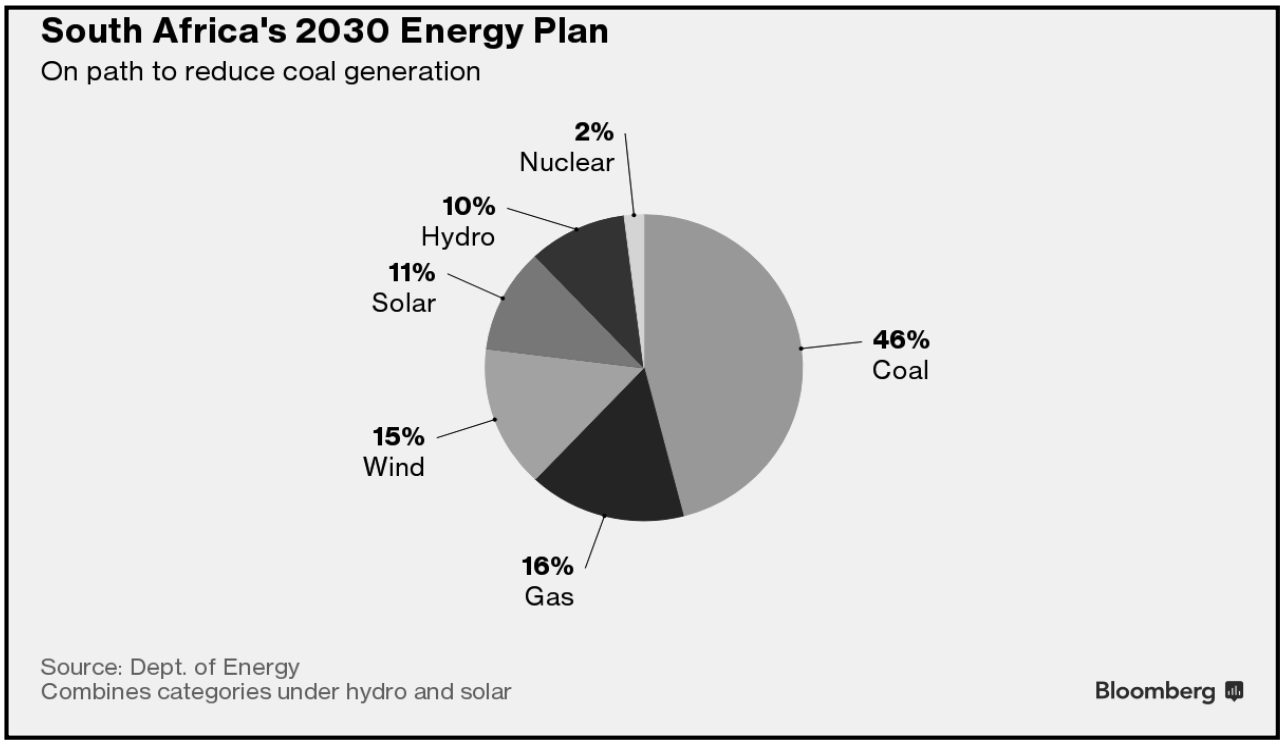
[Adapted from http -/hvw w. ideorg.org/OurResults/SuccessStories'Veronica.aspx]

## FIGURE 2.3: RESOURCES AND ECONOMIC DEVELOPMENT


[Source: cartoonimage.com]

## FIGURE 2.4: CONVENTIONAL ENERGY SOURCES



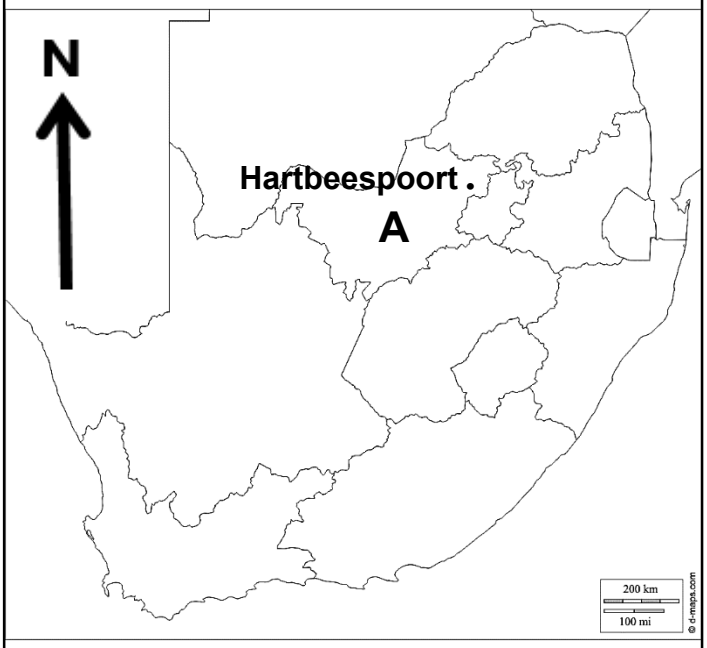

[Source: www.satsssa.gov.za]

## FIGURE 2.5: NON CONVENTIONAL SOURCES OF ENERGY


[Source: dreamstime.com]

## SECTION B: GENERAL INFORMATION ON HARTBEESPOORT DAM

Coordinates: 25° 44′ 39″ S, 27° 53′ 58″ E




**Hartbeespoort Dam** (also known as *Harties*) is an arch type dam situated in the North West Province of South Africa. It lies in a valley to the south of the Magaliesberg mountain range and north of the Witwatersberg mountain range, about 35 kilometres north west of Johannesburg and 20 kilometres west of Pretoria.

The dam was originally designed for irrigation, which is currently its primary use, as well as for domestic and industrial use.

The town consists of holiday homes and permanent residences around the dam as it is popular with visitors from nearby Gauteng Province.

Hartbeespoort Aerial Cableway is (the longest monocableway in Africa.

**FIGURE 3.4: FACT FILE ON HARTBEESPORT DAM**

### FACT FILE – Hartbeespoort Dam area 2527 DB.

Hartbeespoort Dam has mushroomed in the last few years. What was once referred to as Hartbeespoort Dam, is now a collection of suburbs that include Schoemansville – the original town – as well as Kosmos, Meerhof, Melodie and Ifafi.

[Source: <www.en.climate-data.org>]

## FIGURE 3.6: HARTBEESPOORT DAM WALL

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# GEOGRAPHY P2
# MARKING GUIDELINE
# EXEMPLAR

**MARKS: 150**

This marking guideline consists of 9 pages.

## SECTION A: DEVELOPMENT GEOGRAPHY, RESOURCES AND SUSTAINABILITY

### QUESTION 1

1.1 1.1.1 north (1)

1.1.2 LEDCs (1)

1.1.3 Rostow (1)

1.1.4 global (1)

1.1.5 Bottom up

1.1.6 economy and environment (1)

1.1.7 MEDC (1) (7 x 1) (7)

1.2 1.2.1 C (Oil) (1)

1.2.2 D (humanitarian) (1)

1.2.3 B (Manufacturing (1)

1.2.4 A (Trade barriers) (1)

1.2.5 C (0,21) (1)

1.2.6 C (free trade) (1)

1.2.7 B (Balance of trade) (1)

1.2.8 C (China) (1) (8 x 1) (8)

1.3 1.3.1 An economic indicator that shows how wealth is shared in a country (1)
**[CONCEPT]**
(1 x 1) (1)

1.3.2 It shows all the wealth/money in the country in the hands of one person (1)
Most of the people in the cartoon want this to change (1)
The rich person literally hands out change (1)
**[ANY ONE]**
(1 x 1) (1)

1.3.3 Closer to one (1) (1 x 1) (1)

1.3.4 Creation of more jobs (2)
Upliftment of skills (2)
An adjustment to disparity in salaries (2)
Improved salary adjustments to be in sync with the CPI
Profit sharing in companies (2)
**[ANY THREE]**
(3 x 2) (6)

 

1.3.5 More people living in an urban area is a source of skilled and unskilled labour (2)
A higher ratio of people living in urban areas rather than rural areas will contribute more to the GDP of a country if they are formally employed in the secondary, tertiary and quaternary sector (2)
High education and literacy levels allow a country to embrace globalisation and its associated technology (2)
High education and literacy levels add to the skills base of a country and attracts foreign investment (2)
Good water and electricity services also encourages the development of the secondary, tertiary and economic sectors of the economy (2)
Efficient and a high quality of healthcare also protects the workforce of a country (2)
**[ANY THREE]**

(3 x 2) (6)

1.4 1.4.1 '... that respects no borders' (1)
Globalisation opened borders and allowed freedom of movement (1)
**[ANY ONE]**

(1 x 1) (1)

1.4.2 '... has lowered costs and facilitated specialisation associated with presumed competitive advantages' (1) (1 x 1) (1)

1.4.3 Boeing 787 Dreamliner (1) (1 x 1) (1)

1.4.4 MNCs would not be able to able to manufacture products as they rely on specialisation (manufacturing) in different countries (2)
Costs would increase and profits decrease (2)
Businesses all over the world would close temporarily, hence no profits (2)
Increased costs incurred because of employee benefits / pay-outs (2)
Jobs in host countries / headquarters would also be lost (2)
Profits would also not increase after the pandemic as many people do not have the buying power anymore (2)
**[ANY TWO]**

(2 x 2) (4)

1.4.5 It has encouraged the liberalisation of trade / flow of international commodities (2)
Borders have become more open allowing free movement of ideas (2)
Global governance like the World Trade Organisation (WTO) have integrated developing countries into world trading and economic systems (2)
Globalisation has enabled the formation of trading blocs (2)
Multinational corporations operate globally creating jobs and generating profits (2)
Production has been stimulated and countries have expanded their economies (2)
A global workforce has facilitated an exchange of skills (2)
**[ANY FOUR]**

(4 x 2) (8)

 

1.5 1.5.1 Rural (1) (1 x 1) (1)

1.5.2 Veronica is in a position to employ other villagers thereby raising their standard of living (2)
Her increased income also means that she can support the local businesses to a greater extent (2) (2 x 2) (4)

1.5.3 Has a better house (2)
All her children are enrolled in school (2)
She spends less time collecting water (2)
**[ANY TWO]**
(2 x 2) (4)

1.5.4 Treadle pump is easy to use (2)
Saves time and labour so larger areas can be cultivated (2)
Easy to transport (2)
Light enough for both males and females (2)
Produced locally (2)
**[ANY THREE]**
(3 x 2) (6)
**[60]**

## QUESTION 2

2.1 2.1.1 C (Koeberg) (1)

2.1.2 B (renewable) (1)

2.1.3 C (Eskom) (1)

2.1.4 C (carbon footprint) (1)

2.1.5 D (Kyoto Protocol) (1)

2.1.6 B (geothermal) (1)

2.1.7 C (Uranium) (1) (7 x 1) (7)

2.2 2.2.1 R (1)

2.2.2 gentle (1)

2.2.3 human (1)

2.2.4 parent material (1)

2.2.5 topsoil (1)

2.2.6 water (1)

2.2.7 Renewable (1)

2.2.8 regolith (1) (8 x 1) (8)

 

2.3 2.3.1 Trees (1) (1 x 1) (1)

2.3.2 To make space for buildings (accept examples) (1)
Infrastructure (accept examples) (1) (2 x 1) (2)

2.3.3 Decreases oxygen (1)
Increases carbon dioxide (1)
Increases run off (1)
Increases infiltration (1)
Destroys aesthetic beauty (1)
**[ANY TWO]**
(2 x 1) (2)

2.3.4 It provides more space for development (buildings, infrastructure etc.) in a country (2)
This creates jobs / multiplier effect (2)
There will be increased production and more sales (2)
More trade is generated and there will be more profits (2)
**[ANY TWO]**
(2 x 2) (4)

2.3.5 Any new development requires an environmental impact assessment (EIA) (2)
Education in environmental awareness (2)
Buffer zones (greenbelts) to control uncontrolled urban expansion (2)
Strategies to decrease birth rates (2)
To reduce rural-urban migration (accept examples) (2)
**[ANY THREE]**
(3 x 2) (6)

2.4 2.4.1 46% (1) (1 x 1) (1)

2.4.2 nuclear (1)
hydro (1)
gas (1)
**[ANY TWO]**
(2 x 1) (2)

2.4.3 It is still readily available as a natural resource in South Africa (2)
Coal mining provides jobs (2)
Large amounts of money have been invested in coal mines / power stations (2)
Non-conventional energy sources incur extra costs (2)
**[ANY TWO]**
(2 x 1) (2)

 

2.4.4 It will cause environmental despoliation (2)
Dumping near coal mines would cause land degradation (2)
Process of mining coal and power stations would release methane and harmful chemicals into the atmosphere (2)
Acid rain would be a consequence of releasing nitrogen oxide into the atmosphere (2)
Dust particles and coal ash are emitted from power stations (2)
**[ANY TWO]**

(2 x 2) (4)

2.4.5 Nuclear power stations are expensive to build (2)
Storing of nuclear waste is expensive (2)
Earthquakes and terrorism can cause radioactive spillage (2)
Human safety is an issue; accidents can occur that will result in deaths (2)
Uranium is a non-renewable resource (2)
Coal is readily available which makes nuclear energy an unnecessary expense (2)
**[ANY THREE]**

(3 x 2) (6)

2.5.1 They are energy sources that are renewable / energy sources that are new and alternative (1)
**[CONCEPT]**

(1 x 1) (1)

2.5.2 Sunlight (1)
Kite (indicates wind) (1) (2 x 1) (2)

2.5.3 It is an alternative to both coal and nuclear power (1)
It will diversify and add much needed energy to the electricity grid (1)
It is clean and will reduce South Africa's carbon emissions (1)
Photovoltaic panels can be supplied to rural areas which are not on the electricity grid (1)
**[ANY TWO]**

(2 x 1) (2)

2.5.4 Turning rotor blades can kill birds, bats, insects (2)
This affects ecosystems and can reduce the biodiversity of the area (2)
It causes noise which can spoil the aesthetic beauty of the environment (2)
**[ANY ONE]**

(1 x 2) (2)

 

2.5.5 **NEGATIVE**

The initial cost of installation is expensive as parts have to be imported (2)
In most cases skilled people from overseas need to oversee the operations, which is expensive (2)
A huge proportion of the South African labour market would be excluded from these jobs as they are unskilled (2)
Wind and solar energy are unreliable as they both depend daily on huge amounts of sunshine and wind (2)
Only certain areas in South Africa would then be able to have access to non-conventional sources of energy (2)
Increased reliance on non-conventional energy sources would decrease the demand for coal and cause mines to shut down (2)
This will cause high unemployment in the mines and associated link industries that process coal, like power stations (2)

**POSITIVE**

The initial cost of installation is expensive but the running costs afterwards is cheaper than being reliant on coal (2)
The sources for non-conventional use of energy is renewable and cheaper (2)
It will create more employment opportunities (2)
It will broaden the skills base of the country's labour force (2)
An increase in the use of non-conventional sources of energy decreases dependency on oil and hence the price drops (2)
Energy can be sourced to remote rural areas, stimulating the economy of these areas (2)
There will be less load-shedding, thus boosting businesses (2)
**[CANDIDATES MUST REFER TO BOTH POSTIVE AND NEGATIVE IMPACT]**
**[ANY FOUR]**

(4 x 2) (8)
**[60]**

 

## SECTION B: GEOGRAPHICAL SKILLS AND TECHNIQUES

### QUESTION 3

3.1 3.1.1 One centimetre on the map represents 50 000 cm in reality ✓ (1 x 1) (1)

3.1.2 4,9 ✓cm x 0,5 = 2,45 km **OR** 4,9 ✓cm ÷ 2 = 2,45 km
[Range 4,8 – 5,0]
= 2 450 metres ✓ (2 x 1) (2)
[Range 2 400 – 2 500]

3.2 3.2.1 The difference in years: *2020 – 2012 = 8 ✓ years*
Mean annual change: *5' ✓ W*
Total change: *8 x 5' W = 40' ✓ W*
Magnetic declination for 2020: *15°24' W + ✓40' W = 16 °04' W ✓*
(5 x 1) (5)

3.2.2 2020 is bigger ✓
16°04' W is bigger than 15°24' W ✓
**[ANY ONE]**
(1 x 1) (1)

3.2.3 The mean annual change in the magnetic declination is West ✓ (1 x 1) (1)

### MAP INTERPRETATION

3.3 3.3.1 A (1)

3.3.2 C (1)

3.3.3 C (1) (3 x 1) (3)

3.4 Mountainous landscape ✓✓
Protected area (Nature reserve) ✓✓
Caravan park / camp sites / holiday resorts (Lekkersukkel) ✓✓
Dam – rafting / canoeing / fishing / sailing / yachting / dam wall ✓✓
Snake park ✓✓
Brits tunnel ✓✓
**[ANY TWO]**
(2 x 2) (4)

 

3.5 3.5.1 Soil erosion (1) (1 x 1) (1)

3.5.2 Contour ploughing (2)
Strip cropping (2)
Aforestation (2)
Not ploughing on steep slopes (2)
Crop rotation (2)
Windbreaks (2)
Fallowing (2)
Filling in dongas (2)
Avoid overgrazing (2)
Fertilisers (2)
Vegetation along rivers (2)
Retain soil cover – dry season (2)
**[ANY TWO]**
(2 x 2) (4)

**GEOGRAPHICAL INFORMATION SYSTEMS (GIS)**

3.6 3.6.1 Raster (1) (1 x 1) (1)

3.6.2 Shows graphics as rows and columns of tiny rectangular pixels to form a grid (2) (1 x 2) (2)

3.6.3 Line (1) (1 x 1) (1)

3.7 3.7.1 Low (1)

Reason:
The larger the size of a grid cell, the worse its resolution and less accuracy (2)
Fewer pixels have been used, thus the orthophoto map is not very clear (2)
The features on the orthophoto map are not very clear/fuzzy (2)
Less detail about the surroundings of buildings can be obtained (2)
**[ANY ONE]**
(1 + 1 x 2) (3)

3.7.2 Weather conditions (accept examples) (1)
Focusing (1)
Number / size of pixels (1)
Shadows (1)
Equipment (accept examples) (1)
Air pollution (1)
Distance (1)
Angle at which image is captured (1)
Scale (1)
**[ANY ONE]**
(1 x 1) (1)
**[30]**

**GRAND TOTAL: 150**