

GEOGRAPHY

2025 SPRING SCHOOL AND LAST PUSH

GRADE 12

GUIDE FOR TEACHERS AND LEARNERS



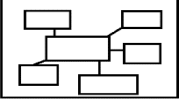

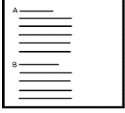

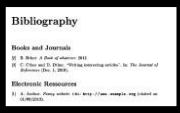

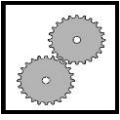



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ICON DESCRIPTION

 <p>MIND MAP</p>	 <p>EXAMINATION GUIDELINE</p>	 <p>CONTENTS</p>	 <p>ACTIVITIES</p>
 <p>BIBLIOGRAPHY</p>	 <p>TERMINOLOGY</p>	 <p>WORKED EXAMPLES</p>	 <p>STEPS</p>

GEOGRAPHY EXAMINATION TIPS

Paper, **ONE** comprises of **Climatology**; **Geomorphology** and **Mapwork**.

Paper **TWO** comprises of **Settlement Geography**; **Economic Geography** and **Mapwork**.

Learners are encouraged to read instructions carefully before answering the question paper.

Instructions provide important information with regards to the length of responses and to indicate the unit in all steps of calculations...

Highlighting the instructional verbs and important aspects of the question will assist learners in interpreting the question correctly.

Geographical issues are often assessed, and thorough preparation is crucial. Learners should focus on:

- the causes and impacts
- both negative and positive impacts,
- Impact on human activities (social and economic) and the environment
- possible solutions or sustainable strategies/measures to be implemented to overcome these issues.

Paragraph writing

- Knowledge of paragraph writing skills is essential.
- Learners need to write in full sentences and **NOT** use bullets or point form.
- Four points (if required) must be explained(4x2) (8).;
- Answers in most instances require a factor and a qualification.
- Learners should underline or highlight the main topic of the question, the instructional verb, and the focus areas of the question.
- Make at least four points and then elaborate on each point.
- Learners know all the geographical concepts and definitions required.
- Learners must know all the geographical concepts and definitions required.
- Learners should compile a glossary of terms/concepts and an explanation of each in their notebooks for easy reference.

DAY 1 ECONOMIC GEOGRAPHY EXAMINATION GUIDELINES



1.1 Economic Geography of South Africa

- Economic sectors – definitions and examples:
 - Primary
 - Secondary
 - Tertiary
 - Quaternary
- Contribution of economic sectors to the South African economy:
- Definition, interpretation of, value and contribution to, GNP and GDP
Use/Interpretation of statistical and graphical information.
Employment (linked to different sectors, interpretation, and application)
- **Agriculture**
 - Contribution of agriculture to the South African economy
 - Small-scale farming and large-scale farming: definition, characteristics, and interpretation
 - Main products produced (definition and examples)- home market and export market

NOTE: Instruction at the beginning of the section on Economic Geography

EXAMINATION	YEAR	PRESCRIBED AGRICULTURAL PRODUCT
November 2025 May/June 2026	2025/26	Sugar Cane

- Areas of production on a map, identification and interpretation
- Apply factors that favour and hinder agriculture in South Africa to the product studied.
- Contribution of prescribed product to the South African economy

Food security:

- Definition of food security and food insecurity
- Importance of food security in South Africa
- Factors influencing food security in South Africa
- Strategies to improve food security in South Africa
- Case studies related to food security and food insecurity in South Africa.

Mining

- Contribution of mining to the South African economy
- Significance of mining to the development of South Africa
- A case study of one of South Africa's main minerals produced

Grade 12 summary notes 2025

NOTE: Instruction at the beginning of the section on Economic Geography

EXAMINATION	YEAR	PRESCRIBED MINERAL
November 2025 May/June 2026	2025/26	Gold

- Location of mineral studied on a map, identification and interpretation
- Apply factors that favour and hinder mining in South Africa to the main minerals above
- Contribution of prescribed mineral to the South African economy

EXAMINATION	YEAR	PRESCRIBED CORE INDUSTRIAL REGION
November 2025 May/June 2026	2025/26	Gauteng (PWV) Durban-Pinetown

Secondary and Tertiary Sectors

- South Africa's core/main industrial regions:
- Gauteng (PWV),
- Durban Pinetown (eThekweni)
- Location of the **FOUR** core industrial regions on a map

Types of industries (definition, description, examples and characteristics):

- Heavy and light
- Raw material orientated
- Market orientated
- Footloose industries
- Ubiquitous industries
- Bridge (Break of bulk)

Factors favouring industrial development in South Africa:

- Raw materials
- Labour supply
- Water supply
- Energy supply
- Transport
- Political intervention
- Competition
- Trade

Factors hindering industrial development in South Africa:

- Over-concentration
- Transport
- Air pollution
- Labour supply
- Water supply
- Energy supply
- Raw materials
- Political interference
- Competition
- Trade

Strategies for Industrial Development

- Overview of apartheid industrial development strategy:
- The Good Hope Plan

Overview of post-apartheid industrial development strategies:

- The Reconstruction and Development Programme (RDP)
- Growth, Employment and Redistribution (GEAR)
- Industrial Development Zones (IDZs) and spatial development Initiatives (SDIs):
- Case studies of two Industrial Development Zones (IDZs) and Spatial Development initiatives (SDIs):

EXAMINATION	YEAR	IDZ	SDI
November 2025	2025/26	Dube Trade port	Maputo Corridor
May/June 2026			

Key facts to concentrate on regarding the prescribed IDZ's and SDI's

- Definition and difference between an IDZ and SDIs
- Map showing the location of prescribed IDZs and SDIs
- Factors influencing the location of the prescribed IDZs and SDIs
- Main industrial activities
- Factors that favour and hinder the development of the prescribed IDZs and SDIs
- Economic and social impacts
- Case studies to illustrate the above

The informal sector

- Concept of informal sector employment
- Characteristics of informal sector employment
- Reasons for high informal sector employment in South Africa
- Challenges facing South Africa's informal sector
- Importance/Role of the informal sector in the economy
- Strategies for strengthening the informal sector
- Case studies to illustrate the above in the South African context

IMPORTANT TERMS AND DEFINITIONS



Imports

Goods and services brought from outside countries

Exports

Goods and services sold to outside countries

Gross national product

Total value of goods and services produced in a country in a particular year

Industrial Development Zones

areas away from core industrial areas earmarked for industrial development.

The available infrastructure (seaport or airport) makes possible for export-orientated manufacturing industries

Spatial Development Initiatives

investment strategy that aims to unlock inherent economic potential in specific spatial locations in southern Africa

Foreign exchange

The money paid to South-Africa by other countries in exchange for goods and services. (Money earner by SA)

Balance of trade

The difference in value between the visible imports and exports

Informal Sector

The unregistered and unregulated sector of the economy which includes hawking and street vending. They do not pay tax and are not monitored by government.

Gross Domestic product

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

Home market

Products sold within the country South Africa

Export Market

Goods that are produced for export markets

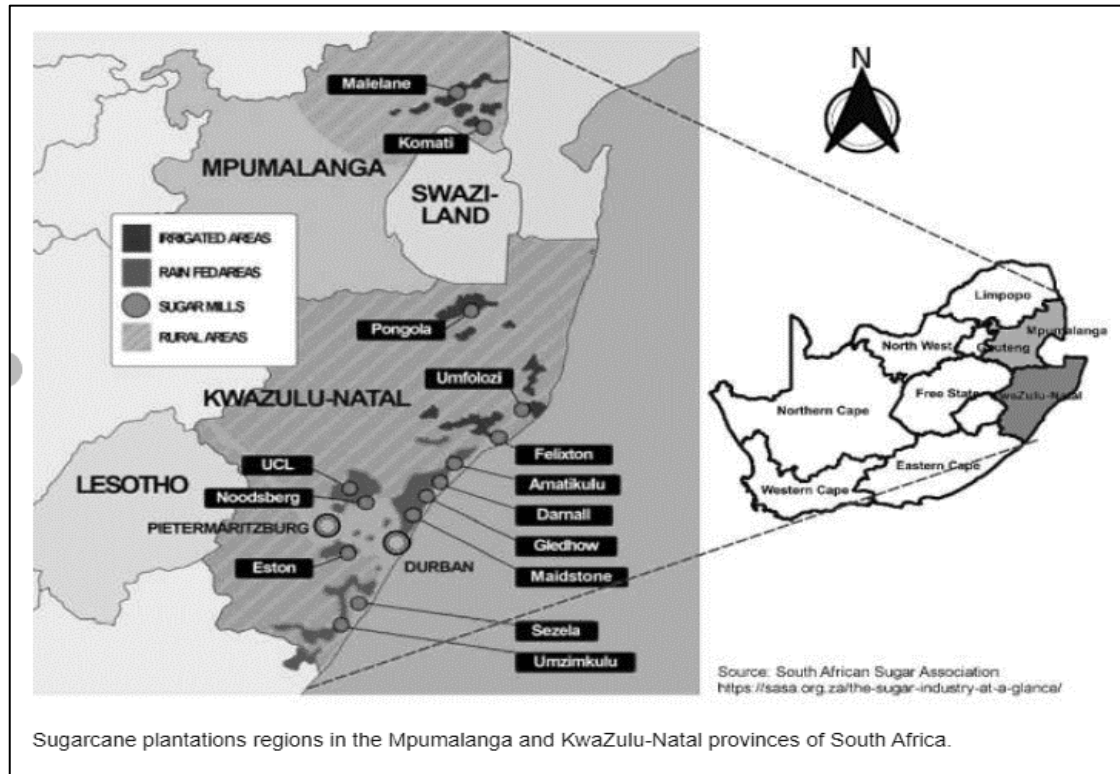
Food insecurity

When most people have lack of access to quality, nutritious food in a country for sustainable living.

Primary Activities

SUGAR CANE FARMING IN SOUTH AFRICA

AREAS OF PRODUCTION ON THE MAP

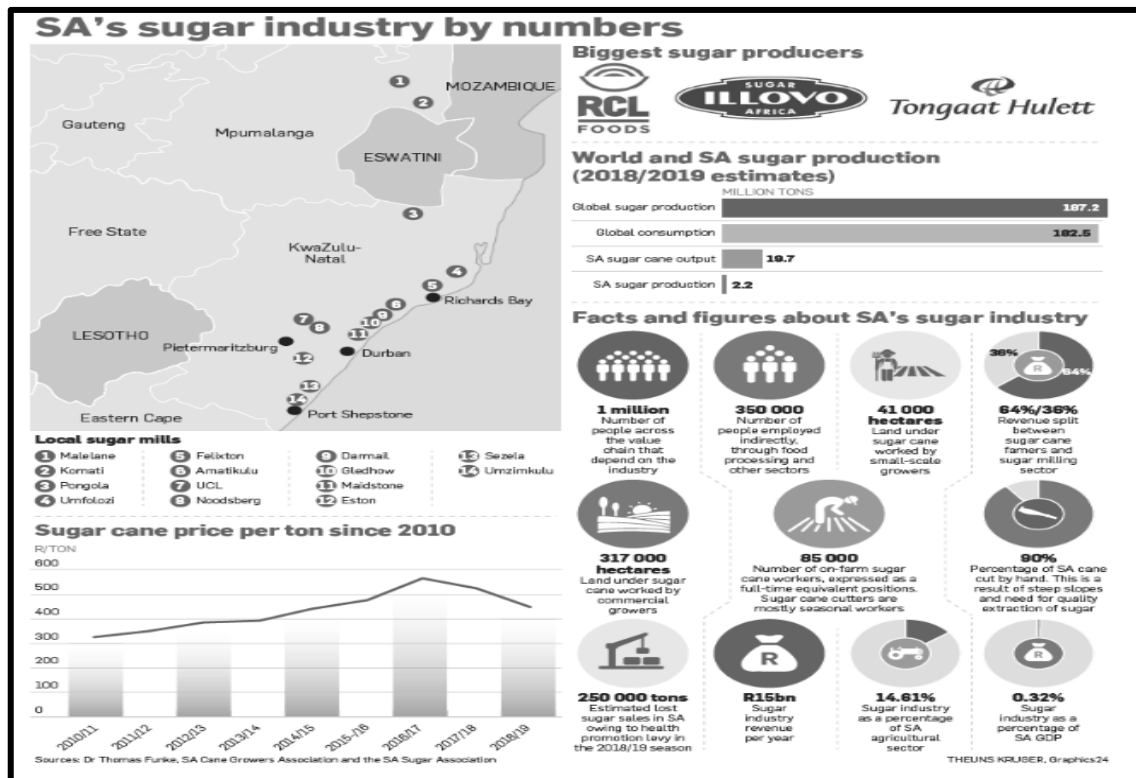


- The South African sugar industry is consistently ranking in the top 15 out of approximately 120 sugar producing countries worldwide.
- There are approximately 26,400 registered sugarcane growers in South Africa, covering the provinces of KwaZulu-Natal, Mpumalanga and the Eastern Cape.
- There are 14 sugar mills in South Africa. Four mills are owned by Illovo Sugar Ltd and Tongaat Hulett Sugar Ltd. Three mills are owned by Tsb Sugar RSA Ltd , while Umfolozi Sugar Mill (Pty) Ltd, UCL Company Ltd and Gledhow Sugar Company (Pty) Ltd each own one mill.
- Only two mills are located in the Mpumalanga province, while the remainder is located in the KwaZulu-Natal province.
- South Africa continues to be one of the world's most cost-competitive producers of high-quality sugar.
- It is a diverse industry combining the agricultural activities of sugarcane cultivation with the industrial factory production of raw and refined sugar, syrups and specialised sugars, and a range of by-products.

IMPORTANCE OF SUGAR CANE PRODUCTION

- Makes an important contribution to the national economy through:
 - its agricultural and industrial investments,
 - foreign exchange earnings,
 - its high employment, and its
 - linkages with major suppliers, support industries and customers'
- Direct employment within the sugar industry is approximately 85 000 jobs.
- South African sugar industry generates an annual estimated average direct income of R14 billion. This constitutes R 5.1 billion in value of sugarcane production in South Africa.

- The sugar industry provides indirect employment in numerous support industries in the two provinces where sugarcane is grown and processed, namely KwaZulu-Natal and Mpumalanga. Indirect employment is estimated at 350 000.

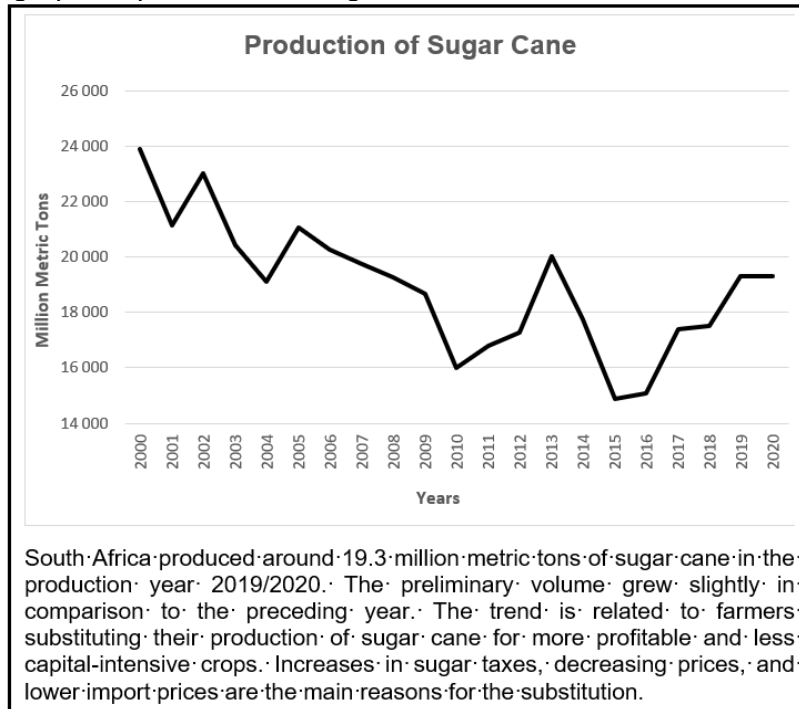


Challenges faced by sugar cane industry

- There has been a general decline in sugar cane production in the country over the past 15 years due to adverse weather conditions.
- There is diminishing profitability in growing cane given the input costs versus financial returns and limited capital availability.
- In terms of tariffs, the sugar industry is arguably one of the most protected in South Africa; it is also amongst the most heavily taxed, both domestically and globally.
- Taxes such as the Health Promotion Levy (sugar tax) are aimed at reducing rising levels of diabetes and obesity.
- High local production costs when compared with other sugar exporters, deteriorating infrastructure, sugar 'dumping', and levies have been highlighted as the main issues.

Activity 1

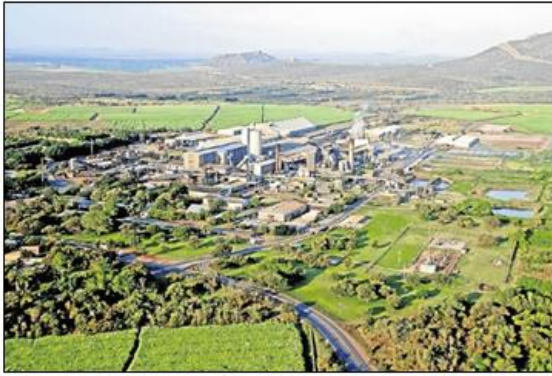
Refer to the graph on production of sugar cane in South Africa



- 1.1.1 Under which economic activity can sugar cane farming be classified? (1x1) (1)
- 1.1.2 Name TWO provinces of South Africa where sugar cane is mostly grown. (2x1) (2)
- 1.1.3 Comment on the trend of sugar production over the last two decades. (1x2) (2)
- 1.1.4 Quote evidence from the extract for the decline in sugar production in South Africa (1x2) (2)
- 1.1.5 In 2018, South Africa introduced a sugar tax. Evaluate possible impacts this might have had on the sugar industry (2x2) (4)
- 1.1.6 Suggest possible measures that the government can put in place to assist sugar cane producers and the sugar industry (2x2) (4)

Activity 2

TSB SUGAR BRINGS SWEET NEWS TO LOCALS



When Remgro subsidiary TSB Sugar realized that it was about to lose 60% of its fields owing to successful land claims, management sprang into action. Instead of shutting down the company's mills, TSB decided to get involved in providing technical and management expertise to the new landlords, transforming them into

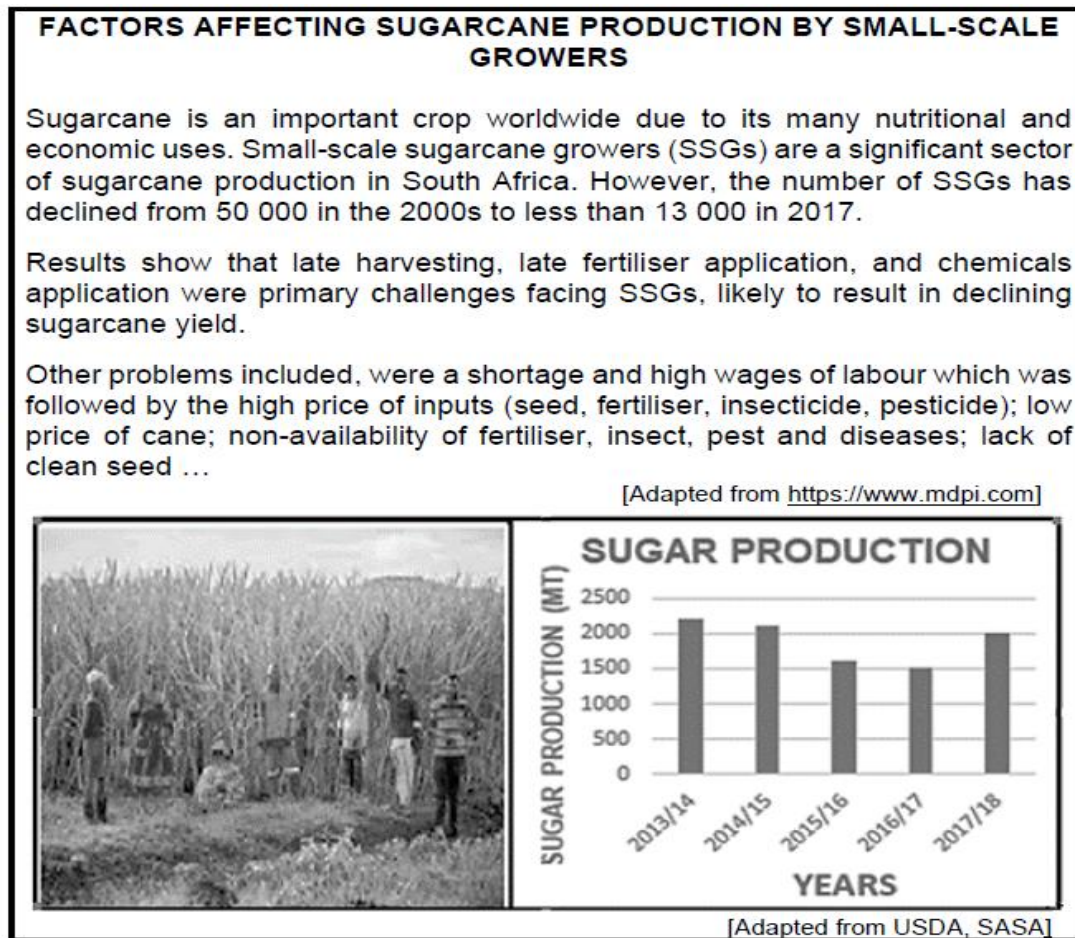
commercial cane growers almost overnight. Ten years on, TSB is provides professional agricultural services to its new partners, who have become the company's main cane suppliers. In this, TSB joined its competitors Illovo and Tongaat Hulets, which run extensive out-grower scheme as part of a model considered among the most empowering for starting up small black farmers.

[Source: businesslive.co.za]

- | | | | |
|-------|--|-------|-----|
| 2.1.1 | Name the main raw material used in the production of sugar. | (1x1) | (1) |
| 2.1.2 | Identify TWO sugar producing companies from the extract considered to be competitors of TSB. | (2x1) | (2) |
| 2.1.3 | Describe ONE physical factor favoring sugar cane farming for TSB. | (1x2) | (2) |
| 2.1.4 | Explain strategies that can be put in place to improve production for the new cane growers. | (2x2) | (4) |
| 2.1.5 | Discuss the benefits of transforming the new landowners into commercial cane growers. | (3x2) | (6) |

Activity 3

Refer to the infographic on sugarcane farming and production.



- 3.1.1 Identify a physical factor in the extract that had a negative impact on the sugarcane production in 2013–2017 (1x1) (1)
- 3.1.2 By how many metric tons (MT) did the sugar cane production decrease from 2013/14 to 2016/17? (1x2) (2)
- 3.1.3 Suggest TWO ways in which the government can assist small-scale sugarcane farmers to increase production. (2x2) (4)
- 3.1.4 In a paragraph of approximately EIGHT lines, explain the economic challenges that currently impact negatively on the sugarcane industry. (4x2) (8)

IMPORTANCE OF FOOD SECURITY IN SA

Food security refers to the availability of well-balanced meals on a regular basis

South Africa has high unemployment levels and high poverty levels. Hence, many individuals and families have no food security at all.

South Africa faces moderate risk of food insecurity along with several other African states.

Factors contributing to Food Insecurity	How to improve on food security
Population growth Unemployment Poor soils Environmental degradation Uneconomical farm units Government corruption War and conflict Lack of capital to purchase equipment Shift to biofuel production Trade policies	Empowering women Planting a variety of crops Diversity of climate regions Sustainable agriculture Land reform programs & land redistribution strong trade relations Diversification of rural economies Processing crops Prevent soil erosion Efficient ways of storing food Reduce water wastage

Activity 4

- 4.1 Various options are provided as possible answers to the following questions. Choose the answer and write down only the letter (A – D) next to the question number (1.1.1 – 1.1.5) in the ANSWER BOOK, for example 1.1.9 B.

4.1.1 ... is when a country has sufficient and nutritious food that is accessible to all its people.

- A Food insecurity
- B Famine
- C Malnutrition
- D Food security

4.1.2 A negative economic factor that affects the production of food in a country is

- A a lack of capital.
- B pests and diseases.
- C drought and floods.
- D technology and mechanization.

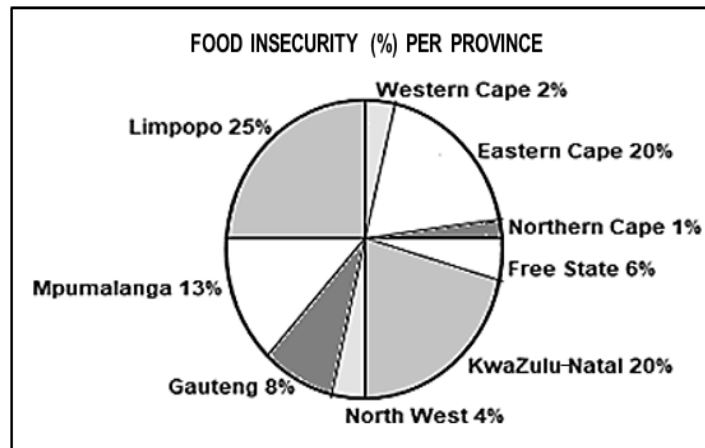
4.1.3 An advantage of planting genetically modified crops to improve food security is.

- A that seeds can be recycled from new crops.
- B greater resistance to pests and diseases.
- C that production costs are lower.
- D that farmers have easy access to seed.

4.1.4 A social advantage of food secure countries with is that they ...

- A import less food.
- B have reduced poverty
- C export more food.
- D have increased poverty

Refer to the graph on food insecurity to answer QUESTIONS 1.1.5 to 1.1.7.



[Examiner's own sketch]

4.1.5 The province with the highest percentage of food insecurity in South Africa is

- A Northern Cape
- B Gauteng
- C Eastern Cape
- D Limpopo

4.1.6 Gauteng has a low percentage of food insecurity because of increased production from..... farmers and a higher rate.

- (i) subsistence
- (ii) large-scale
- (iii) employment
- (iv) crime

- A (i) and (iii)
- B (i) and (iv)
- C (ii) and (iii)
- D (ii) and (iv)

4.1.7 Provinces where the core industrial regions are located account for... of the food insecurity in South Africa.

- A 50%
- B 45%
- C 23%
- D 10%

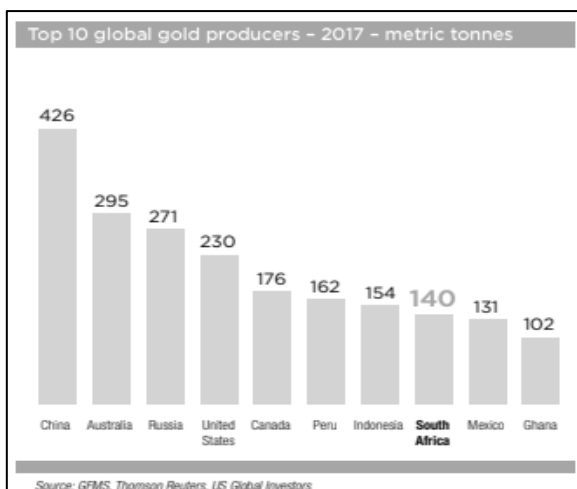
(7x1) (7)

GOLD MINING

Where is gold mined in SA?



- South Africa is home to some of the world's largest gold mines and accounts for approximately 4.2% of the world's production of the precious metal.
- The Witwatersrand Basin is one of the largest gold deposits in the world and contains the majority of the country's gold resources.
- The elliptical basin stretches over an area of over 400km through the Free State, Northwest and Gauteng provinces and features operational depths that reach up to 4km.
- The discovery of gold in the late 19th century led to a gold rush that spawned the development of Johannesburg, one of South Africa's capitals, and was instrumental in the development of the country's economy and growth during the 20th century.
- In 2019, the mining of gold contributed approximately \$23.9 billion to South Africa's GDP.



USES OF GOLD

Throughout history gold has been highly sought-after, revered and cherished. More than that, it is used for a myriad of applications and remains one of the most sought-after precious metals found on the planet.

Traditionally gold has been used to make coins, bullion and jewellery, but in recently it has been used in a variety of less typical ways.

JEWELLERY

- The use of gold in making jewellery dates to around 6,000 years ago.
- Approximately 78% of the total gold mined each year is made into jewellery as it is very easy to work, can be drawn into wires, hammered into thin sheets, melted and cast into shapes, is tarnish resistant, has a very high lustre and a desirable yellow colour.
- Jewellery is still the most common way gold reaches consumers.

FINANCES AND INVESTING

- Throughout history, gold has been seen as a symbol of wealth and used for financial transactions.
- The first purely gold coins are believed to have been manufactured in the Asia
- Minor kingdom of Lydia in 560 BC.
- This tradition continues today and gold is still the most popular precious metal for investments.
- One of the most common ways to hold or invest in gold is in gold coins, gold bars, or gold bullion.

IMPORTANCE OF GOLD TO THE ECONOMY OF SA

The gold mining industry has played a significant role in the historical development of South Africa and continues to play an important role today, not only on a macro-economic level but on local and community levels too.

- It exported gold worth R35 billion in 2018.
- It currently employs some 101,000 people, with each employee supporting between five and 10 dependants.
- Employment is provided for workers from rural communities which in turn results in the transfer of funds back to these areas.
- In the tax year 2017-2018, about R22 billion was paid in corporate taxes by the mining industry as a whole with some R590 million paid in royalties by gold and uranium producers.
- The industry purchases goods and services which stimulates industrial production and the provision of services. For example, gold mines consume some 15% of electricity generated in South Africa.
- Gold is used in other South African industries such as refined gold and jewellery making.
- Gold mining has a role to play in the development of human resources (training) and infrastructure such as schools, colleges, clinics, roads and housing.
- The industry creates employment in other industries.

- Gold export earnings have a positive impact on the balance of payments, foreign reserves, monetary policy and on the level of business activity in the country.
- Gold mining attracts foreign capital to the country, via the JSE or direct investment.

FACTORS FAVOURING GOLD MINING IN SOUTH AFRICA

- South Africa's gold region is well known and well explored – knowledge of the area is extensive.
- Gold mining in South Africa is a well-established industry with technical skills
- South Africa has large gold reserves and resources but accessing these will involve going even deeper underground.
- Mining companies invest heavily in innovation and skills training to build an even greater understanding of the resource base and how to mine it.
- South Africa has a well-developed infrastructure (roads and railway lines) which assists mines to do business.

FACTORS HINDERING GOLD MINING IN SOUTH AFRICA

- Depth and temperature. South Africa's gold sector is a world leader in deep-level gold mining.
- Deep-level underground mining, however, brings with it risks and hazards which require constant commitment and adherence to safety and health standards and procedures.
- High temperatures and high humidity levels in some underground mines create difficult working conditions and can decrease productivity.
- Costs in general are rising steadily, in particular the cost of mining at depth; salaries and wages; and electricity.
- Electricity and water supply. The industry has experienced costly electricity supply constraints and water shortages.

(ALSO REFER TO FACTORS FAVOURING AND HINDERING MINING)

Activity 5

5.1 Choose the answer and **write only** the letter (A–D) next to the question numbers (2.2.1 to 2.2.8) in the ANSWER BOOK, e.g. 2.2.9 D

5.1.1 The GDP is the total value of ...

- A goods and services produced within a country in one year.
- B goods and services produced by permanent citizens in one year.
- C exports that leave a country in one year.
- D imports that come into a country in one year.

5.1.2 The concept ... is used to refer to products sold within South Africa.

- A export market
- B import market
- C home market
- D international market

5.1.3 Food security occurs when ...

- A there is a lack of food that gives rise to starvation.
- B there is access to sufficient nutritious food.
- C farmers experience drought and crop diseases.
- D farmers produce sufficient food.

5.1.4 ... is a physical factor that affects food security in South Africa.

- A Research
- B Trade
- C HIV/Aids
- D Rainfall

5.1.5 TWO types of industries associated with bulk transport:

- (i) Ubiquitous
- (ii) Heavy
- (iii) Light
- (iv) Raw material orientated

- A (i) and (iii)
- B (ii) and (iv)
- C (ii) and (iii)
- D (i) and (iv)

5.1.6 TWO types of industries generally associated with lower levels of air pollution:

- (i) Ubiquitous
- (ii) Heavy
- (iii) Light
- (iv) Raw material orientated

- A (i) and (ii)
- B (ii) and (iii)
- C (i) and (iii)
- D (ii) and (iv)

5.1.7 ... is an example of a tertiary activity.

- A Mining
- B Motor vehicle assembly
- C Transport
- D Information technology

5.1.8 ... refers to the difference in value between imports and exports.

- A Trade agreement
- B Balance of trade
- C Local trade
- D International trade

Activity 6



Spiralling labour and energy costs are putting pressure on the financial performance of South African gold mines, but the solution could be found in adopting digital technologies.

Most of these new technology solutions revolve around automation, facilitated by the convergence of multiple technologies, from artificial intelligence to robotics.

By implementing automation, operators can remove underground workers out of harm's way, and that is going to become an ever-bigger imperative if gold miners are to remain investable by international capital.

This increased emphasis on the safety of the workforce and mines is motivating the development of the mining automation market.

Earlier, old-style techniques of exploration and drilling compromised the security of mine labour force

Adapted from article in miningreview.com

- 6.1.1 State the trend in gold production from 1970 to 2020. (1x1) (1)
- 6.1.2 Discuss ONE physical (natural) factor that could have been responsible for the trend stated in QUESTION 6.1.2. (1x2) (2)
- 6.1.3 According to the extract, what are the negative issues that put pressure on the performance of gold mining in South Africa? (1x2) (2)
- 6.1.4 How can 'digital technology' have a negative impact on gold mining? (2x2) (4)
- 6.1.5 Discuss how mine labourers (workers) can hinder the production of gold in mines. (3x2) (6)
- 6.1.6 Explain some incentives (motivation) that mine owners can introduce to mine labourers (workers) to improve the production of gold in our mines. (3x2) (6)

Secondary Activities

Conversion of raw material into fabricated items/ conversion of raw material in semi-finished or finished goods.

Raw Material
Orientated
Industry

found close to the source of the raw materials that they require.
This is usually because transportation costs are high.
For example, sugar mills are located close to the sugar fields.

Market
Orientated
Industry

located close to the market.
the products are perishable and need to be sold relatively fresh.
For example, baked foods, vegetables and fish products.

Footloose
Industry

can be located anywhere without effect from factors such as resources or transport.
a software company. It does not need to transport any raw materials and the product is non-perishable

Ubiquitous
Industry

These industries are **not located at a particular space** on a landscape.
For example, Telkom/MTN is a ubiquitous industry because it has lines that cover entire suburbs

Bridge
Industry

These industries are located between the raw materials and the market. Also known as “break-of-bulk” industries.
For example, an oil refinery. Oil is pumped ashore, refined into products and transported to the market.

2.1 Choose a statement from **COLUMN B** that matches the term in **COLUMN A**. Write only the letter (A – L) next to the question number (1.2.1 – 1.2.7) in your ANSWER BOOK, e.g. 1.2.6 F.

COLUMN A		COLUMN B	
2.1.1	Small scale farming	A	Types of industries are found close to the source of the raw materials that they require.
2.1.2	Food security	B	These types of industries are located close to the market.
2.1.3	Intensive farming	C	Can be located anywhere without effect from factors such as resources or transport.
2.1.4	Raw Material Orientated Industry	D	The availability of well-balanced meals on a regular basis
2.1.5	Market Orientated Industry	E	Industries that are not located at a particular space on a landscape.
2.1.6	Footloose Industry	F	These industries are located between the raw materials and the market.
2.1.7	Ubiquitous Industry	G	Describes a farming method using very little land and often using very little to no expensive technologies.
		H	Involves increasing capital and labour on the same piece of land being cultivated to increase yield.

CORE INDUSTRIAL REGIONS IN SOUTH AFRICA

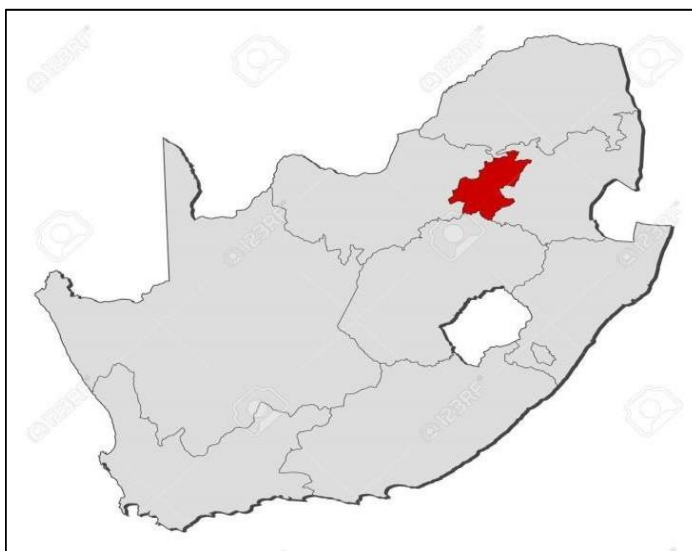


www.tips.org.za

Learners need to know:

- Factors favouring location and industrial development in industrial regions: PWV/Gauteng Region and Ethekewini Metropolitan area .
- Main industries
- Factors hindering the development of: PWV/Gauteng Region and South Western Cape.

Gauteng (PWV) for exam 2025



The industrial region contributes the highest percentage share to the Gross Domestic Product (GDP) in almost all sectors of the South African economy such as manufacturing, construction, trade, finance, mining, with the exception of agriculture.

FACTORS FAVOURING LOCATION AND INDUSTRIAL DEVELOPMENT IN PWV/GAUTENG

- Large population/ready market
- Raw material available - mineral resources (gold), agricultural products.
- Large reserves of coal close to power supply.
- Large labour force- skilled and unskilled.
- Water available in the Vaal Dam/Lesotho Highlands water project
- Well-developed transport infrastructure
- Flat land makes construction easier.

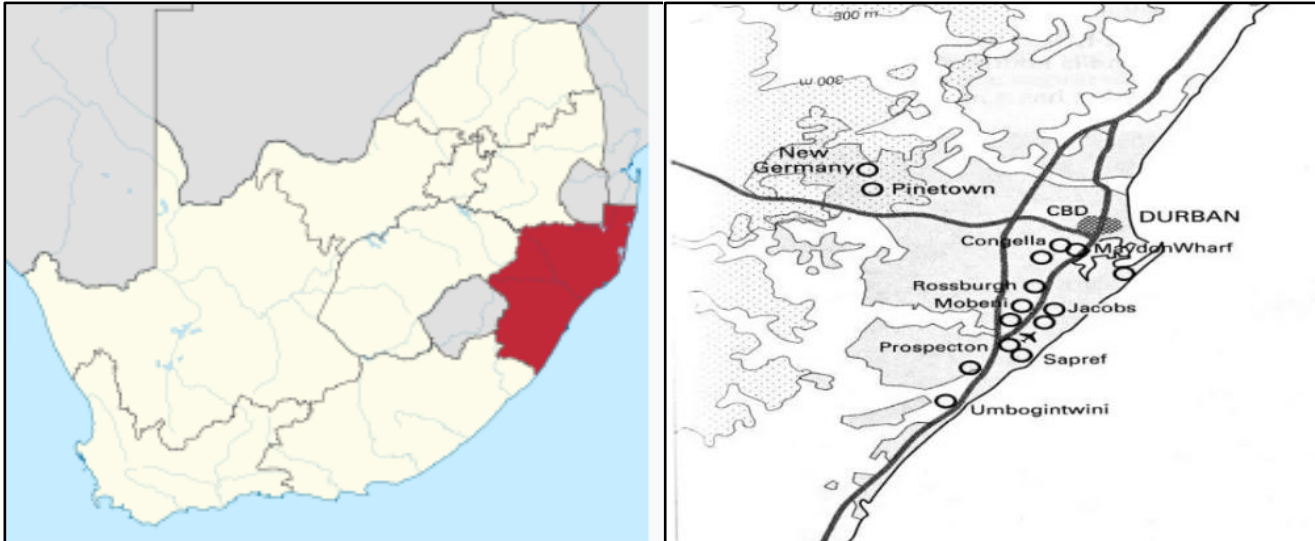
MAIN INDUSTRIES

- Metal, Iron and Steel plants. (Vanderbylpark and Vereeniging)
- Motor Vehicles
- Chemicals – explosives
- Petrochemicals-Sasol
- Machinery

FACTORS HINDERING THE DEVELOPMENT OF PWV/GAUTENG REGION

- Pollution
- Far from the harbours – increase in transport costs
- Eskom power cuts have negative impact on production hours
- Labour strikes and unrest
- Destruction of the ecosystem
- Congestion and overpopulation
- Overutilization of resources

The eThekweni metropolitan region (Durban-Pinetown)



FACTORS FAVOURING LOCATION AND INDUSTRIAL DEVELOPMENT IN Durban-Pinetown

- Market
Densely populated
High demand for manufactured goods
- Transport
Harbour
Many links to rest of the country
- Labour
Large labour force due to large population
- Raw materials
Sugarcane
Dairy
Meat
Subtropical fruit
- Water
Abundant rain
Presence of perennial rivers (Tugela & Umgeni)

MAIN INDUSTRIES

- Food - Sugar refining
- Motor manufacturing
- Oil refining
- Rayon
- Chemicals
- Light industries

FACTORS HINDERING THE DEVELOPMENT OF DURBAN PINETOWN

- Capacity of harbour is limited
- Hilly topography restricts growth of harbour

Activity 7

Refer to the map on industries in the Durban – Pinetown industrial region



[Source: google.com/maps/search/industries+around+Durban]

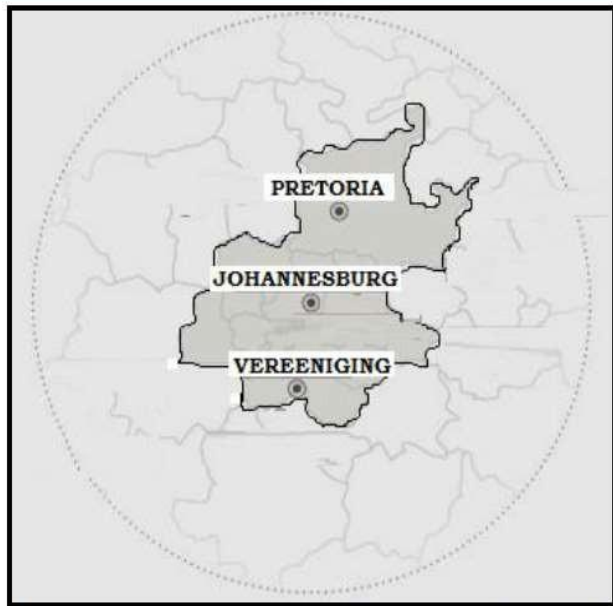
- | | | | |
|-------|---|---------|-----|
| 7.1.7 | Are the main industries in Durban-Pinetown (break-of-bulk/footloose)? | (1 x 1) | (1) |
| 7.1.2 | Give a reason for your answer to QUESTION 2.4.1 | (1 x 2) | (2) |
| 7.1.3 | Give TWO examples of the main types of industries shown on the map | (2 x 1) | (2) |
| 7.1.4 | Explain TWO factors that favour the location of industries in the Durban-Pinetown region. | (2 x 2) | (4) |
| 7.1.5 | Discuss how industrial action (labour strikes) hinders industrial development in South Africa | (3 x 2) | (6) |

Activity 8

The PWV (Gauteng) Industrial Region is an integrated cluster of cities, towns and urban nodes that together make up the economic heartland of South Africa.

This region is the country's centre of trade within Southern Africa and beyond. PWV (Gauteng) produces more than 33,8% of the national GDP in current prices. PWV (Gauteng) is estimated to contribute about 45% of South Africa's total economic output.

Despite its importance, the PWV (Gauteng) region faces many challenges, such as water shortages and high levels of unemployment.



[Adapted from <https://www.gcro.ac.za/about/the-gauteng-city-region/>]

- 8.1.1 Which of the urban settlements in the PWV (Gauteng) Industrial Region shown in the sketch above started out as a gold mining settlement? (1x1) (1)
- 8.1.2 Quote TWO statistics from FIGURE 1.3, which indicates that the PWV (Gauteng) Industrial Region is the economic heartland of South Africa. (2x1) (2)
- 8.1.3 Discuss TWO factors that have favored the development of industries in the PWV (Gauteng) Industrial Region. (2x2) (4)
- 8.1.4 The PWV (Gauteng) Industrial Region faces many challenges, including high levels of unemployment and water shortages.
- a Why has water supply hindered the development of the PWV (Gauteng) Industrial Region? (1x2) (2)
- b How did the PWV (Gauteng) Industrial Region overcome the shortage of water supply for industries? (2x2) (4)
- c Explain why the PWV (Gauteng) Industrial Region faces challenges of unemployment despite the high concentration of industries in this industrial region. (3x6) (6)

INDUSTRIAL DEVELOPMENT ZONES

An Industrial Development Zone (IDZ) is a purpose-built industrial estate linked to an international seaport or airport, and which can leverage fixed direct investments in value-added and export-orientated manufacturing industries.

Industrial Development Zones (IDZs) are intended to promote the competitiveness of the manufacturing sector and to encourage beneficiation of locally available resources

Key objectives of the IDZ

- Develop linkages between domestic and zone- based industries.
- Provide world-class industrial infrastructure.
- Attract foreign direct investment (FDI);
- Attract advanced foreign production and technology methods in order to gain experience in global manufacturing and production networks;

DUBE TRADE PORT

Dube TradePort is a Special Economic Zone and comprises a precinct purpose-planned to drive industrial development in South Africa through the promotion and attraction of both domestic and foreign direct investment to this part of KwaZulu-Natal.

Its strategic location and world-class infrastructure stimulates the manufacture of value-added products and provides the opportunity to benefit from a range of incentives, together with additional support measures, thus creating an ideal business environment for investors.

Benefits offered to business enterprises operating within Dube Trade Port Special Economic Zone are geared towards the promotion of:

- business growth
- revenue generation
- employment creation
- the export of value-added commodities
- the attraction of both foreign and local investment.

The underlying intent behind Dube TradePort Special Economic Zone is to promote and enhance the competitiveness of KwaZulu-Natal's manufacturing sector and to encourage the beneficiation of available resources. This exceptional precinct delivers an environment conducive to increasing value-added production by existing local industry, whilst simultaneously creating a sound platform for the creation of new industry.

The precinct's zones include:

Dube TradeZone:

This is a designated Special Economic Zone and comprises fully-serviced industrial real estate for, especially, manufacturing, assembling, air-related cargo distribution, high-tech aerospace services, electronics, pharmaceuticals production, automotive, clothing, textiles, cold-storage, warehousing, distribution and logistics;

Dube Cargo Terminal:

This is a state-of-the-art cargo handling facility, purpose-built to be the most secure in Africa and housing all the statutory bodies on-site to ensure speed of service;

Dube AgriZone:

This is a designated Special Economic Zone and provides world-class agricultural facilities and technical support for the propagation, growth, packing and distribution of a range of high-value perishables and horticultural products;

Dube City:

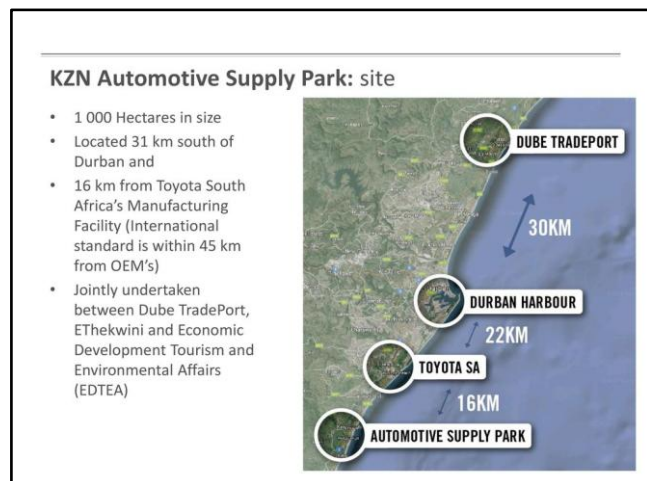
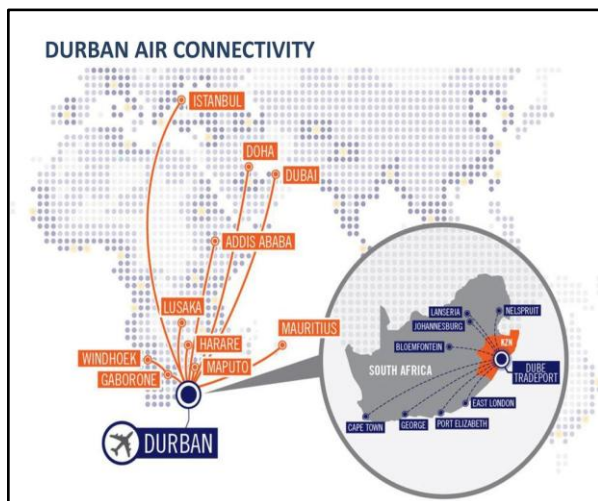
This is a premium office, retail, leisure and hospitality precinct and is located in a modern urban 'Green' hub immediately adjacent to King Shaka International Airport's passenger terminal.

Dube iConnect:

This is a cutting-edge information technology and telecommunications platform and a premier cloud computing service provider.

In addition, King Shaka International Airport is owned and operated by Airports Company South Africa. It boasts the longest sea-level runway, at 3.7km, in South Africa and is capable of accommodating the latest new-generation wide-bodied aircraft.

Further, Dube TradePort Corporation is the lead implementing agent of Durban Aerotropolis, an airport city with Dube TradePort Special Economic Zone at its heart.

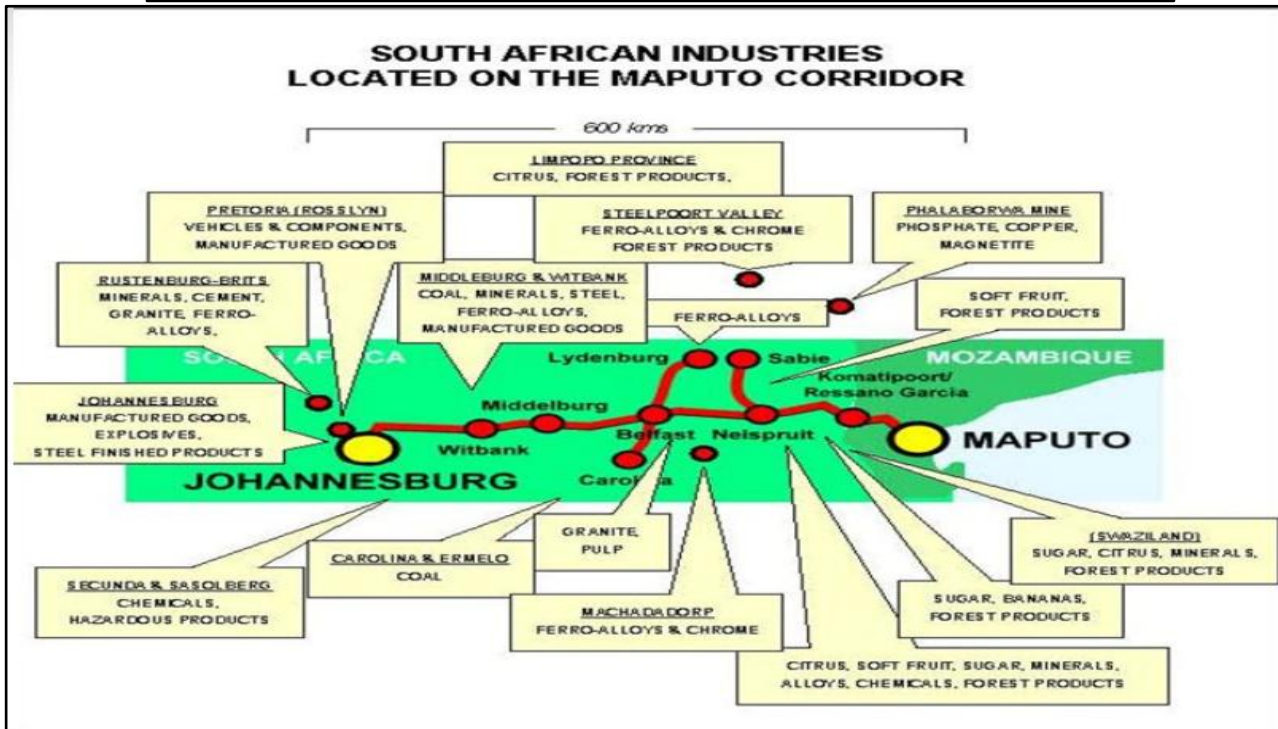
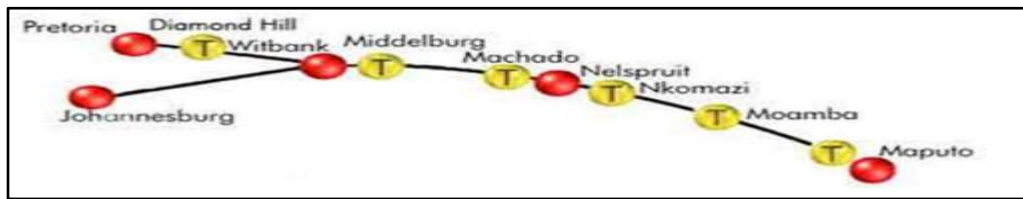
**SPATIAL DEVELOPMENT INITIATIVES**

SDI's are transport and communication links between major industrial areas, metropolitan area and harbours

SDI's aims

- To create an attractive environment for private sector investment
- To initiate and support economic activities along transport corridors
- To promote growth in those parts of SA that are underdeveloped but have the potential for growth.
- To develop and improve existing transport infrastructure

MAPUTO CORRIDOR



- The Maputo Development Corridor is a true transportation corridor, comprising road, rail, border posts, port and terminal facilities.
- The Corridor runs through the most highly industrialized and productive regions of Southern Africa.
- Connecting the landlocked regions of Kingdom of eSwatini and South Africa to the Mozambique and the Port of Maputo.

GAUTENG PROVINCE TO PORT MAPUTO

- Gauteng is the engine of the sub-continental economy and produces ca. 40% of South Africa's GDP.
- As an industrial powerhouse, Gauteng is responsible for the highest concentration of manufacturing and industrial production in the country.
- The Maputo Corridor connects South Africa's industrial and commercial heartland of the Witwatersrand, with its nearest deep-water port in Maputo, Mozambique.
- Being a landlocked province, the continued development of the Maputo Corridor enables Gauteng's importers and exporters shorter, greater, more cost-effective and faster access to its nearest deep-water ports.

MPUMALANGA PROVINCE TO PORT MAPUTO

- Mpumalanga contains the bulk of South Africa's electricity generating coal fired power stations.
- The province accounts for 76% of South Africa's coal mining output and 50% of national coal reserves*, a lot of which is exported via the Matola Coal Terminal in Matola Port, Maputo.
- The Corridor also links with important production centres, comprising amongst others of the cities and towns of Standerton, Secunda and Ermelo, which contain a large bulk of South Africa's electricity generating coal fired power stations.
- The Maputo Corridor also passes through vast industrial and primary production areas such as those in the Nkangala District Municipality, comprising amongst others of the cities and towns of Delmas, Witbank and Middelburg, important centres for South Africa's coal, vanadium and stainless-steel mining and production as well as being principal areas of maize production in the province's agricultural sector.
- The Corridor provides the primary means of access to the breathtakingly beautiful Highlands Meander, escarpment and Lowveld region of Mpumalanga, a major national and international tourist destination.

SOUTH AFRICAN / MOZAMBIKAN BORDER TO PORT MAPUTO

- The Corridor connects the South African northern hinterland with Mozambique's capital, Maputo and its two deep water ports of Maputo and Matola with a modern, fast and efficient national road, known as the EN4 on the Mozambican side.

OCEAN TO OCEAN CAPITAL CORRIDORS

- The Maputo Corridor forms part of a greater transport axis linking the Atlantic and Indian Ocean together via the sub-continent of Southern Africa.

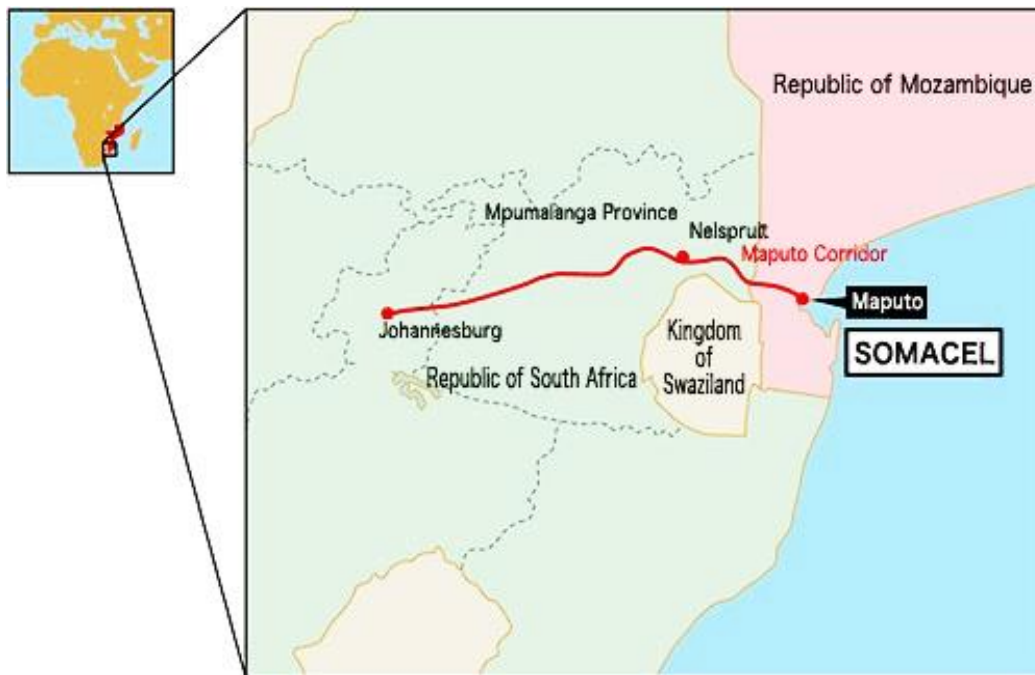
Activity 9

Refer to the infographic on the Dube TradePort Industrial Development Zone.



- 9.1.1 Name the province in which Dube TradePort IDZ is located. (1x1) (1)
- 9.1.2 State ONE type of industry from the infographic that is found in the Tradeport Industrial Development Zone. (1x1) (1)
- 9.1.3 Name the international airport that is close to the Dube TradePort Industrial Development Zone. (1x1) (1)
- 9.1.4 Explain ONE economic advantage of the airport (answer to QUESTION 2.5.3). (1x2) (2)
- 9.1.5 What positive economic benefits will the Dube TradePort Industrial Development Zone have for the region? (2x2) (4)
- 9.1.6 Explain how accessibility due to the infrastructure linked to the Dube TradePort Industrial Development Zone, will support rapid economic growth in this IDZ. (3x2) (6)

Activity 10

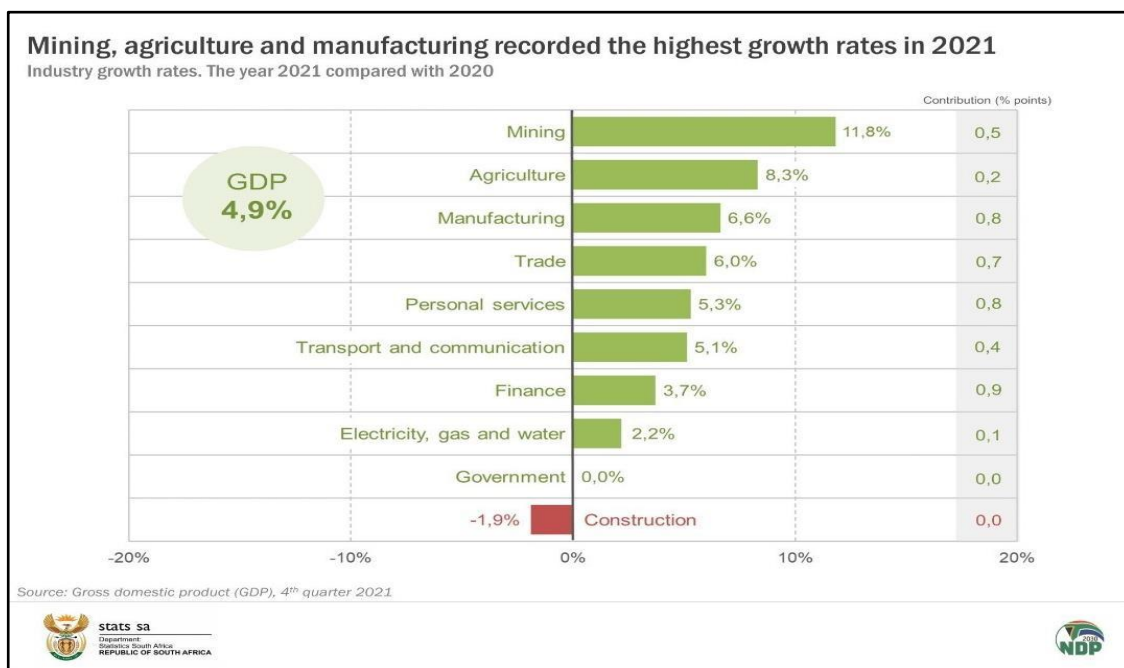


- 10.1.1 What is a Spatial Development Initiative? (1 x 2) (2)
- 10.1.2 Name ONE other province besides Gauteng and Mpumalanga that can benefit from the Maputo Corridor. (1 x 1) (1)
- 10.1.3 Explain factors that favour the development of Maputo Corridor. (2 x 2) (4)
- 10.1.4 In a paragraph of approximately EIGHT lines, evaluate how the Maputo Corridor spatial development initiative benefits South Africa and Mozambique. (4 x 2) (8)

TERTIARY SECTOR/SERVICES

The tertiary industry is the segment of the economy that provides services to its consumers, including a wide range of businesses such as financial institutions, schools and restaurants. It is also known as the tertiary sector or service sector.

Refer to the infographic below



- 11.1.1 Define the concept of gross domestic product. (1x2) (2)
- 11.1.2 Which sector of the South African economy contributed the most in 2021? (1x1) (1)
- 11.1.3 Identify two activities from the graph that contributed more in the sector identified in 11.1.2 (2x1) (2)
- 11.1.4 Calculate the total percentage contributed by the sector identified in 11.1.2. (1x2) (2)
- 11.1.5 Suggest three reasons that led to the decline of construction in 2021. (3x2) (6)

INFORMAL SECTOR

People not employed in the formal sector, not registered, do not pay tax.

Activity 12

Refer to the cartoon and extract below on informal trading.

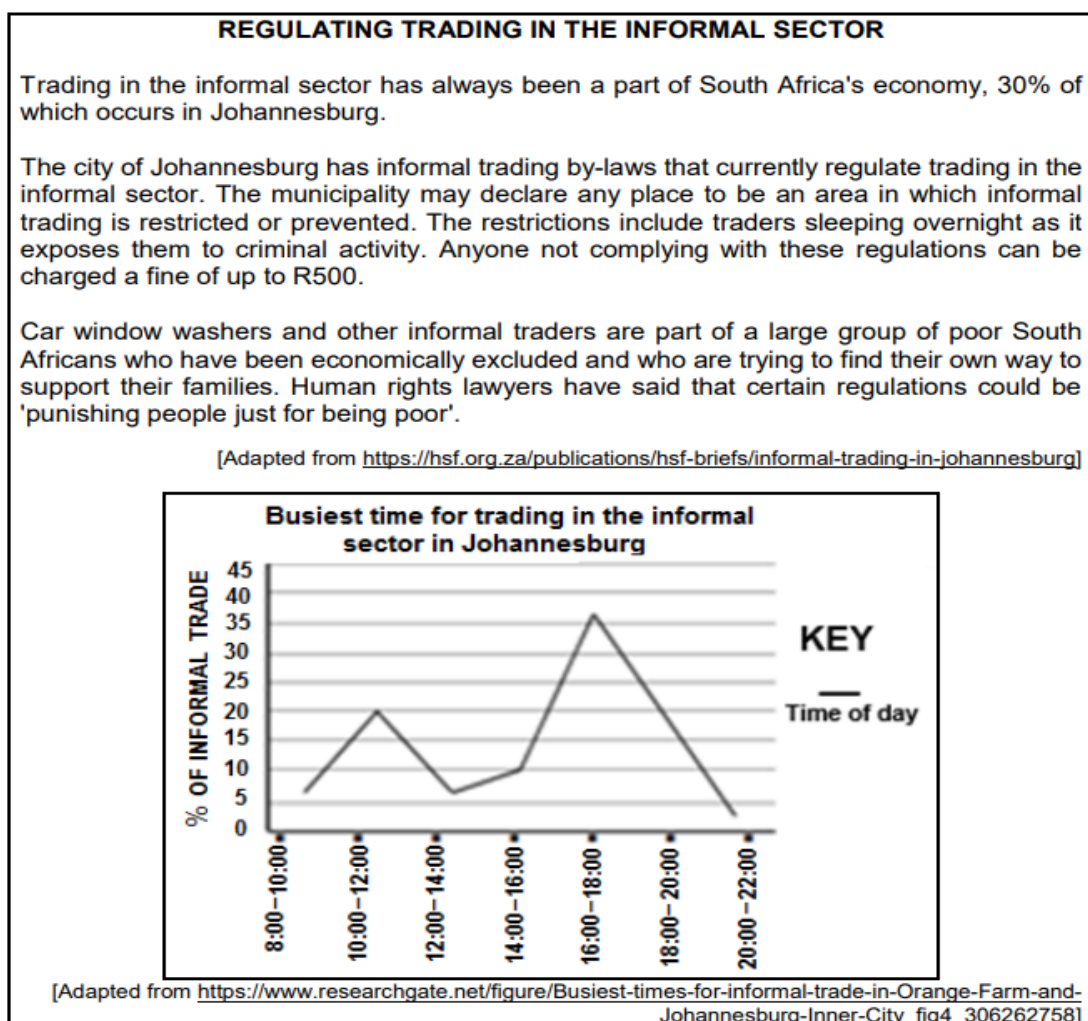


Source: resourcemarketing.co.za

- 12.1.1 Define the concept of informal trade (1x2) (2)
- 12.1.2 Give ONE example of informal trade. (1x1) (1)
- 12.1.3 Suggest TWO reasons why informal trade is increasing rapidly in South Africa. (2x2) (4)
- 12.1.4 Why do so many females participate in informal trade? (2x2) (4)
- 12.1.5 How can informal traders be assisted in making a meaningful contribution to the South African economy? (2x2) (4)

Activity 13

Refer to the extract and graph below on the informal sector



- 13.1.1 According to the extract, what is the percentage of informal trading that takes place in Johannesburg? (1x1) (1)
- 13.1.2 Quote evidence from the extract why trading has been restricted in Johannesburg at night.. (1x1) (1)
- 13.1.3 According to the graph, which is the busiest time period for trading in the informal sector? (1x1) (1)
- 13.1.4 Suggest TWO reasons for the rapid growth of the informal sector in the city of Johannesburg. (2x2) (4)
- 13.1.5 In a paragraph of approximately EIGHT lines, explain measures that the municipality can put in place to assist traders in the informal sector to operate under more favourable conditions. (2x2) (8)

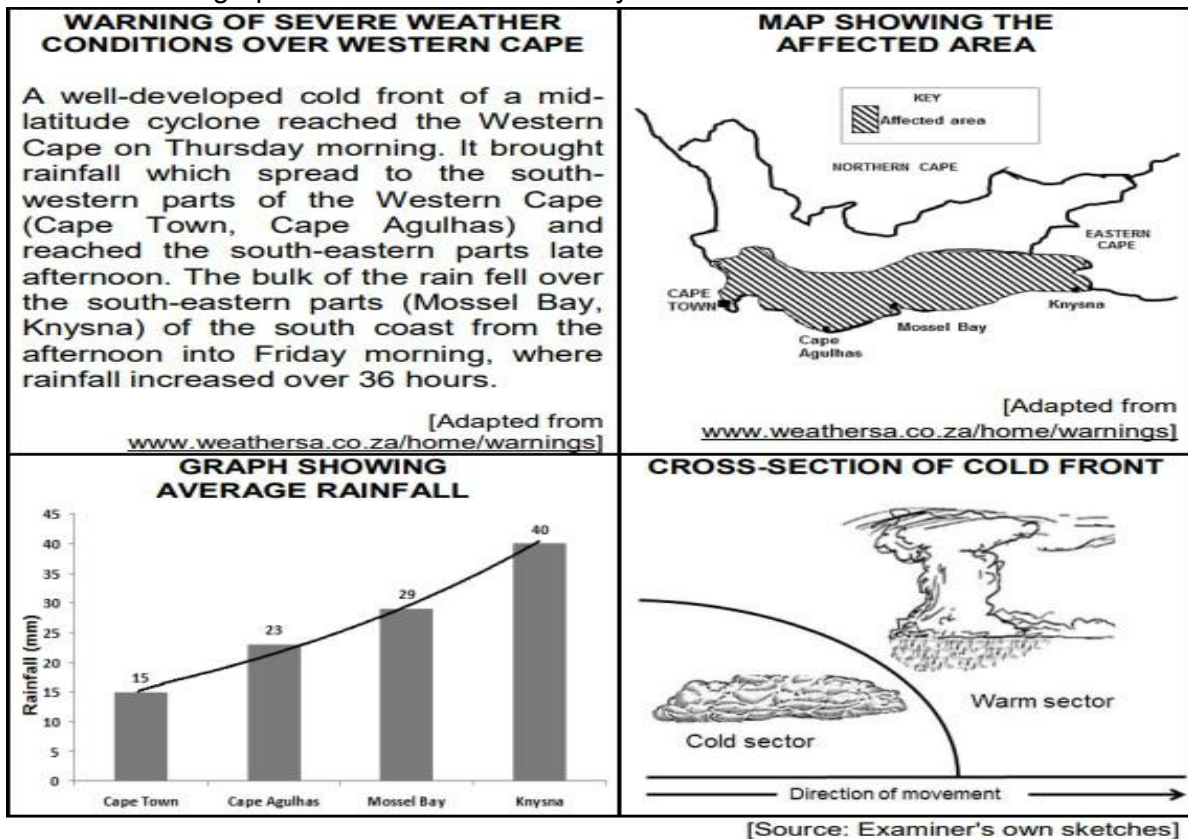
Last push revision activities

CLIMATOLOGY AND GEOMORPHOLOGY

TOPIC ONE

CLIMATOLOGY

1.1 Refer to the infographic below on mid-latitude cyclones



- 1.1.1 The mid-latitude cyclone mentioned in the extract is in the (initial/mature) stage. (1X1) (1)
- 1.1.2 Give a reason for your answer to QUESTION 1.1.1. (1X2) (2)
- 1.1.3 Why did the rainfall mentioned in the extract spread from Cape Town to Mossel Bay and Knysna? (1X2) (2)
- 1.1.4 Refer to the graph and determine the lowest and highest rainfall, in millimetres, recorded in the Western Cape over 36 hours (1X2) (2)
- 1.1.5 With reference to the cross-section, explain how a well-developed cold front results in heavy rainfall over the Western Cape. (2x2) (4)
- 1.1.6 How will the heavy rainfall negatively affect the physical (natural) environment in and around the Western Cape? (2x2) (4)

1.2 Refer to the extract below on cold fronts.

**TWO COLD FRONTS TO HIT WESTERN CAPE THIS WEEKEND –
'HEAVY RAINFALL' TO FOLLOW**

Date: 10 June 2022

According to the South African Weather Service (SAWS), two cold fronts are expected to bring rain, strong winds, high waves and a significant drop in temperatures to South Africa.

The first cold front is expected to hit the Western Cape on Sunday evening 12 June. Ahead of this first cold front, strong north-westerly to westerly winds between 50–60 km/h, gusting up to 70–80 km/h, are expected over the southern parts of the Northern Cape and the interior of the Western and Eastern Cape from Sunday.

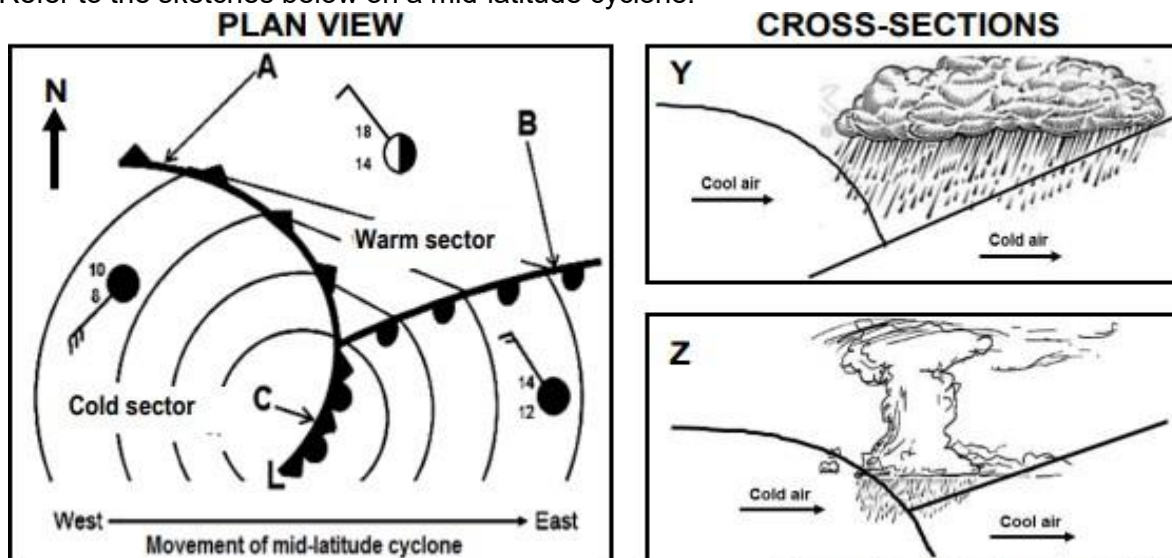
The second cold front is expected to reach the Western Cape by Monday evening 13 June, bringing continued high amounts of rainfall mainly to the south-western parts of the Western Cape, especially from Monday to Wednesday afternoon.

The wind direction associated with the cold front will change from north-west to south-west as the front moves over the Western Cape.

[Adapted from [http://www.First cold front to hit Western Cape this weekend – 'heavy rainfall' to follow \(thesouthafrican.com\)](http://www.First cold front to hit Western Cape this weekend – 'heavy rainfall' to follow (thesouthafrican.com))]

- | | | | |
|-------|--|---------|-------------------|
| 1.2.1 | In which season do the cold fronts mentioned in the extract influence the Western Cape? | (1 x 1) | <u>(1)</u> |
| 1.2.2 | Give evidence from the extract to support your answer to QUESTION 1.2.1. | (1x1) | <u>(1)</u> |
| 1.2.3 | Why do cold fronts have a greater impact on the Western Cape during this season (answer to QUESTION 1.2.1)? | (1x1) | <u>(1)</u> |
| 1.2.4 | The change in wind direction mentioned in the extract is known as (veering/backing) in the Southern Hemisphere. | (1x1) | (1) |
| 1.2.5 | Give a reason from the extract for your answer to QUESTION 1.2.4. | (1x2) | (2) |
| 1.2.6 | In a paragraph of approximately EIGHT lines, suggest positive and negative impacts of heavy rainfall associated with the cold fronts on the physical (natural) environment of the Western Cape | (4x2) | (8) |

1.3 Refer to the sketches below on a mid-latitude cyclone.



[Source: Examiner's own sketch]

1.3.1 Name the wind belt that causes the easterly movement of the mid-latitude cyclone (1x1) (1)

Refer to the plan view.

1.3.2 Identify front A. (1x1) (1)

1.3.3 Which ONE of fronts A or B is moving faster? (1x1) (1)

1.3.4 Give a reason for your answer to QUESTION 1.3.3 (1x2) (2)

1.3.5 Give evidence from the sketch that the mid-latitude cyclone is found in the Southern Hemisphere. (1x2) (2)

Refer to the cold front occlusion C and the cross-sections.

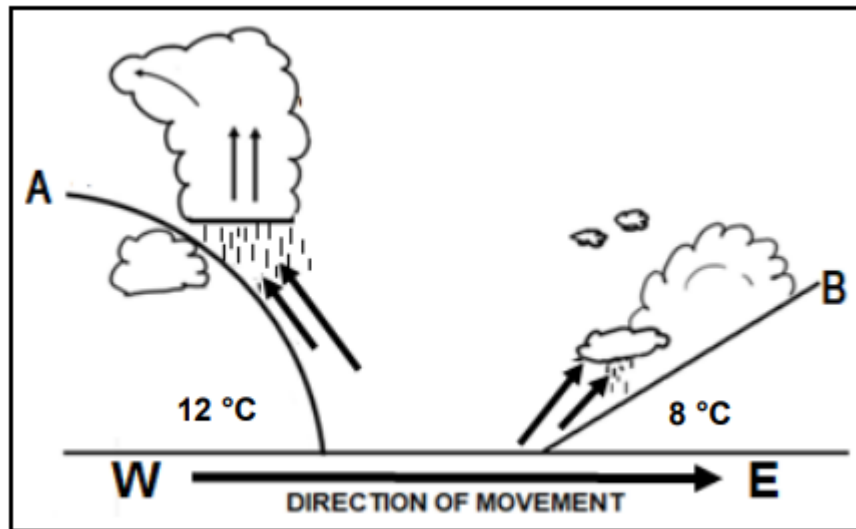
1.3.6 a Which ONE of the cross-sections Y or Z represents the cold front occlusion at C? (1x2) (2)

b Give evidence that C is a cold front occlusion. (1x2) (2)

c Explain how the cold front occlusion developed. (2x2) (4)

[15]

1.4 Refer to the cross-section below a mid-latitude cyclone

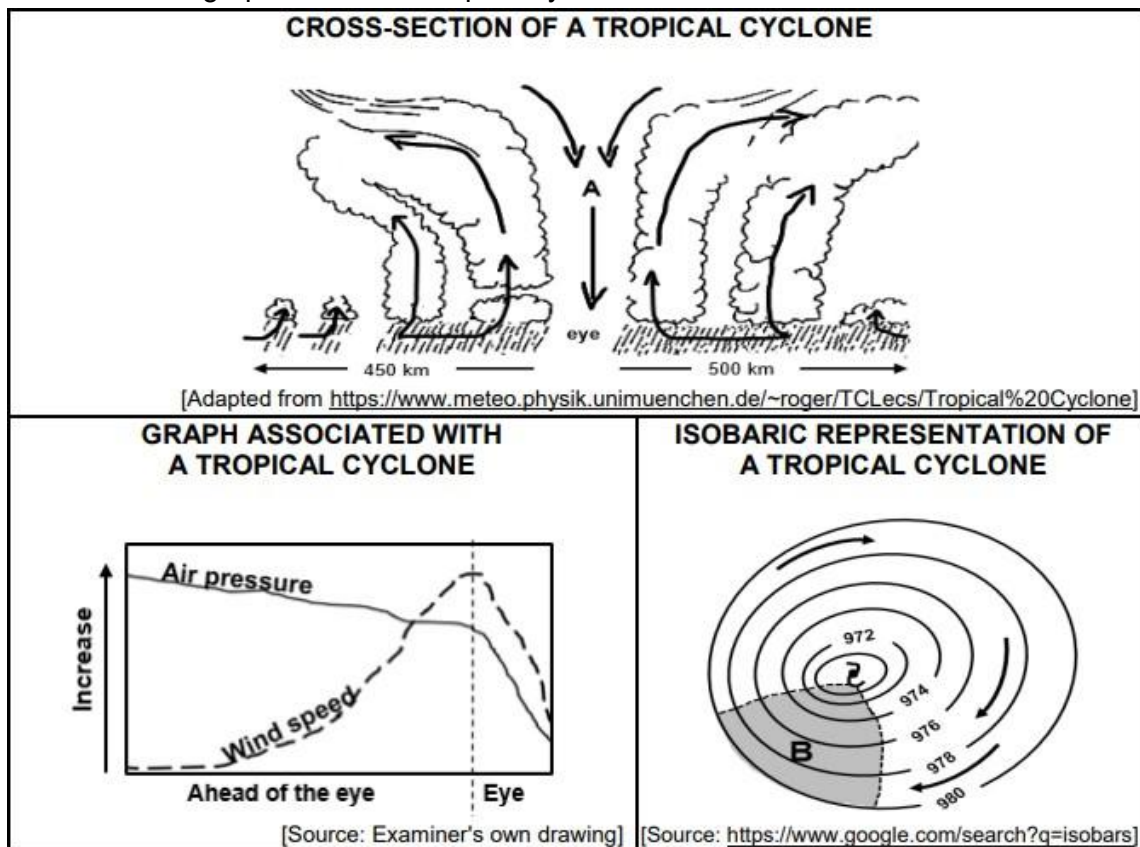


[Source: Examiner's own sketch]

- 1.4.1 In which general direction do mid-latitude cyclones move? (1x1) (1)
- 1.4.2 Give a reason for your answer to QUESTION 1.4.1. (1x1) (1)
- 1.4.3 How does front A give rise to the formation of cumulonimbus clouds? (2x2) (4)
- 1.4.4 In a paragraph of approximately EIGHT lines, explain strategies that can be put in place to manage the negative environmental impact of the heavy rainfall associated with mid-latitude cyclones. (4x2) (8)

TROPICAL CYCLONES

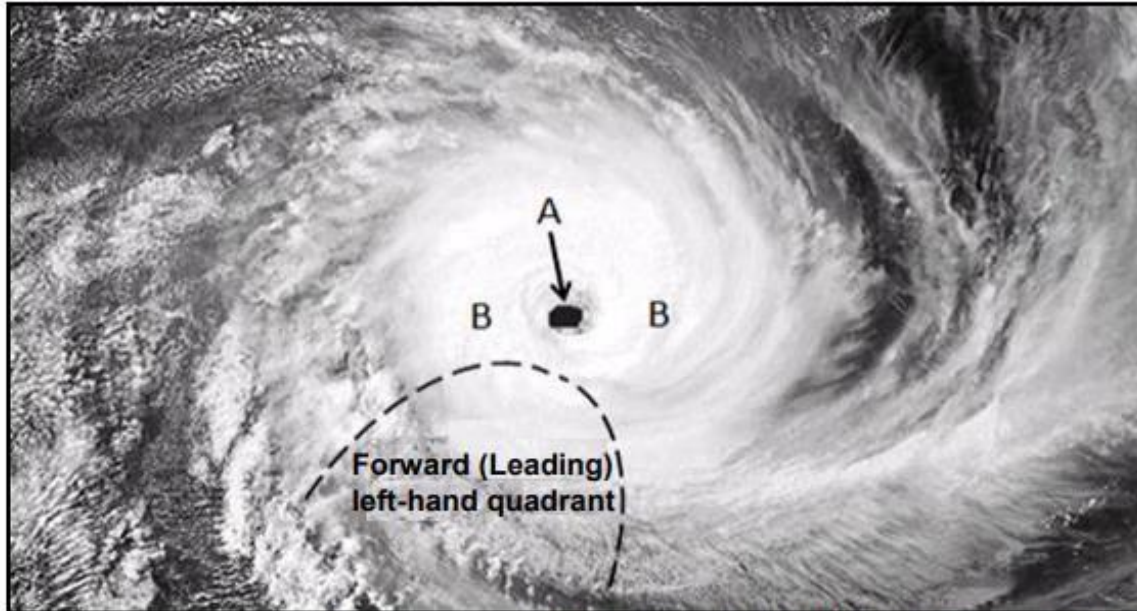
1.5 Refer to the infographic below on tropical cyclones.



- | | | | |
|-------|---|-------|-----|
| 1.4.1 | What evidence indicates that the tropical cyclone developed in the Southern Hemisphere? | (1x1) | (1) |
| 1.4.2 | Give TWO reasons from the infographic to indicate that the tropical cyclone is in its mature stage. | (2x1) | (2) |
| 1.4.3 | How will the descending air at A influence the cloud cover in the eye? | (1x2) | (2) |
| 1.4.4 | Give a reason for your answer to QUESTION 1.4.3. | (1x2) | (2) |
| 1.4.5 | What is the relationship between the wind speed and air pressure as indicated on the graph? | | |
| | a Ahead of the eye | (1x2) | (2) |
| | b Within the eye | (1x2) | (2) |
| 1.4.6 | Why is area B on the sketch of the isobaric representation referred to as the leading left quadrant (dangerous semicircle)? | (1x2) | (2) |
| 1.4.7 | How does the leading left quadrant (dangerous semicircle) develop in tropical cyclones? | (1x2) | (2) |

[15]

1.5 Refer to the satellite image of a tropical cyclone in the mature stage below.



[Adapted from <https://www.google.com/url?sa=i&url=https%3A%2F>]

1.5.1 State ONE condition required for the development of the tropical cyclone. (1x1) (1)

1.5.2 In which hemisphere did this cyclone develop?

1.5.3 Give a reason for your answer to QUESTION 1.5.2.

Refer to A and B on the satellite image.

1.5.4 Differentiate between the cloud cover at A and B

1.5.5 Explain why there is a difference in the cloud cover at A and B.

1.5.6 Why are the strongest winds found in the forward (leading) left-hand quadrant?

1.5.7 Draw a sketch of a tropical cyclone in its mature stage as represented on a synoptic weather map. Indicate the following on the sketch:

Air pressure reading at the centre of the tropical cyclone

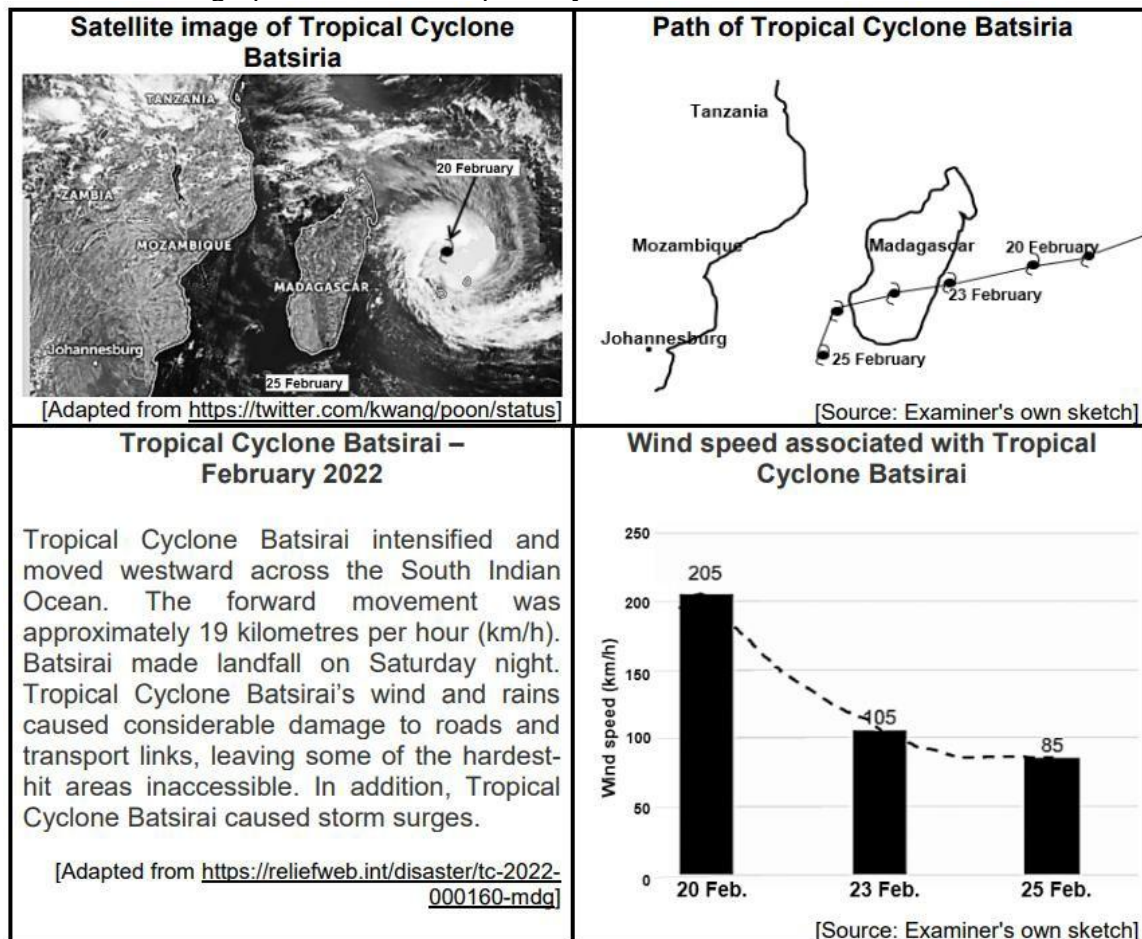
At least four isobars indicating the correct spacing

Symbol to represent the tropical cyclone

1.5.8 Draw a cross section of a tropical cyclone in its mature stage as represented on a synoptic weather map. Indicate the following on the sketch:

- (i) The eye
- (ii) The direction of movement
- (iii) The eye wall
- (iv) Air flow in the center

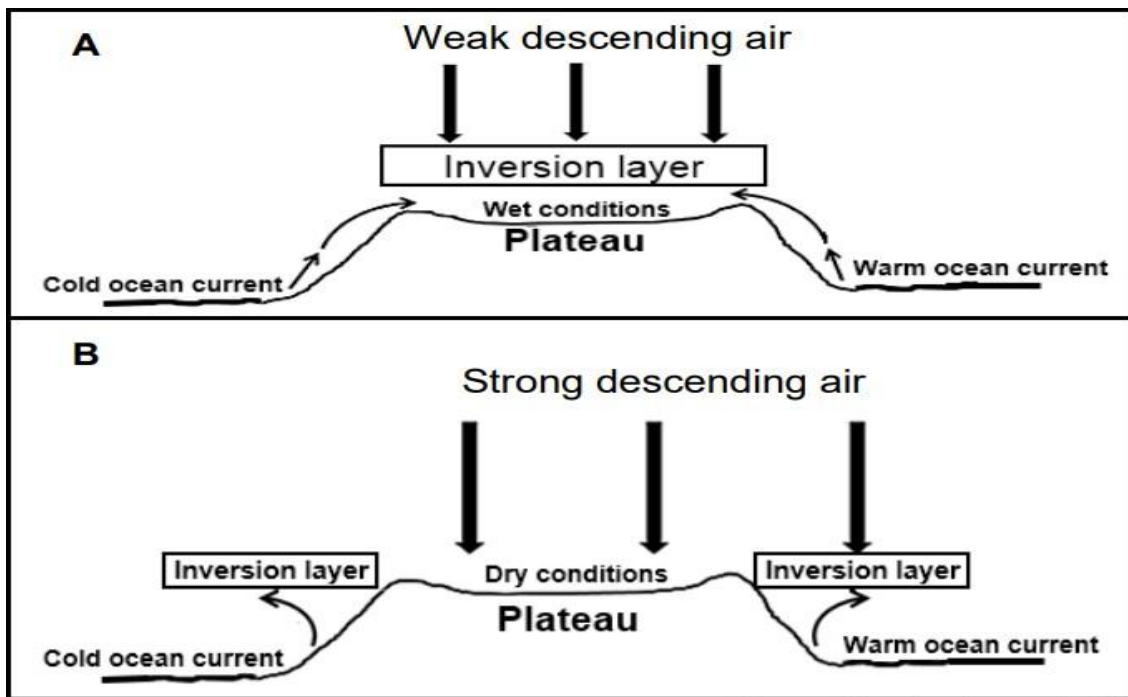
1.6 Refer to the infographic below on Tropical Cyclone Batsirai.



- 1.6.1 Give the date on which Tropical Cyclone Batsirai reached the mature stage. (1x1) (1)
- 1.6.2 According to the infographic, Tropical Cyclone Batsirai moved westward across the South Indian Ocean. Give ONE reason for this movement. (1x2) (2)
- 1.6.3 Suggest TWO reasons for the large decrease in wind speed between 20 and 25 February 2022. (2x2) (4)
- 1.6.4 How could storm surges negatively impact the physical environment on the east coast of Madagascar? (2x2) (4)
- 1.6.5 Explain the importance of monitoring tropical cyclones like Batsirai for Madagascar. (2x2) (4)

[15]

- 1.7 Refer to the sketches below showing the changes in the position of the inversion layer over South Africa.



[Source: Examiner's own sketch]

Refer to sketch A

1.7.1 Identify the season illustrated in sketch A. (1x1) (1)

1.7.2 Give a reason for your answer to QUESTION 1.7.1. (1x2) (2)

Refer to sketch B.

1.7.3 Identify TWO factors, visible in the sketch, which influence the climate of South Africa (2x1) (2)

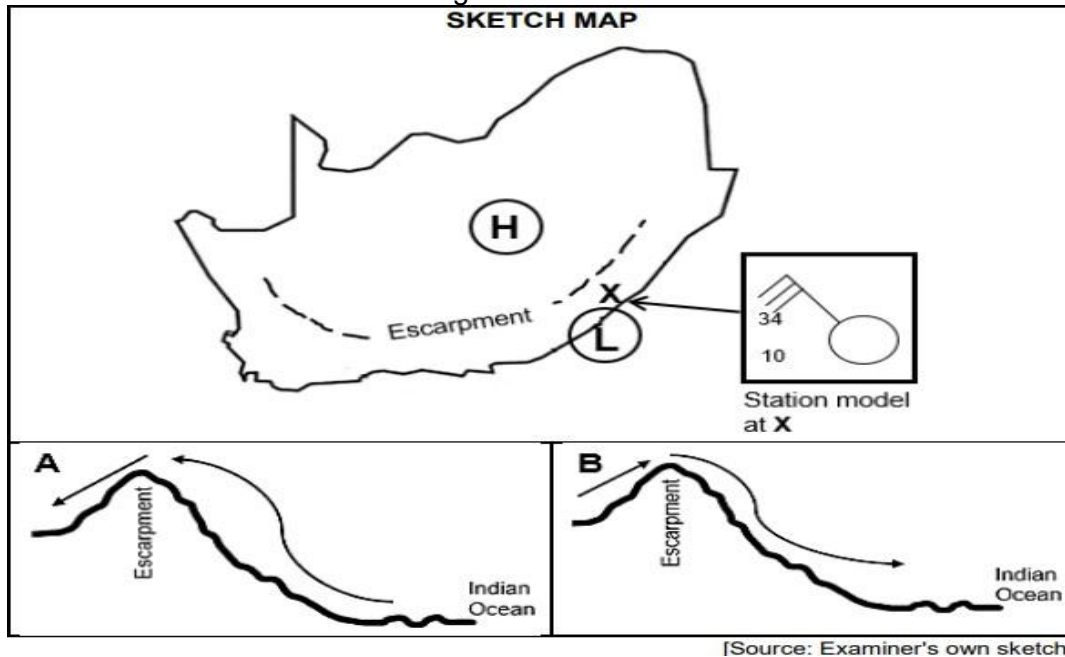
1.7.4 Explain the role played by descending air in the development of the inversion layer. (2x1) (2)

Refer to sketches A and B.

1.7.5 In a paragraph of approximately EIGHT lines, describe how the position of the inversion layer in sketches A and B influences the amount of rainfall in the interior of South Africa. (4x2) (8)

[15]

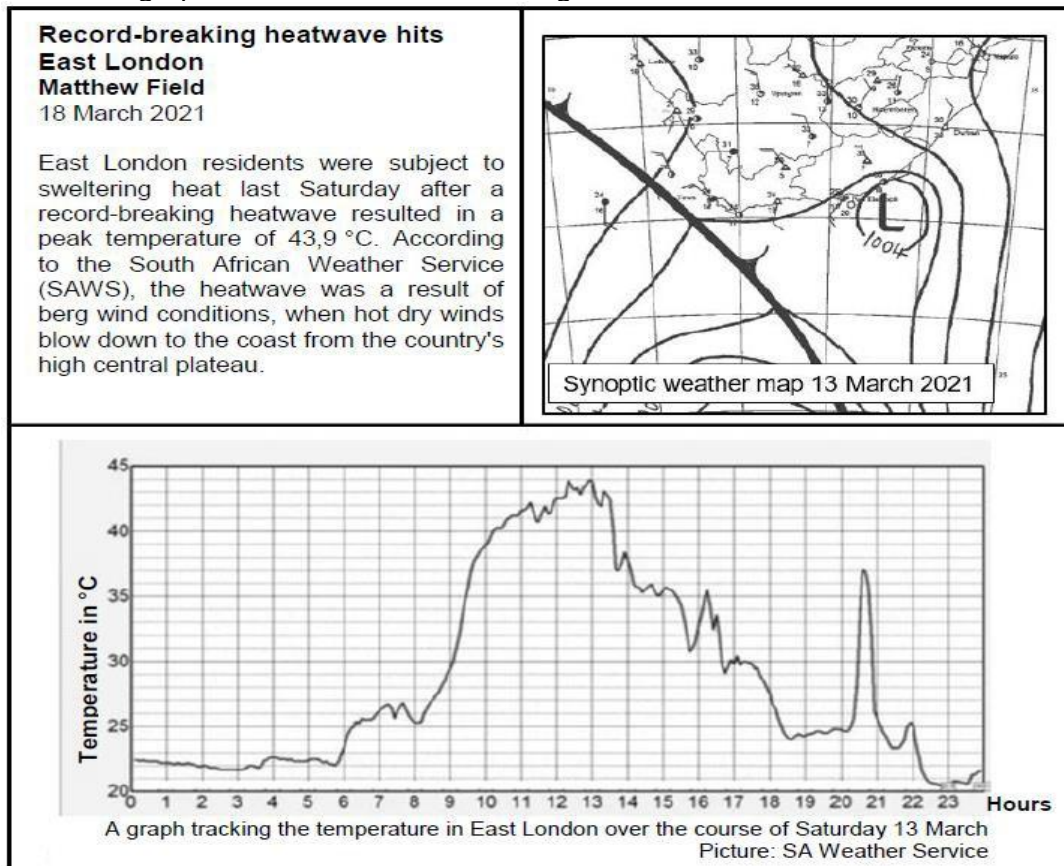
1.8 Refer to the sketches below on berg winds.



- 1.8.1 Name the high-pressure cell and low-pressure cell indicated on the sketch map that leads to the development of berg winds. (1x1) (1)
- 1.8.2 Which sketch (A or B) represents the formation of berg winds? (1x1) (1)
- 1.8.3 Give a reason for your answer to QUESTION 1.8.2. (1x2) (2)
- 1.8.4 Explain why cloudless conditions are indicated by the station model at X on the sketch map. (1x2) (2)
- 1.8.5 In a paragraph of approximately EIGHT lines, explain how berg winds impact negatively on the natural vegetation and suggest strategies that can be put in place to limit this negative impact. (4x2) (8)

[15]

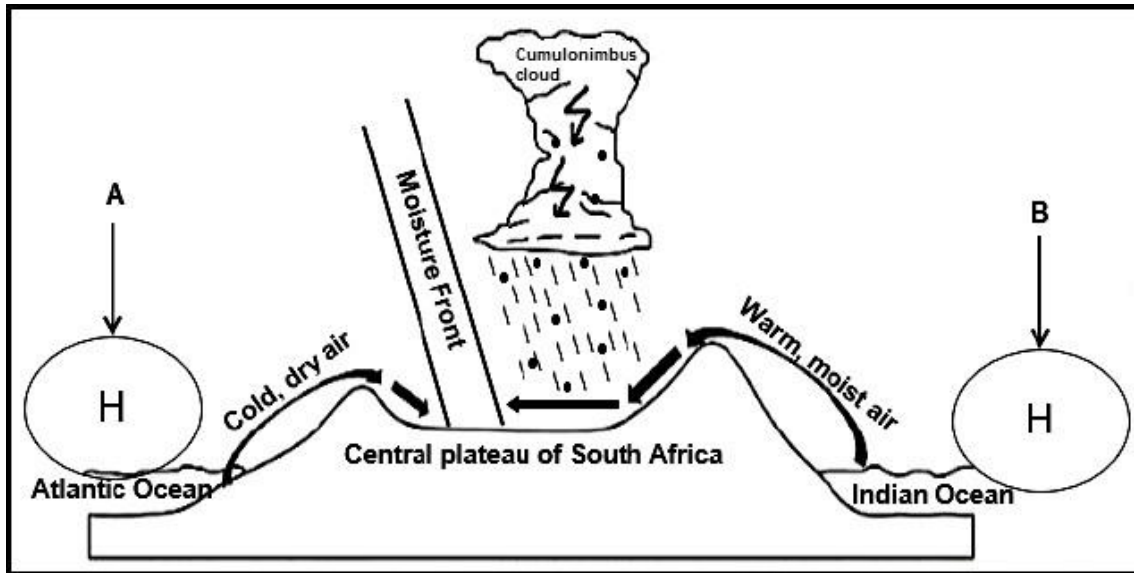
1.9 Refer to the infographic on the South African berg wind.



- 1.9.1 Name TWO pressure systems that are necessary for berg winds to develop. (2x1) (2)
- 1.9.2 Determine the highest temperature that was recorded on 13 March 2021. (1x1) (1)
- 1.9.3 What role did the escarpment play in increasing the temperature of the berg wind between 10:00 and 14:00? (2x2) (2)
- 1.9.4 In a paragraph of approximately EIGHT lines, explain the impact of berg wind conditions on the physical (natural) environment. (4x2) (8)

[15]

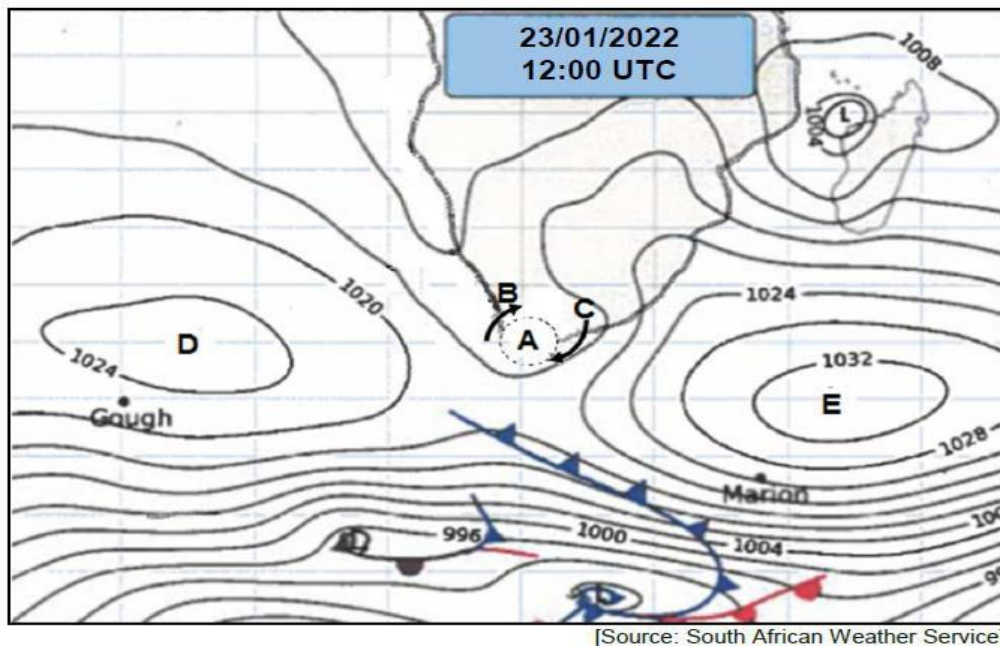
1.10 Refer to the sketch below on line thunderstorms.



[Source: Examiner's own sketch]

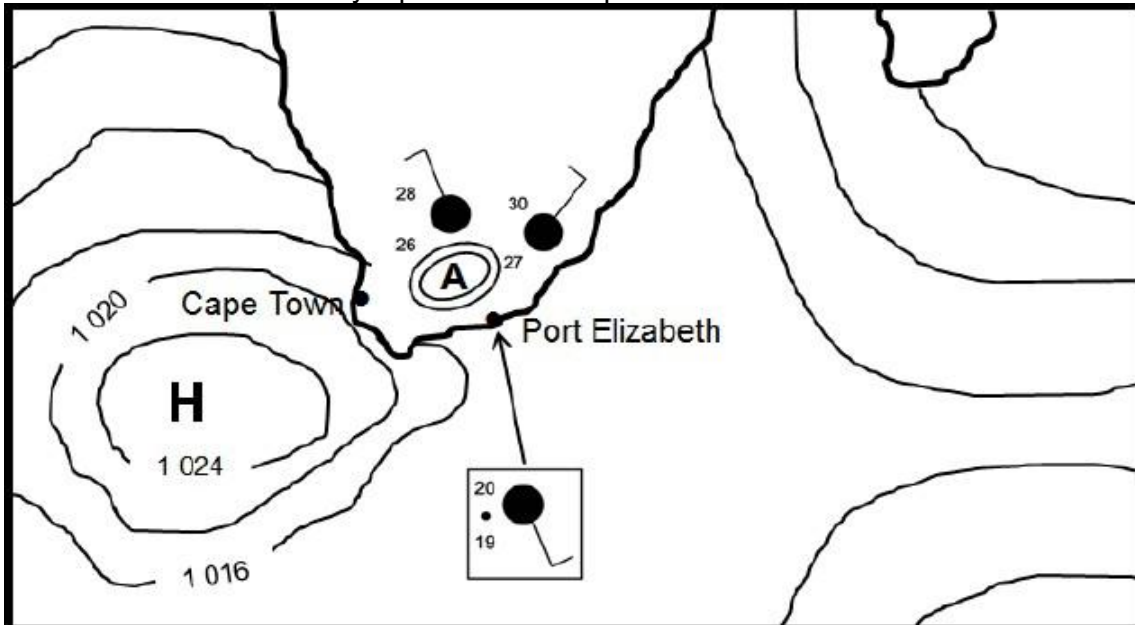
- | | | | |
|--------|---|-------|------|
| 1.10.1 | Identify high-pressure cells A and B. | (2x1) | (2) |
| 1.10.2 | Which season is represented by the sketch? | (1x1) | (1) |
| 1.10.3 | Give ONE reason from the sketch for your answer to QUESTION 1.9.2. | (1x2) | (2) |
| 1.10.4 | What is a moisture front? | (1x2) | (2) |
| 1.10.5 | Name TWO forms of precipitation associated with a line thunderstorm. | (2x1) | (2) |
| 1.10.6 | Describe the processes involved in the formation of line thunderstorms. | (3x2) | (6) |
| | | | [15] |

1.11 Refer to the South African synoptic weather map.



- | | | | |
|--------|--|-------|------|
| 1.11.1 | Name low-pressure cell A. | (1x1) | (1) |
| 1.11.2 | Why is pressure cell A known as a travelling disturbance? | (1x2) | (2) |
| 1.11.3 | Why is there a greater possibility of precipitation at B than at C? | (2x2) | (4) |
| 1.11.4 | Give evidence that this synoptic weather map represents typical summer conditions. | (2x2) | (4) |
| 1.11.5 | a. Which anticyclone, D or E, has a greater subsidence (descending) of air? | (1x2) | (2) |
| | b. Use the pressure readings on the synoptic weather map to support your answer to QUESTION 1.11.5(a). | (1x2) | (2) |
| | | | [15] |

1.12 Refer to the South African synoptic weather map.

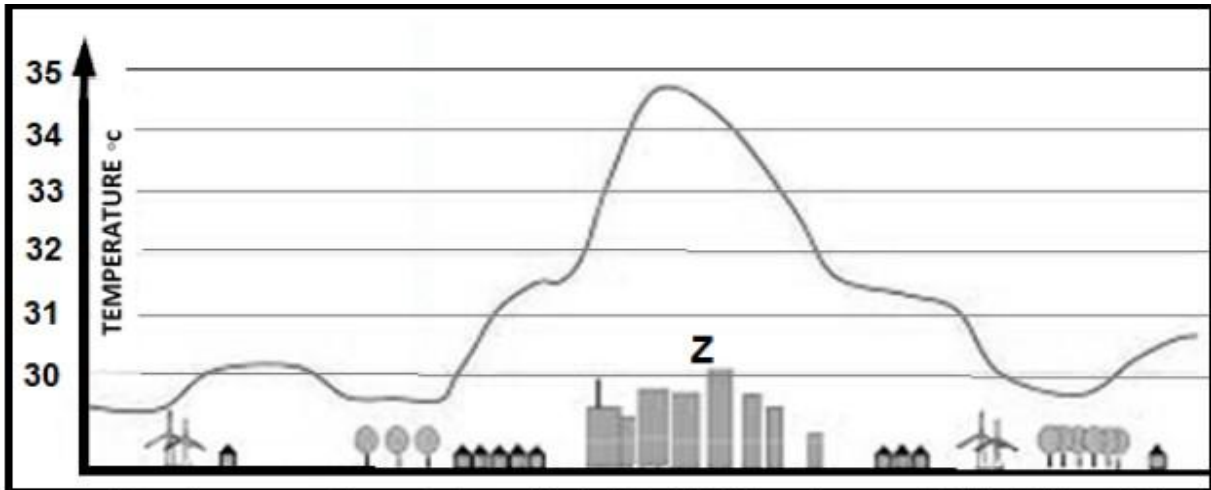


[Source: Examiner's own sketch]

- 1.12.1 Identify low-pressure system A on the synoptic weather map. (1x1) (1)
- 1.12.2 Give a reason for the formation of this low-pressure system over the interior. (1x2) (2)
- 1.12.3 Give evidence from the synoptic weather map that the South Atlantic high is ridging. (1x2) (2)
- 1.12.4 Why does the ridging of the South Atlantic high result in onshore winds? (2x2) (4)
- 1.12.5 Describe the weather conditions at Port Elizabeth as a result of the onshore winds. (3x2) (6)

[15]

1.13 Refer to the graph showing the difference between rural and urban temperatures.

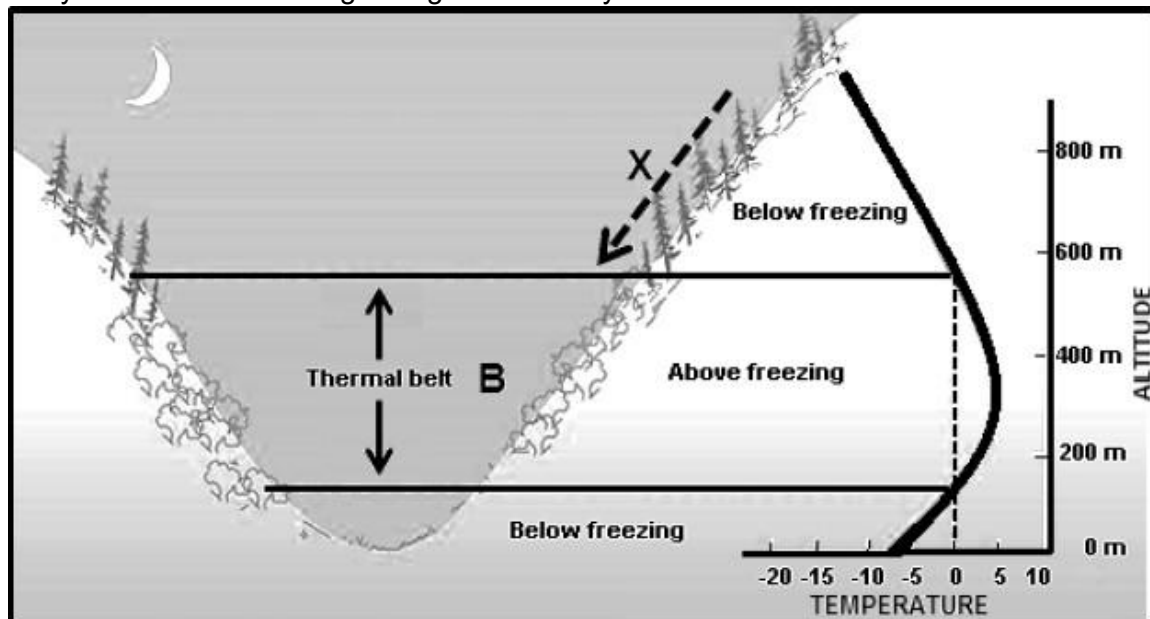


Source: <https://www.google.com/url?sa=i&url=https%3A%2Fenvironment%2F2021-heat-island>

- 1.13.1 Define the concept urban heat island. (1x1) (1)
- 1.13.2 Give the highest temperature recorded. (1x2) (2)
- 1.13.3 Explain TWO ways in which the buildings at Z contribute to the high temperatures. (2x2) (4)
- 1.13.4 In a paragraph of approximately EIGHT lines, suggest sustainable building strategies to reduce the urban heat island effect. (4x2) (8)

[15]

1.14 Study FIGURE 1.4 showing a diagram on valley climates.



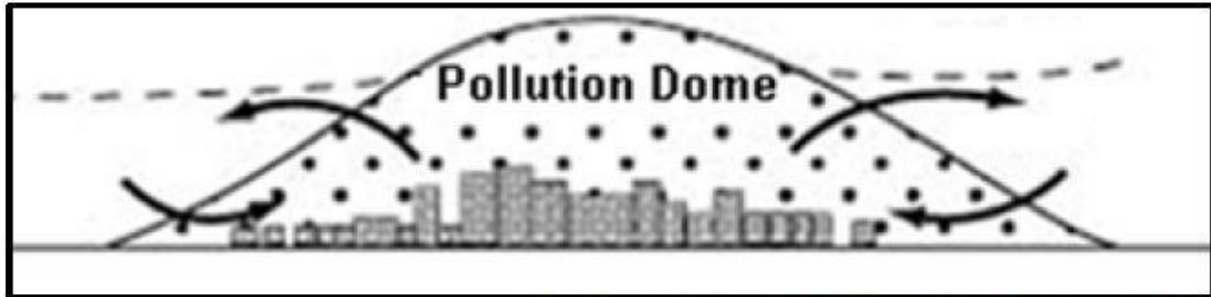
[Adapted from <http://apollo.lsc.vsc.edu/classes/met130/notes/chapter3/drainage3.html>]

- 1.14.1 Is the slope wind at X an anabatic or a katabatic wind? (1x1) (1)
- 1.14.2 Other than the label, what evidence indicates that B is the thermal belt? (1x1) (1)
- 1.14.3 What is the term used to describe an increase in the temperature as the height increases in the valley? (1x1) (1)
- 1.14.4 Explain why slope wind X will be more intense in winter. (2x2) (4)

- 1.14.5 Account for the low temperature that is likely to be experienced on the valley floor during winter. (2x2) (4)
- 1.14.6 How will farmers have to adapt their farming techniques (methods) due to the temperature change on the valley floor? (2x2) (4)

[15]

1.15 Refer to FIGURE 2.4 showing a pollution dome over a South African city.



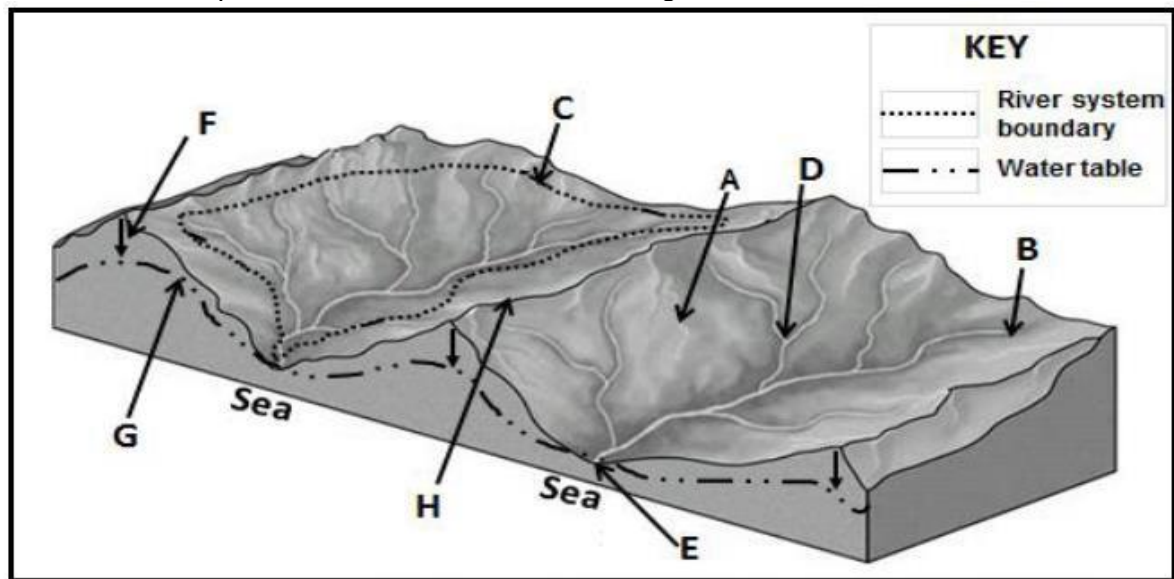
[Source: <http://www.metlink.org/secondary/key-stage->]

- 1.15.1 What is a pollution dome? (1x1) (1)
- 1.15.2 Why is a pollution dome associated with an urban area? (1x2) (2)
- 1.15.3 Explain why the pollution dome is more concentrated at night. (2x2) (4)
- 1.15.4 Write a paragraph of approximately EIGHT lines explaining how pollution domes increase the maintenance costs of the built environment for people living in the city. (4x2) (8)

[15]

GEOMOPHOOGY

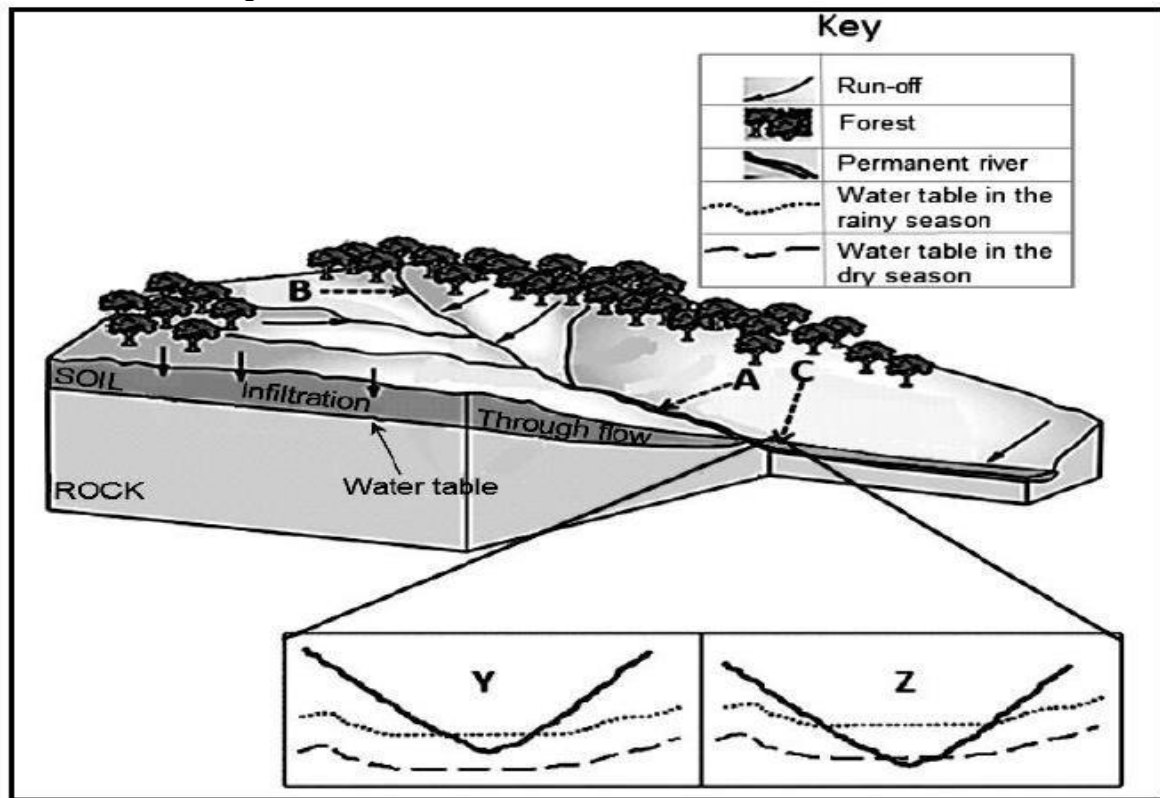
2.1 Match the concepts below with the letters in the diagram.



[Adapted from <https://worldrivers.net/2020/03/25/drainage-basins/>]

- | | | | |
|-------|-------------------------|-------|-----|
| 2.1.1 | Source of the river | (1x1) | (1) |
| 2.1.2 | The water table | (1x1) | (1) |
| 2.1.3 | An interfluve | (1x1) | (1) |
| 2.1.4 | A drainage basin | (1x1) | (1) |
| 2.1.5 | The river mouth | (1x1) | (1) |
| 2.1.6 | The watershed | (1x1) | (1) |
| 2.1.7 | A confluence | (1x1) | (1) |
| 2.1.8 | Process of infiltration | (1x1) | (1) |
| | | | [8] |

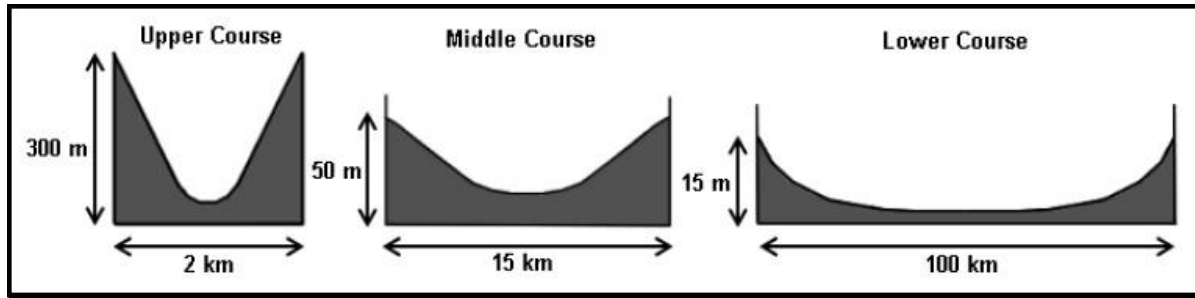
2.2 Refer to the drainage basin below.



- 2.2.1 The river illustrated in the sketch is (permanent/periodic). (1x1) (1)
- 2.2.2 State TWO characteristics of the river system evident in the sketch. (2x1) (2)
- 2.2.3 Give evidence from the sketch that the surface run-off is greater at A than at B. (2x2) (4)
- 2.2.4 Refer to C.
- Which ONE of the cross-sections Y or Z represents the river at point C? (1x2) (2)
 - Give a reason for your answer to QUESTION 2.3.4(a). (1x2) (2)
- 2.2.5 How will a decrease in precipitation affect the following:
- Water table (1x2) (2)
 - Type of river (1x2) (2)

[15]

2.3 FIGURE below shows the changing cross-profile of the valley along the river's course.

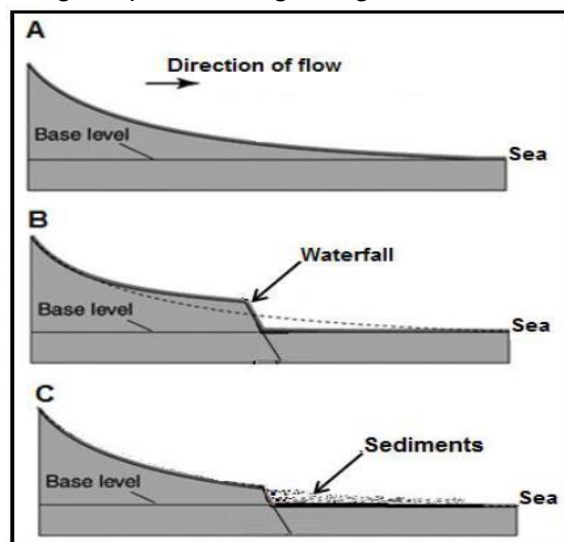


[Adapted from <http://www.geography.learnontheinternet.co.uk/topics/longprofile.html>]

- 2.3.1 In which course is the source of the river? (1x1) (1)
- 2.3.2 Name TWO elements of the cross-profile that changed from the upper to the lower course in sketch above (2x1) (2)
- 2.3.3 Differentiate between the fluvial processes that shaped the cross-profiles of the upper course and lower course of the river. (2x2) (4)
- 2.3.4 Describe the reasons for the change in the shape of the cross-profile of the middle course. (2x2) (4)
- 2.3.5 Explain why the shape of the cross-profile in the upper course of the river will make it the most suitable place to build a dam. (2x2) (4)

[15]

2.4 Refer to the sketches showing the profile and grading of a river.



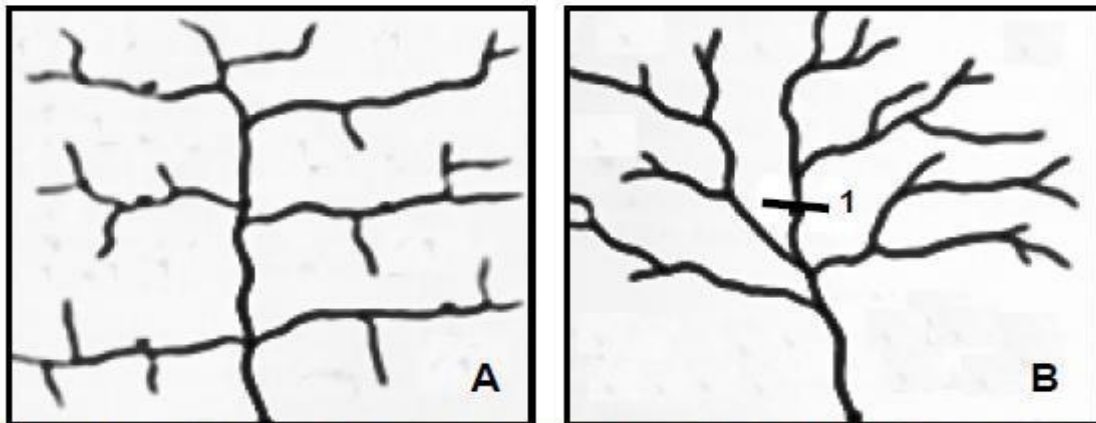
[Adapted from <file:///T:/Fluvial%20Landforms.pdf>]

Refer to sketch A.

- 2.4.1 Define the concept longitudinal profile. (1x2) (2)
- 2.4.2 State TWO characteristics of the longitudinal profile evident in sketch A. (2x1) (2)
- 2.4.3 Does sketch A represent a graded or an ungraded river? (1x1) (1)
- 2.4.4 Give a reason for your answer to QUESTION 2.4.3. (1x2) (2)
- Refer to sketches B and C.
- 2.4.5 Identify a temporary and a permanent base level of erosion in sketch B. (2x1) (2)
- 2.4.6 Describe the processes that the river in sketches B and C would undergo to reach a graded state. (3x2) (6)

[15]

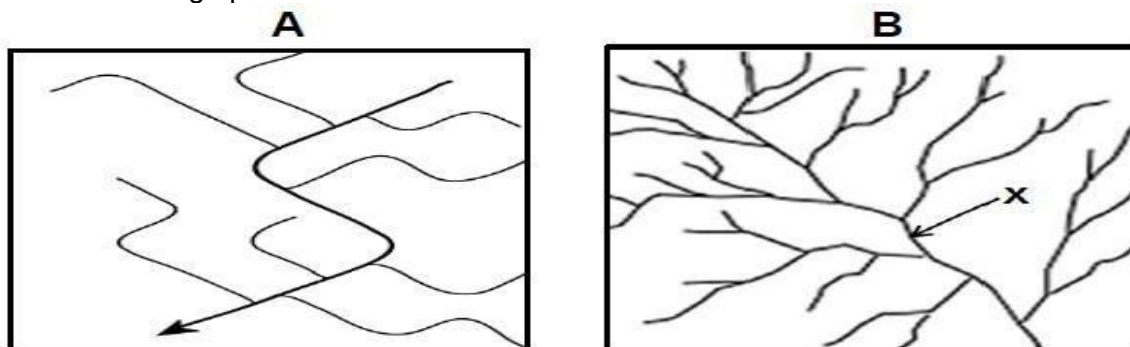
2.5 Refer to the diagrams showing drainage patterns.



ed from <https://www.google.com/search?q=trellis+and+dendritic+drainage+patterns>

- 2.5.1 Identify drainage patterns A and B. (2x1) (2)
- 2.5.2 Differentiate between the underlying rock structure of drainage patterns A and B respectively. (2x2) (4)
- 2.5.3 Why are the tributaries of the mainstream parallel to each other in drainage pattern A? (1x2) (2)
- 2.5.4 Determine the stream order at point 1 in drainage pattern B. (1x2) (2)
- 2.5.5 Choose the CORRECT word between brackets to make the statement TRUE.
The higher the stream order, the (higher/lower) the drainage density. (1x2) (2)
- 2.5.6 Refer to drainage pattern B and describe the relationship between;
- a. Drainage density and low rainfall (1x2) (2)
 - b. Drainage density and steep gradient (1x2) (2)
- [16]

2.6 Refer to the drainage patterns illustrated in sketches A and B below.



[Adapted from <https://www.google.com/search?q=drainage+pattern&tbn>

- 2.6.1 Identify drainage patterns in sketches A and B. (2x1) (2)
- 2.6.2 State the underlying rock structure and rock type on which the drainage pattern in A developed. (1+2) (2)
- 2.6.3 Explain how the underlying rock structure influenced the drainage pattern in A. (1x2) (2)
- 2.6.4 The drainage density in B is (high/low). (1x1) (1)
- 2.6.5 Determine the stream order at X. (1x2) (2)

2.6.6 Explain the relationship between stream order and drainage density in B. (1x1) (1)

2.6.7 Explain how the slope (gradient) and permeability of underlying rock influence the drainage density in B. (2x2) (4)
[15]

2.7 Refer to the photograph of a valley below to answer QUESTIONS 2.6.1 and 2.6.2.

VALLEY



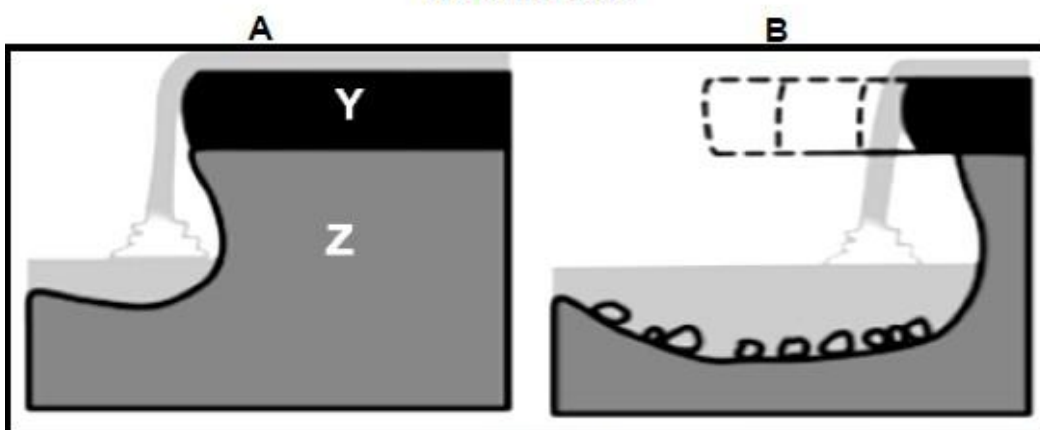
[Source: <https://www.gettyimages.ac/valleys>]

2.7.1 The valley in the photograph is generally found in the (upper/middle) course. (1x1) (1)

2.7.2 Identify TWO characteristics visible in the photograph to support your answer to QUESTION 2.7.1. (1x2) (2)

Refer to sketches A and B below of a waterfall to answer QUESTIONS 2.7.3 to 2.7.5.

WATERFALL



[Adapted from www.internetgeography.net]

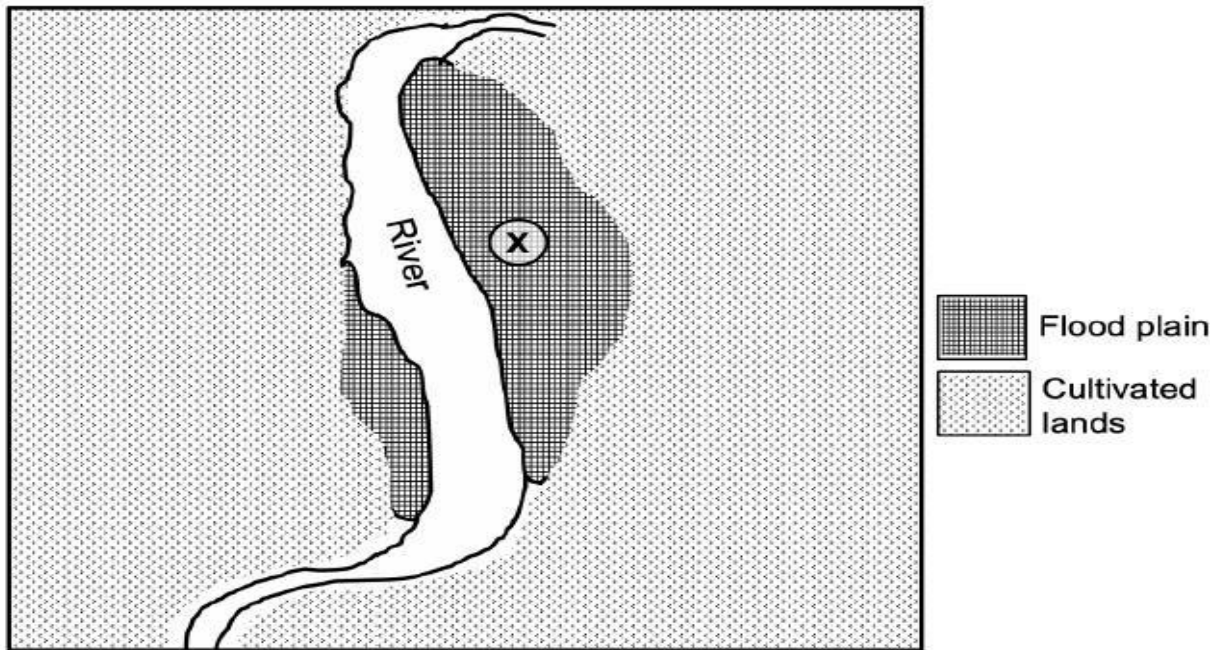
2.7.3 What is a waterfall? (1x2) (2)

2.7.4 Match Y and Z in sketch A with the concepts resistant (hard) rock and less resistant (soft) rock. (2x1) (2)

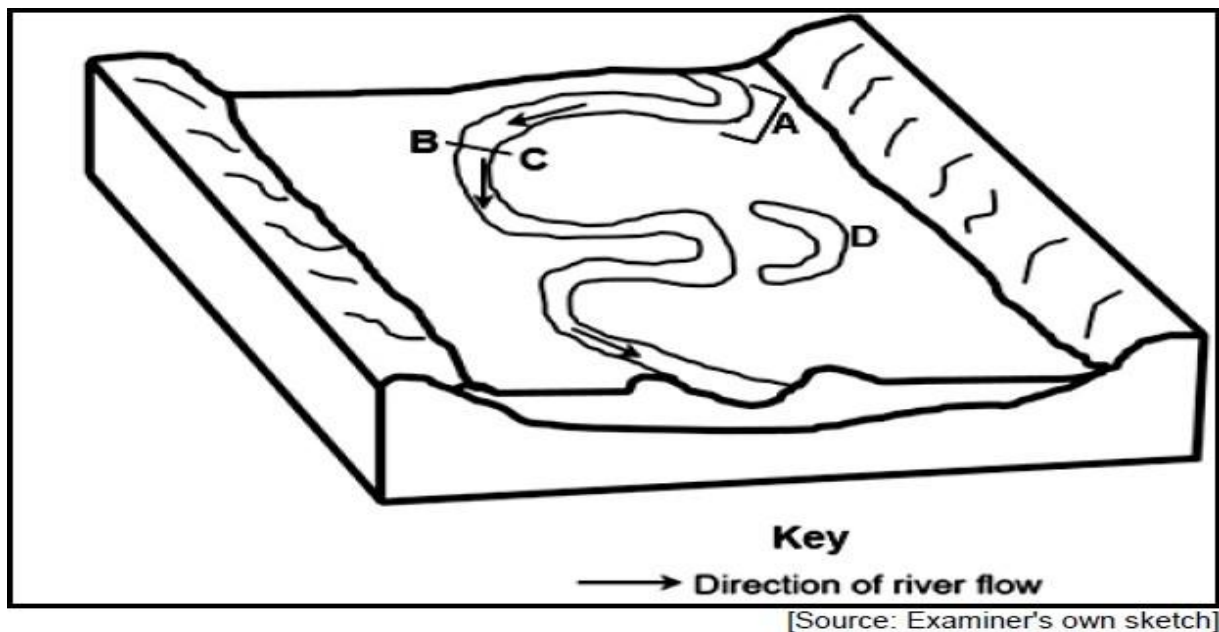
2.7.5 How does erosion in sketch B cause the waterfall to retreat (move) upstream? (3x2) (6)

[15]

2.8 Refer to the diagram of a flood plain.



- 2.8.1 State the geomorphological process that gave rise to the formation of the flood plain. (1x1) (1)
- 2.8.2 Describe the gradient at X. (1x2) (2)
- 2.8.3 Suggest TWO reasons for the wide flood plain at X. (1x2) (2)
- 2.8.4 In a paragraph of approximately EIGHT lines, explain the physical (natural) impact of flooding on the flood plain. (4x2) (8)
- 2.9 Refer to the sketch on fluvial landforms below.

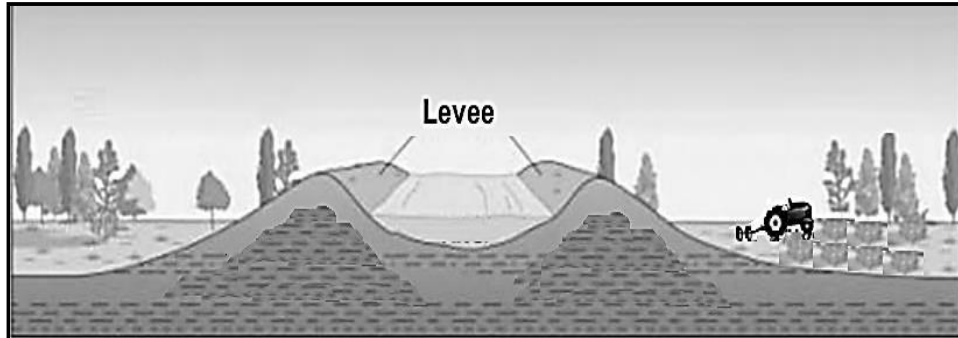


- 2.9.1 The fluvial landforms, illustrated in the sketch, are mainly found in the (middle/lower) course. (1x1) (1)
- 2.9.2 Identify fluvial landform A on the sketch. (1x2) (2)

- 2.9.3 a. Draw a rough cross-section from B to C. (2x1) (2)
- b. Will erosion take place at B or C? (1x1) (1)
- c. Give a reason for your answer to QUESTION 2.9.3(b). (1x2) (2)
- 2.9.4 In a paragraph of approximately EIGHT lines, describe the processes that resulted in the change of fluvial landform A to an ox-bow lake at D. (4x2) (8)

[15]

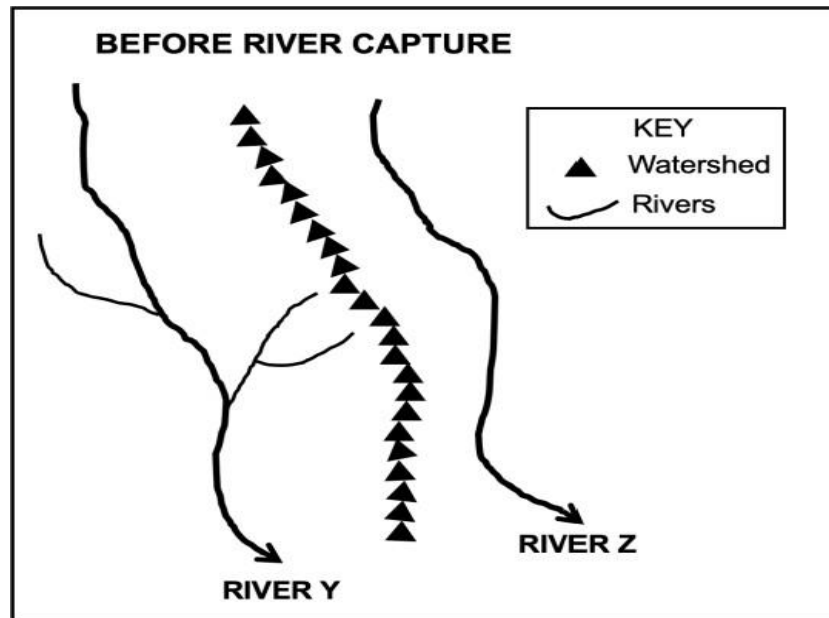
2.10 Refer to FIGURE 2.10, which illustrates Natural Levee



- 2.10.1 Define the term natural levee (1x2) (1)
- 2.10.2 Will coarse sediment or fine sediment be deposited first when flooding occurs? (1x2) (2)
- 2.10.3 Account for the different layers of silt found on the floodplain (1x2) (2)
- 2.10.4 Why is the deposition of silt positive for the farming community? (1x2) (2)
- 2.10.5 Although natural levees often prevent flooding, floods still occur in the event of great discharge. Discuss the negative influence of flooding on the farming community (3x2) (6)

[15]

2.11 Refer to the sketch map of rivers Y and Z before river capture has taken place.



[Source: Examiner's own sketch]

2.11.1 Define the concept river capture. (1x2) (1)

2.11.2 State ONE condition needed for river capture to take place.

2.11.3 Draw a sketch to illustrate the area after river capture has taken place. (1x2) (2)

Marks will be awarded for the accuracy of the sketch and indicating the following labels:

- Elbow of capture
- Misfit stream
- Wind gap

(1+3) (4)

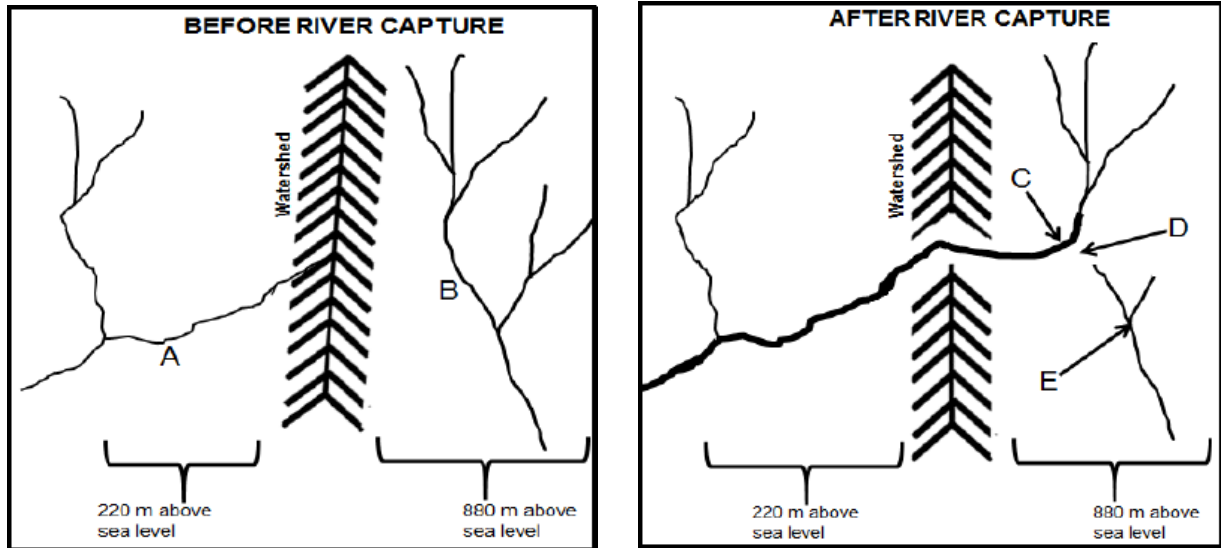
2.11.4 Will river Y or Z experience rejuvenation after river capture? (1x1) (1)

2.11.5 Give a reason for your answer to QUESTION 2.11.3. (1x2) (2)

2.11.6 Refer to your answer to QUESTION 2.5.5 and explain the impact of the change on the captor stream.

[15]

2.12 Refer to the sketches below on river capture (stream piracy).

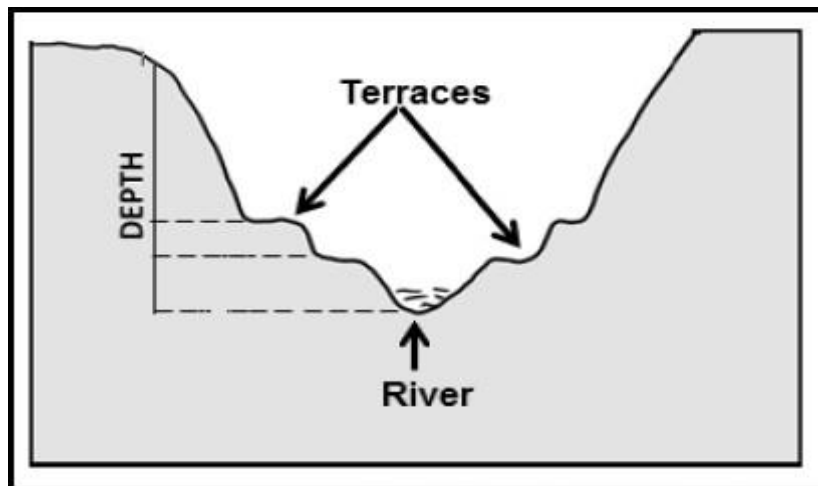


[Source: Examiner's own sketches]

- 2.12.1 Which river (A or B) has more erosive power? (1x1) (1)
- 2.12.2 Give ONE reason evident in the sketches to support your answer to QUESTION 2.12.1. (1x2) (2)
- 2.12.3 Identify features C and D. (2x1) (2)
- 2.12.4 Give ONE characteristic of feature D. (1x2) (2)
- 2.12.5 In a paragraph of approximately EIGHT lines, describe the changes that river E will experience after river capture has taken place. (4x2) (8)

[15]

2.13 Refer to the sketch on river rejuvenation.



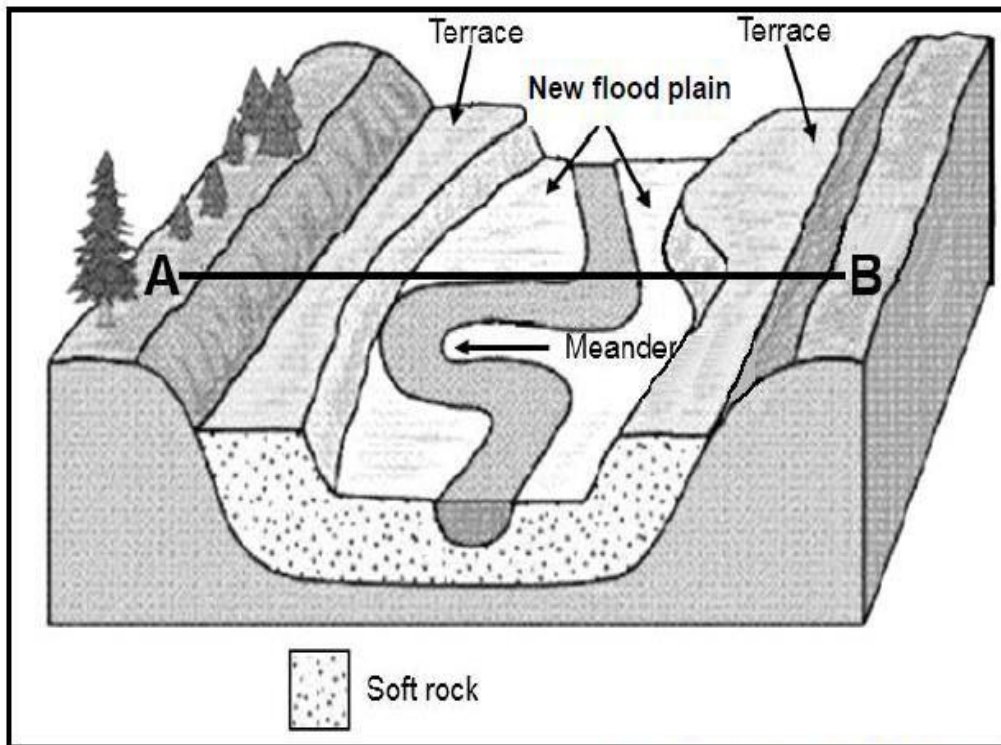
[Source: Examiner's own sketch]

- 2.13.1 Define the concept river rejuvenation. (1x2) (1)
- 2.13.2 State ONE factor that causes river rejuvenation. (1x1) (1)
- 2.13.3 Describe the relationship between vertical erosion and the depth of the valley. (1x2) (2)
- 2.13.4 Identify TWO features of river rejuvenation evident in the sketch. (2x1) (2)

2.13.5 Explain how river rejuvenation is responsible for the formation of the features identified in QUESTION 2.13.4. (2x2) (4)

2.13.6 What negative impact will a rejuvenated river have on the physical environment? (2x2) (4)
[15]

2.14 Refer to the sketch below on river rejuvenation.



[Adapted from www.studyblue.com]

2.15.1 What is river rejuvenation? (1x1) (1)

2.15.2 State TWO possible causes of river rejuvenation. (1x2) (2)

2.15.3 Draw a labelled free-hand cross-section from A to B of the illustrated river rejuvenation (1x2) (2)

Marks will be allocated for:

a. Shape of the rejuvenated valley (1x1) (1)

b. Indication of the new flood plain (1x1) (1)

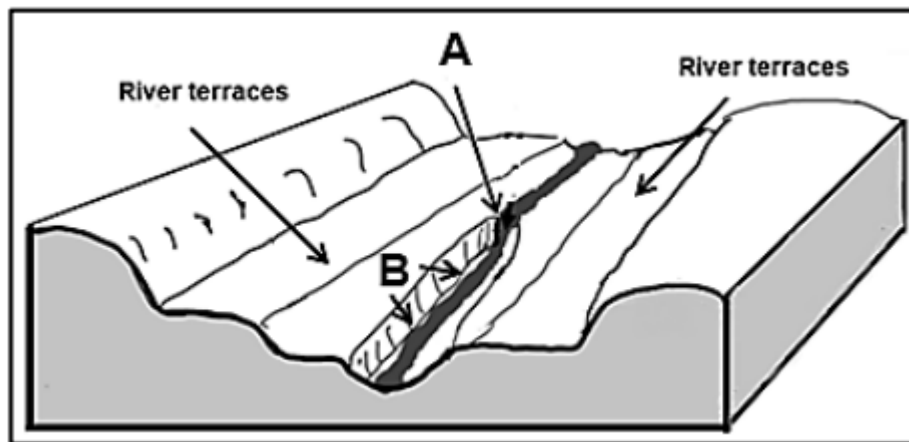
c. Indication of terraces (1x1) (1)

2.15.4 How did the river terraces (illustrated in the sketch) form? (2x2) (4)

2.15.5 Explain how the illustrated landscape will negatively impact on infrastructure development. (2x2) (4)

[16]

2.16 Refer to the sketch below on river rejuvenation.



[Source: Examiner's own sketch]

2.16.1 Define the term river rejuvenation. (1x2) (2)

2.16.2 Identify the feature at A. (1x1) (1)

2.16.3 How does feature A indicate that river rejuvenation has taken place? (1x2) (2)

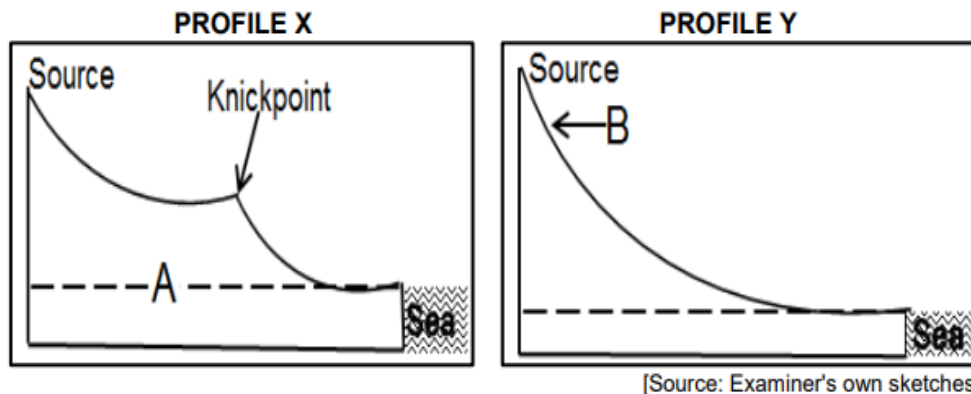
2.16.4 Describe the change that river rejuvenation has made to the landscape at B. (1x2) (2)

Refer to the river terraces in the sketch above

2.16.5 How do river terraces form? (2x2) (4)

2.16.6 Why are some river terraces not suitable for farming? (2x2) (4)

2.17 Refer to longitudinal profiles X and Y below



- | | | |
|--------|--|-----------|
| 2.17.1 | What is a longitudinal profile? | (1x2) (2) |
| 2.17.2 | A is known as the (temporary/permanent) base level of erosion | (1x1) (1) |
| 2.17.3 | Give an example of a natural temporary base level of erosion that could develop at the knickpoint. | (1x1) (1) |
| 2.17.4 | Which profile, X or Y, is graded? | (1x1) (1) |
| 2.17.5 | Give a reason for your answer to QUESTION 2.3.4. | (1x2) (2) |
| 2.17.6 | Explain how the profile (answer to QUESTION 2.3.4) developed. | (2x2) (4) |
| 2.17.7 | Draw a rough cross-profile of the river valley at B. | (1x2) (2) |
| 2.17.8 | Give a reason for the shape of the cross-profile drawn in QUESTION 2.3.7. | (1x2) (2) |