basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

# NATIONAL SENIOR CERTIFICATE

## GRADE 11

## GEOGRAPHY P2

## EXEMPLAR 2022

**MARKS: 150**

**TIME: 3 hours**

**This question paper consists of 15 pages.**

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## INSTRUCTIONS AND INFORMATION

1. This question paper consists of TWO sections.

   SECTION A
   QUESTION 1: DEVELOPMENT GEOGRAPHY (60 MARKS)
   QUESTION 2: RESOURCES AND SUSTAINABILITY (60 MARKS)

   SECTION B
   QUESTION 3: GEOGRAPHICAL SKILLS AND TECHNIQUES (30 MARKS)

2. Answer ALL THREE questions.

3. All diagrams are included in the QUESTION PAPER.

4. Leave a line between subsections of questions you answer.

5. Start EACH question at the top of a NEW page.

6. Number the answers correctly according to the numbering system used in this question paper.

7. Do NOT write in the margins of the ANSWER BOOK.

8. Draw fully labelled diagrams when instructed to do so.

9. Answer in FULL SENTENCES, except where you have to state, name, identify or list.

10. Units of measurement MUST be indicated in your final answers, e.g. 1 020 hPa, 14 °C and 45 m.

11. You may use a non-programmable calculator.

12. You may use a magnifying glass.

13. Write neatly and legibly.

## SPECIFIC INSTRUCTIONS AND INFORMATION FOR SECTION B

14. A 1 **:** 50 000 topographic map of 2529CC EMALAHLENI and a 1 **:** 10 000 orthophoto map 2529 CC 15 EMALAHLENI are provided.

15. The area demarcated in RED/BLACK on the topographic map represents the area covered by the orthophoto map.

16. Show ALL calculations. Marks will be allocated for this.

17 You must hand in the topographic and orthophoto map to the invigilator at the end of the examination.

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## SECTION A: DEVELOPMENT GEOGRAPHY AND RESOURCES AND SUSTAINABILITY

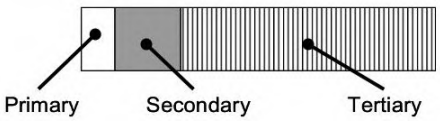
## QUESTION 1: DEVELOPMENT GEOGRAPHY

1.1 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 (1.1.1 to 1.1.7) in the ANSWER BOOK, e.g. 1.1.8 D.

1.1.1 … is an example of a less economically developed country (LEDC).

A Germany
B Australia
C Nigeria
D Italy

1.1.2 The graph represents a more economically developed country (MEDC) because of the large contribution of the … activities.




A primary and secondary
B primary and tertiary
C secondary and tertiary
D quaternary and primary

1.1.3 The United States of America (USA) has a …

A low life expectancy and low infant mortality.
B high life expectancy and high infant mortality.
C low life expectancy and high infant mortality.
D high life expectancy and low infant mortality.

1.1.4 The … is the total value of goods and services produced within the borders of a country in one year.

A GNP
B GNI
C GDP
D HDI

1.1.5 … development is the responsible harvesting and use of resources for development, so that those resources are not depleted and available for future generations.

A Sustainable
B Economic
C Social
D Permanent

1.1.6 The Gini-coefficient …

A measures the gap between rich and poor in a country.
B is the number of years a person can expect to live.
C measures the level of development of a country.
D is the number of economic active people in a country.

1.1.7 A country above the Brandt line in the Southern Hemisphere is …

A South Africa.
B Australia.
C Nigeria.
D Namibia. (7 x 1) (7)

1.2 Choose the correct word(s) from those given in brackets. Write ONLY the word(s) next to the question numbers (1.2.1 to 1.2.8), e.g. 1.2.9 trade.

1.2.1 (Humanitarian/Development) aid refers to aid spent in a manner that is expected to promote development, whether achieved through economic growth or other means

1.2.2 (Multilateral/Bilateral) aid is given directly from one country to another country.

1.2.3 (Humanitarian/Development) aid refers to the short-term aid which is given to people in terms of distress.

1.2.4 (Non-government/Intergovernmental) organisations are private, voluntary organisations formed by individuals or a group of people, who donate money services and goods.

1.2.5 (Multilateral/Bilateral) aid is a form of aid given by large organisations such as the United Nations, the World Bank and the International Monetary Fund.

1.2.6 (Project/Programme) aid is the aid given to a specific sector, e.g. funding for the health sector of a country.

1.2.7 Aid given to countries, usually with conditions of repayment, is referred to as (conditional aid/ unconditional aid).

1.2.8 (Technical/Medical) aid is the form of aid involving educated or trained personnel who are moved to a developing country to address social problems. (8 x 1) (8)

1.3 Refer to the extract on frameworks for development below.

Madikwe has the distinction of being one of the few game reserves in the world to be proclaimed purely on the grounds of being the most appropriate and sustainable land use for an area, run as a joint venture between the state, the private sector and local communities.

The project aims to involve the local community in wealth creation through tourism, skills and training. A number of impressive projects in the local Supingstad community have been achieved so far. The social responsibility programme is delivering tangible results at the various local schools which includes the fencing and safe keeping of the school properties, upgrading the school sports fields and playgrounds, renovating school buildings and facilities, setting up vegetable gardens and computer rooms, sinking a borehole and installing guttering, water tanks and toilets with running water at the high school.

Guests visiting the lodge are offered the opportunity to visit the Supingstad schools and some traditional historical sites. The Tau foundation has also granted university sponsorship to students with academic potential and stimulates performing arts by employing the high-school learners in singer-dance groups.

. [Adapted from https://www.taugamelogde.co.za]

1.3.1 Define the term *community-based development.* (1 x 2) (2)

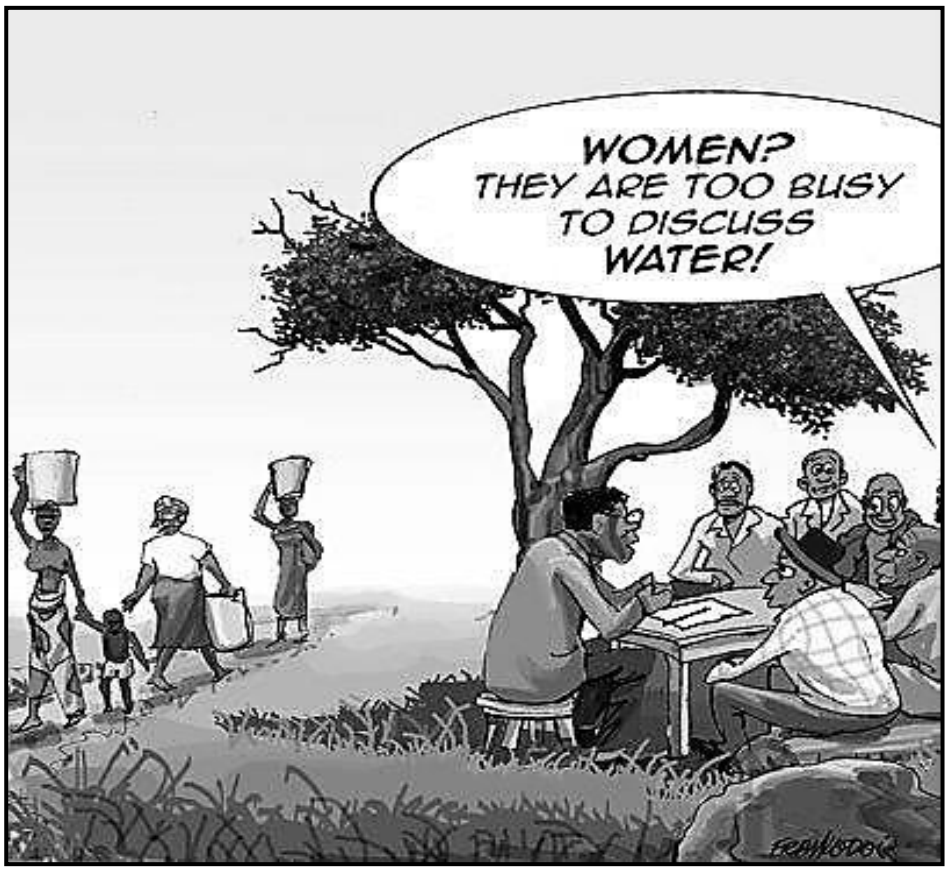
1.3.2 State ONE way in which the local schools benefit from the Tau Lodge Project. (1 x 1) (1)

1.3.3 Why is it important to involve the Supingstad community in these projects? (2 x 2) (4)

1.3.4 Why is it important to involve the government in the monitoring of these projects? (1 x 2) (2)

1.3.5 Describe THREE economic challenges faced by rural communities that hinder development possibilities. (3 x 2) (6)

1.4 Refer to the cartoon below that shows the role of women in development and which also illustrates gender roles.




[Source: Google images]

1.4.1 Explain the concept *gender roles*. (1 x 2) (2)

1.4.2 How are gender roles depicted in the sketch? (1 x 1) (1)

1.4.3 Discuss TWO gender-related issues that have led to unfair treatment of women. (2 x 2) (4)

1.4.4 In a paragraph of approximately EIGHT lines, discuss measures that the South African government has put in place to address gender inequality. (4 x 2) (8)

1.5 Study the case study on globalisation below.



[Source: https://www.healthleadersmedia.com/covid-19]

Could the coronavirus bring about the 'decline of globalisation'?'
Nobody knows how long the Covid-19 epidemic will last. If it does not become less contagious, nervous populations around the world may have to wait until a vaccine is developed and rolled out.

In any case, factory closures and production suspensions are already disrupting global supply chains. So far, at least, financial commentators have focused on cost calculations for particular sectors: automakers worried about shortages of parts; textile makers deprived of fabric; luxury-goods retailers starved of customers; and the tourism sector, where cruise ships, in particular, have become hotbeds of contagion (areas where the virus has spread rapidly).

But there has been relatively little reflection on what the new climate of uncertainty means for the global economy.

To the USA, the Chinese origins of the disease will simply reaffirm the belief that China poses a danger to the world and cannot be trusted.

***CORONAVIRUS – A very contagious virus that spreads easily amongst humans and can cause a variety of diseases that can sometimes lead to death.**

[Adapted from www.weforum.orgl]

1.5.1 Define the term *globalisation.* (1 x 2) (2)

1.5.2 What indication is there in the cartoon that a disease/virus is affecting the world? (1 x 1) (1)

1.5.3 Name the TWO powerful economies referred to in the extract. (2 x 1) (2)

1.5.4 Why is there not a good relationship between the two powerful economies named in QUESTION 1.5.4? (1 x 2) (2)

1.5.5 Discuss how globalisation contributed to the rapid spreading of the coronavirus throughout the world. (2 x 2) (4)

1.5.6 Explain why the economic impact of the coronavirus would be worse in less economically developed countries LEDCs. (2 x 2) (4)

**[60]**

## QUESTION 2: RESOURCES AND SUSTAINABILITY

2.1 Match the terms/concepts in COLUMN B with the descriptions in COLUMN A. Write ONLY the letter (A–I) next to the question numbers (1.2.1 to 1.2.8) in the ANSWER BOOK, e.g. 1.2.9 J.

| COLUMN A | | COLUMN B |
|---|---|---|
| 1.1.1 | Things people use to help them with their needs | A depletion |
| 2.1.2 | Careless use of resources that does not consider the consequences of each action | B sustainability |
| 2.1.3 | Resources that can be replaced or regenerated | C thermal electricity |
| 2.1.4 | Reduction in the supply through use of resources in large quantities | D non-renewable resources |
| 2.1.5 | Meeting today's needs without compromising the ability of future generations to meet their needs | E exploitation |
| 2.1.6 | Electricity generation using coal | F renewable resources |
| 2.1.7 | Capturing energy from the sun and converting it to electricity | G conventional energy |
| 2.1.8 | Resources that cannot be renewed or replaced | H resources |
| | | I solar electricity |

(8 x 1) (8)

2.2 Give ONE word/term for each of the following descriptions by choosing a word/term from the list below. Write only the word/term next to the question numbers (2.2.1 to 2.2.7) in the ANSWER BOOK, e.g. 2.2.8 sustainability.

| |
|---|
| conventional energy; carbon footprint; Kyoto Protocol; green economy; greenhouse gases; energy management; global warming; non-conventional energy |

2.2.2 Measures the amount of greenhouse gases produced by human activities

2.2.2 An economy that encourages sustainable development

2.2.3 Measures taken to regulate the type and amount of energy used

2.2.4 An agreement made in 1997 to reduce emissions of greenhouse gases

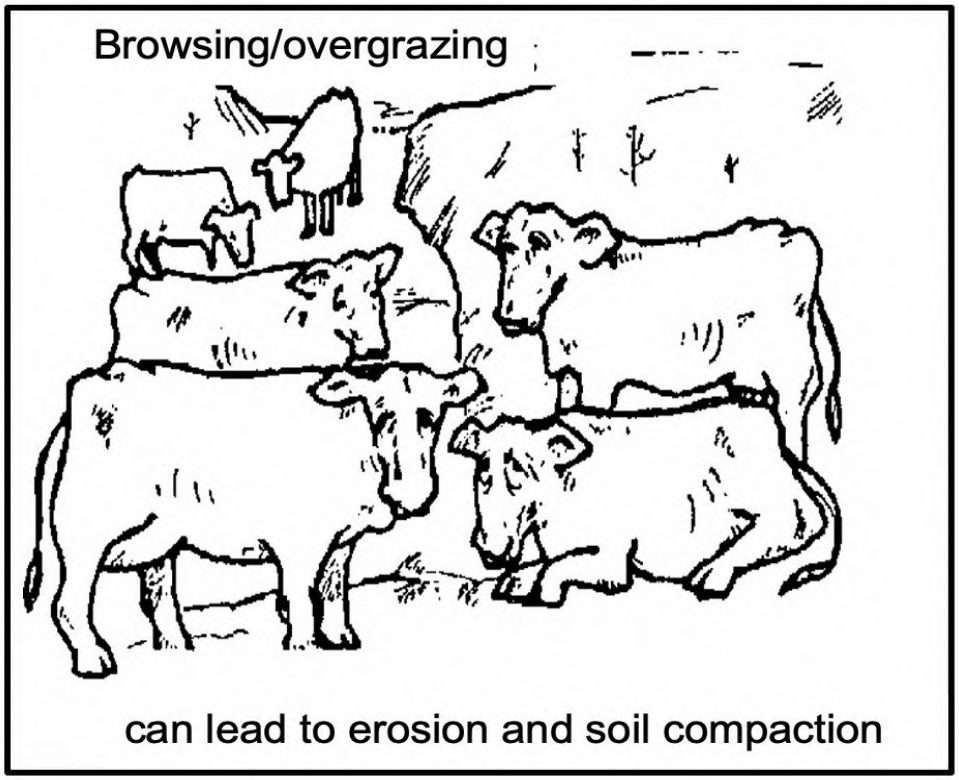
2.2.5 A gradual increase in the overall temperature of the Earth's atmosphere

2.2.6 Methane, nitrous oxide and carbon dioxide are examples

2.2.7 Biofuels are examples (7 x 1) (7)

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2.3 Refer to the sketch on soil erosion below.




[Source: www.ndzl.org]

2.3.1 Define the concept *soil.* (1 x 2) (2)

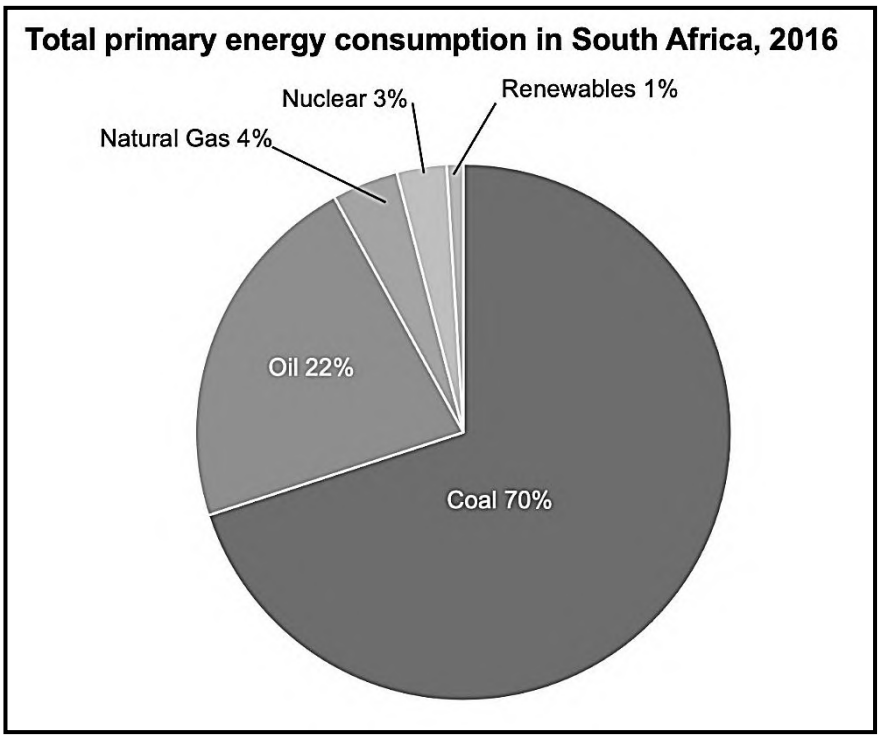
2.3.2 Identify the cause of soil erosion illustrated in the sketch above. (1 x 1) (1)

2.3.3 Explain how the cause identified in QUESTION 2.3.2 leads to soil erosion. (2 x 2) (4)

2.3.4 Give TWO negative impacts of soil erosion on developing countries. (2 x 2) (4)

2.3.5 Discuss TWO strategies that developing countries can apply to overcome soil erosion. (2 x 2) (4)

2.4 Refer to the pie graph below showing primary energy consumption in South Africa.




[Adapted from *BP Statistical Review of World Energy 2017*]

2.4.1 Define *conventional energy source*. (1 x 2) (2)

2.4.2 Calculate the total percentage of the conventional energy sources used in South Africa in 2016. (1 x 1) (1)

2.4.3 Which conventional energy source is used the most in the pie graph shown above? (1 x 1) (1)

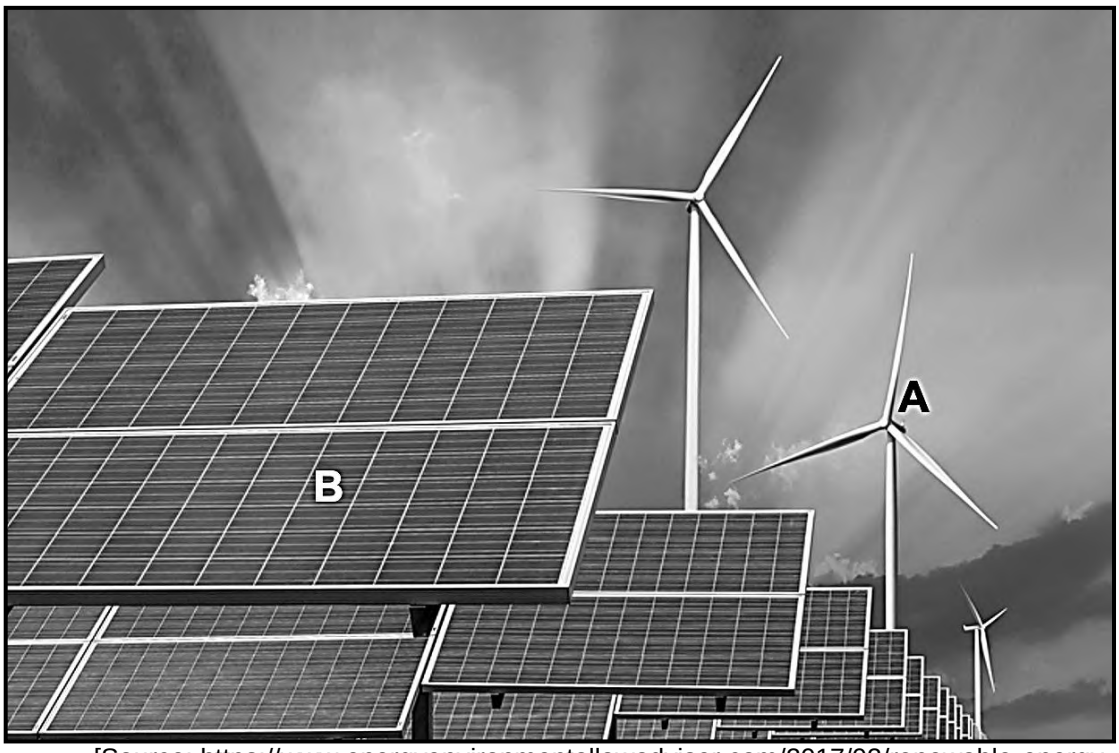
2.4.4 (a) Is the energy source named in QUESTION 2.4.3 sustainable or unsustainable? (1 x 1) (1)

(b) Give ONE reason for your answer to QUESTION 2.4.3(a). (1 x 2) (2)

2.4.5 Explain why South Africa relies heavily on thermal energy for the generation of power. (2 x 2) (4)

2.4.6 Discuss TWO impacts of thermal power stations. (2 x 2) (4)

2.5 Refer to the photograph below that illustrates non-conventional sources of energy.




[Source: https://www.energyenvironmentallawadviser.com/2017/02/renewable-energy-development-can-still-look-to-purpa-as-new-administrationmovesin/]

2.5.1 What are *non-conventional sources of energy*? (1 x 2) (2)

2.5.2 Identify the non-conventional sources of energy **A** and **B** in the photograph above. (2 x 1) (2)

2.5.3 Give ONE benefit of solar energy for South Africa's current energy generation situation. (1 x 1) (1)

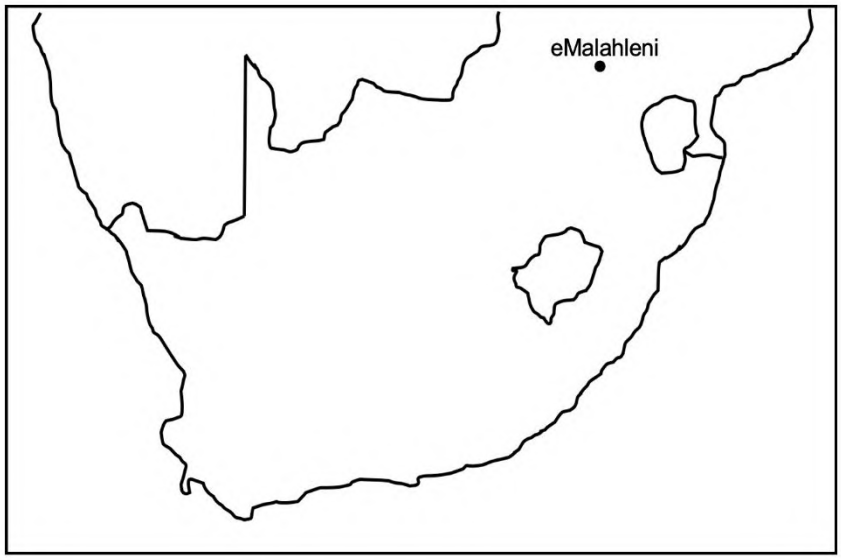
2.5.4 Explain ONE negative environmental impact that wind turbines used to generate wind energy can have on the environment. (1 x 2) (2)

2.5.5 In a paragraph of approximately EIGHT lines, discuss 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

### GENERAL INFORMATION ON EMALAHLENI




**eMalahleni** (previously known as Witbank) is a city situated on the Highveld of Mpumalanga and lies halfway between Johannesburg and Nelspruit.

Established in 1890 as Witbank, the city is known for its coal-mining in the surrounding region. The city has grown rapidly around heavy industry, and a coal-fired power station at the Witbank Dam supplies electricity to a wide area. In eMalahleni, the average annual temperature is 15,4 °C. About 693 mm of precipitation falls annually.

## QUESTION 3

### 3.1 MAP SKILLS AND CALCULATIONS

Various options are provided as possible answers to QUESTIONS 3.1.1 and 3.1.2. Choose the answer and write only the letter (A–D) next to the question numbers (3.1.1 and 3.1.2) in the ANSWER BOOK.

3.1.1 eMalahleni is situated in …

A Gauteng.
B KwaZulu-Natal.
C Mpumalanga.
D the Western Cape. (1 x 1) (1)

3.1.2 The feature on the topographic map at 25º54'50"S 29º12'45"E is a/an …

A cutline.
B sinkhole.
C mine.
D aerodrome. (1 x 1) (1)

3.1.3 Calculate, in $km^2$, the average area of the orthophoto map, demarcated with a red block on the topographic map. Show ALL calculations. Marks will be awarded for calculations. Clearly indicate the unit of measurement in your final answer.

**Formula: Area = length (L) x breadth (B)** (5)

3.1.4 Why is the size of features on the orthophoto map different from the same features in the red block on the topographic map? (1 x 1) (1)

3.1.5 State TWO ways in which height is represented in block **G4**. (2 x 1) (2)

## 3.2 MAP INTERPRETATION

Various options are provided as possible answers to QUESTION 3.2.1 and 3.2.2. Choose the answer and write only the letter (A–D) next to the question numbers (3.2.1 and 3.2.2) in the ANSWER BOOK.

3.2.1 The name of the city eMalahleni is a reflection of the mineral mined in the area. eMalahleni means 'place of …'.

A gold
B diamonds
C coal
D iron (1 x 1) (1)

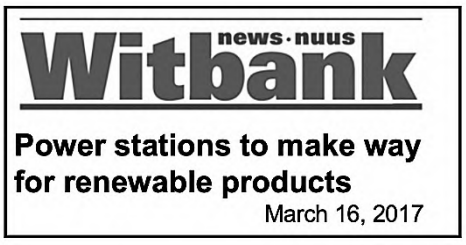
3.2.2 The main activity found in blocks **J1**–**K1** is …

A manufacturing.
B farming.
C mining.
D education. (1 x 1) (1)

3.2.3 Why can the mineral mined in the mapped area be classified as a non-renewable resource? (1 x 2) (2)

3.2.4 Why is the area in blocks **C4/5** and **D4** NOT suitable for new housing developments? (1 x 2) (2)

3.2.5 Refer to the newspaper headline below.


news·nuus
Witbank
**Power stations to make way for renewable products**
March 16, 2017

Name ONE non-conventional energy source that could replace the thermal power stations of eMalahleni (Witbank) in the future. (1 x 2) (2)

3.2.6 Describe TWO impacts, visible on the map, that mining activities has had on the environment in this area. (2 x 2) (4)

## 3.3 GEOGRAPHICAL INFORMATION SYSTEM (GIS)

Various options are provided as a possible answer to QUESTION 3.3.1. Choose the answer and write only the letter (A–D) next to the question number (3.2.1) in the ANSWER BOOK.

3.3.1 The observation of Earth from a distance, using satellites, is called remote …

A data.
B vision.
C observation.
D sensing. (1 x 1) (1)

3.3.2 Define the concept *attribute data*. (1 x 2) (2)

3.3.3 Give ONE example of attribute data with respect to the golf course in block **F6**. (1 x 1) (1)

3.3.4 Why would a mining company use the following GIS information layers before they start open-cast mining in the mapped area?

(a) Geology

(b) Infrastructure (2 x 2) (4)

**[30]**

**TOTAL: 150**

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# NATIONAL SENIOR CERTIFICATE

## GRADE 11

## GEOGRAPHY P2

## EXEMPLAR 2022

## MARKING GUIDELINES

**MARKS: 150**

**These marking guidelines consist of 11 pages.**

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## SECTION A: DEVELOPMENT GEOGRAPHY AND RESOURCES AND SUSTAINABILITY QUESTION 1: DEVELOPMENT GEOGRAPHY

| | | | | |
|---|---|---|---|---|
| 1.1 | 1.1.1 | C | | |
| | 1.1.2 | C | | |
| | 1.1.3 | D | | |
| | 1.1.4 | C | | |
| | 1.1.5 | A | | |
| | 1.1.6 | A | | |
| | 1.1.7 | B | (7 x 1) | (7) |
| 1.2 | 1.2.1 | Development | | |
| | 1.2.2 | Bilateral | | |
| | 1.2.3 | Humanitarian | | |
| | 1.2.4 | Non-government organisations | | |
| | 1.2.5 | Multilateral | | |
| | 1.2.6 | Programme | | |
| | 1.2.7 | Conditional | | |
| | 1.2.8 | Technical | (8 x 1) | (8) |
| | 1.3.1 | The development which takes place within a community (2)<br>**[Concept]** | (1 x 2) | (2) |
| | 1.3.2 | Fencing and safe keeping of the school properties (1)<br>Upgrading the school sports fields and playgrounds (1)<br>Renovating school buildings and facilities (1)<br>Setting up vegetable gardens, computer rooms (1)<br>Sinking a borehole and installing guttering (1)<br>Water tanks and toilets with running water at the high school (1)<br>**[ANY TWO]** | (1 x 1) | (1) |

1.3.3 Community members are able to acquire skills. (2)
The jobs created prevent people from participating in criminal activities (2)
The projects provide a sense of inclusion. (2)
They bring unity and everyone learns to value one other (2)
**[ANY TWO]** (2 x 2) (4)

1.3.4 To check first if the project is relevant to the chosen community. (2)
**[ANY ONE]** (1 x 2) (2)

1.3.5 Lack of funding and knowledge to increase agricultural productivity, this keep people at the level of communal farming. (2)
Resources such as wood, water and soil are over utilised. (2)
Soil erosion and overgrazing is a challenge. (2)
Most people are unemployed and therefore poor. (2)
Limited income because of fewer job opportunities. (2)
High cost of living because more money is spent on basic food, shelter, energy, health, education and transport. (2)
Infrastructure is poorly developed, this results in costly transport. (2)
Isolation from economic activities. (2)
Low standard of living. (2)
Farmers are not trained to practise commercial farming; livestock owners make very little profit especially during droughts. (2)
HIV and Aids. (2)
**[ANY THREE]** (3 x 2) (6)

1.4.1 Men and women do different things in society. (2)
**[Concept]** (1 x 2) (2)

1.4.2 Men discuss important matters and women are excluded. (1)
Women take care after children and fetch water. (1)
Domestic work is for women. (1)
Women's opinions on important matters are not considered. (1)
Women are considered inferior to men. (1)
**[ANY TWO]** (1 x 1) (1)

1.4.3 Women are predominantly seen as the caregivers and homemakers. (2)
Women are not encouraged to have an opinion or seek an education and many accept their roles. (2)
In many cultures women are seen as belonging firstly to their fathers and after that belonging to their husbands. (2)
Traditionally women have very little access to resources (education, property and employment). (2)
In many developing countries women are still not able to own land and therefore are involved in subsistence agriculture. (2)
They are offered the lowest paying jobs or work in the informal sector.(2)

In developing countries women are not involved in any decision- making processes. (2)
Many laws exist to prevent discrimination against women but are seldom upheld by governments. (2)
Some societies do offer their women equal rights but still may suffer different forms of discrimination. (2)
Girls and women suffer sexual abuse and violence. (2)
**[ANY TWO]** (2 x 2) (4)

1.4.4 Increasing number of women in management position. (2)
Awareness campaigns against violence to women. (2)
More women in politics. (2)
More women in fields traditionally associated with men. (2)
Harsher prison sentences for perpetrators of women abuse. (2)
Policies have been developed that aim at ensuring gender equality. (2)
Women given opportunities in professional fields. (2)
**[ANY FOUR]** (4 x 2) (8)

1.5.1 Globalisation is the increased connection between countries around the world made possible by improved transport and telecommunication systems and reduced barriers to international trade. The world has become a smaller place. (1)
**[CONCEPT]** (1 x 2) (2)

1.5.2 The picture shows vaccine being administered worldwide. (1)
(1 x 1) (1)

1.5.3 USA/America (1)
China (1) (2 x 1) (2)

1.5.4 They are trade competitors vying for global markets. (2)
The coronavirus originated in China and they are being blamed for the spread of the virus. (2)
**[ANY ONE]** (1 x 2) (2)

1.5.5 Liberalisation of trade has been stimulated by globalisation, so the continual international export and import of goods has caused the virus to spread across countries (2)
Globalisation has created a global workforce where people move across international borders on a regular basis, which can spread the disease (2)
Open borders in line with liberalisation of trade has caused an influx of immigrants into countries which can cause the disease to spread (2)
Tourism that stimulates economic growth has been encouraged which causes the disease to spread (2)

**[ANY TWO]** (2 x 2) (4)

1.5.6 Multinational corporations would be forced to close their operations (2)
LEDCs do not have the economies to compensate unemployed people adequately (2)
There would be not be enough money to bail out small and large businesses (2)
This would lead to greater unemployment (2)
Much of the money in the country would have to be used to buy emergency medical equipment (2)
Lockdown in the country would halt the economy (2)
Lockdown would come at great economic expense (2) The governments of LEDCs would have to take loans at high interest rates (2)
Some of these loans from MEDC's would come with economic conditions that would tie down LEDC's (2)
**[ANY TWO]** (2 x 2) (4)
**[60]**

## QUESTION 2: RESOURCES AND SUSTAINABILITY

2.1 2.1.1 H

2.1.2 E

2.1.3 F

2.1.4 A

2.1.5 B

2.1.6 C

2.1.7 I

2.1.8 D (8 x 1) (8)

2.2 2.2.1 Carbon footprint

2.2.2 Green economy

2.2.3 Energy management

2.2.4 Kyoto Protocol

2.2.5 Global warming

2.2.6 Greenhouse gases

2.2.7 Non-conventional energy (7 x 1) (7)

2.3 2.3.1 Thin layer of loose organic and weathered material found on the Earth's surface. (1)
**[CONCEPT]** (1 x 2) (2)

2.3.2 Overgrazing (1 x 1) (1)

2.3.3 If too many animals graze on a piece of land the vegetation will be completely depleted. (2)
This will result in the soil being bare and it will then be easily picked by wind or water. (2)
Bare ground becomes stamped down (compacted) and no plant growth takes place. (2)
**[ANY TWO]** (2 x 2) (4)

2.3.4 The land becomes less productive for agriculture. (2)
Soil and fertilizers eroded into rivers can damage freshwater and kill marine habitats which serve as food to the local communities. (2)
Flooding becomes more common. (2)
Famine since little vegetation is able to grow on land. (2)
Rural-urban migration due to food shortages and food insecurity. (2)
**[ANY TWO]** (2 x 2) (4)

2.3.5 Promote more sustainable agriculture. (2)
Reduce deforestation. (2)
Prevent desert expansion. (2)
Proper soil management reduces the risk of severe soil erosion. (2)
Afforestation programmes (2)
Encouraging crop rotation to increase soil stability. (2)
Educating farmers on proper farming techniques. (2)
Practicing rotational grazing. (2)
**[ANY TWO]** (2 x 2) (4)

2.4 2.4.1 When we cannot reuse a source of energy after using it once, it is called a 'conventional source of energy'. (1)

It is not replenished with the speed at which it is consumed. (1)
**[CONCEPT]** (1 x 2) (2)

2.4.2 Coal = 70% + Nuclear = 3% + Oil = 22% + natural gas = 4%
= 99% (1) (1 x 1) (1)

2.4.3 Coal (1) (1 x 1) (1)

2.4.4 (a) Unsustainable. (1) (1 x 1) (1)

(b) Coal is non-renewable. (2)
Once used it cannot be replaced and no electricity can be generated. (2)
**[ANY ONE]** (1 x 2) (2)

2.4.5 Large coal reserves in South Africa (2)
Coal seams close to surface and easily obtained. (2)
Relatively cheap to produce electricity. (2)
Coal-fired power stations are reliable. (2)
South Africa's infrastructure to generate electricity from coal is well established. (2)
**[ANY TWO]** (2 x 2) (4)

2.4.6 Environmental despoliation (2)
Produce solid wastes. (2)
Produce greenhouse gases when it is burnt. (2)
Gases emitted pollute the atmosphere. (2)
Gases emitted cause acid rain. (2)
Surface coal mining may dramatically alter the landscape even (2)
though mining companies are supposed to restore the mined area. (2)
Burning coal is a leading cause of smog, global warming, and air toxins. (2)
**[ANY TWO]** (2 x 2)

2.5 2.5.1 They are energy sources that are renewable/energy sources that are new and alternative (1) (1 x 2) (2)

2.5.2 Solar (1)
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 to 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]** (1 x 1) (1)

2.5.4 Turning rotor blades can kill birds, bats, insects (2)
This affects ecosystems and can reduce the biodiversity of the area (2)
They cause 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)
**[ANY FOUR]** (4 x 2) (8)
**[60]**

## SECTION B: GEOGRAPHICAL SKILLS AND TECHNIQUES

## QUESTION 3

## 3.1 MAP SKILLS AND CALCULATIONS

3.1.1 C (1 x 1) (1)

3.1.2 B (1 x 1) (1)

3.1.3 ✓
Length: $\frac{4{,}2 \text{ cm} \times 50\,000}{100\,000}$

✓
Breadth: $\frac{3{,}8 \text{ cm} \times 50\,000}{100\,000}$

✓ ✓
= 2,1 km x 1,9 km

= 3,99 $km^2$ ✓ (5)

3.1.4 The scale of the orthophoto map is larger (1 : 10 000) OR
The scale of the topographic map is smaller (1 **:** 50 000)(1) (1 x 1) (1)

3.1.5 Contour line (1)
Benchmark (1) (2 x 1) (2)

## 3.2 MAP INTERPRETATION

3.2.1 C (1 x 1) (1)

3.2.2 B (1 x 1) (1)

3.2.3 It cannot be replaced or replenished (2) (1 x 2) (2)

3.2.4 Open-cast mining (2) (1 x 2) (2)

3.2.5 Solar energy (2)
Wind energy (2) (1 x 2) (2)

3.2.6 Sinkholes (2)
Diggings (2)
Open cast mines (2)
**[ANY TWO]** (2 x 2) (4)

## 3.3 GEOGRAPHICAL INFORMATION SYSTEM (GIS)

3.3.1 D (1 x 1) (1)

3.3.2 Non-spatial information about a geographic feature in GIS (1)
(1 x 2) (2)

3.3.3 Its name (1)
Size (1)
How many holes (1)
Restaurant on premises (1)
Housing on golf estate (1)
**[ANY TWO]** (1 x 1) (1)

3.3.4 (a) To establish where coal is found (2)
(b) To establish what infrastructure exists and what is needed (2) (2 x 2) (4)
**[30]**

**TOTAL: 150**

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