NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2020

GEOGRAPHY: PAPER I

Time: 3 hours 200 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 24 pages. Please check that your question paper is complete.

2. Read the questions carefully.

3. **ALL THREE QUESTIONS ARE COMPULSORY.**

4. Credit will be awarded for the following:
   - interpretation
   - explanation
   - evidence of personal observations where this is appropriate to the question.

5. You are encouraged to use sketch maps, diagrams and other explanatory drawings to support your answers wherever relevant.

6. Pay attention to the mark allocation.

7. Number your answers exactly as the questions are numbered.

8. It is in your own interest to write legibly and to present your work neatly.

QUESTION 1 INTEGRATED QUESTION: THE GEOGRAPHY OF MALALANE AND MPUMALANGA

Read the fact file and look at the location map for information on Malalane.

Fact File

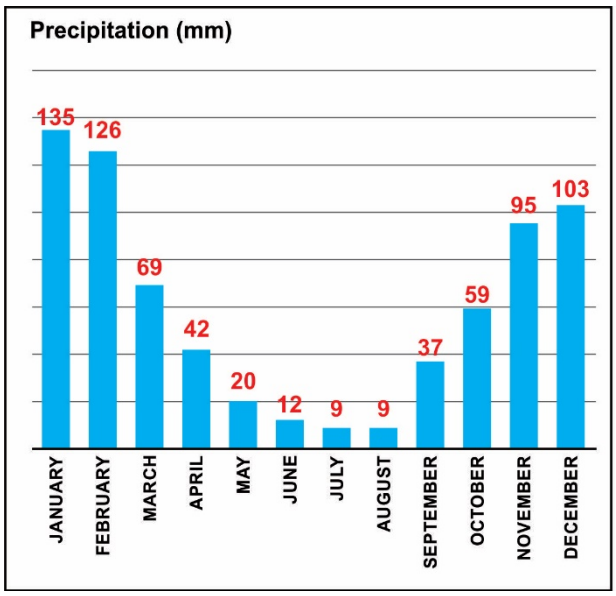
- The picturesque town of Malalane lies on the banks of the Crocodile River.
- It is positioned to allow easy access to the Kruger National Park through the Malalane Gate.
- In addition to the income derived from tourism, the thriving sugarcane and tropical fruit farming industries are the lifeblood of the community.
- Game lodges and small private game reserves are scattered around the outskirts of the town.
- Major South African chain stores have set up shop in Malalane.

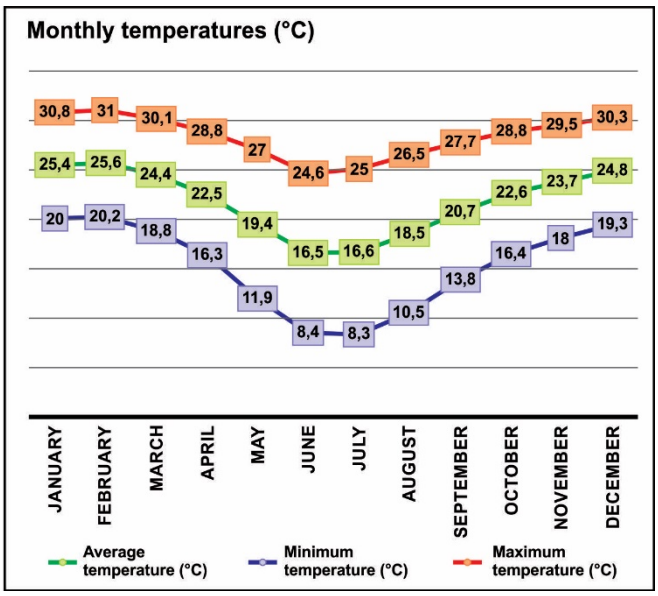
Location Map

1.1 Climate skills and interpretation

Study Figure 1, climate information for Malalane.

Figure 1 – Climate information





[Source: <climate-data.org>]

Complete the following questions by selecting the correct answer in each instance. Write the number of the question and the letter corresponding to your answer, for example: 1.1.0 A.

1.1.1 The climatic region of Malalane can be described as …

A continental.
B maritime.
C Mediterranean.
D coastal. (1)

1.1.2 The average annual rainfall is …

A 9 mm.
B 60 mm.
C 135 mm.
D 716 mm. (1)

1.1.3 The seasonal average temperature range for Malalane is …

A 1 °C.
B 9,1 °C.
C 16,4 °C.
D 25 °C. (1)

1.1.4 The annual mean temperature for Malalane is …

A 8,9 °C.
B 16,5 °C.
C 22 °C.
D 25,5 °C. (1)

1.2 Subtropical anticyclones and associated weather conditions

Study Figure 2, a tweet from SA Weather warning of severe thunderstorms in the Malalane region.

Figure 2 – Tweet from SA Weather

[<sawx.co.za>]

1.2.1 Name the main weather system responsible for the development of line thunderstorms over South Africa. (1)

1.2.2 Name ONE other hazard not mentioned in the tweet. (1)

1.2.3 Using a diagram, explain how line thunderstorms develop over the interior of South Africa. (5)

1.2.4 Explain why there is a thicker band of clouds to the east of the moisture front (line thunderstorms). (2)

1.2.5 Explain why the weather conditions associated with line thunderstorms are more severe than isolated (normal) thunderstorms. (2)

1.3 Valley climates

Study Figure 3, the adapted Google Earth image of the Malalane region in the Crocodile River valley.

Figure 3 – Google Earth image

[Source: Google Earth]

1.3.1 Malalane lies in a valley along the Crocodile River. Name the wind that the town will experience during the day. (1)

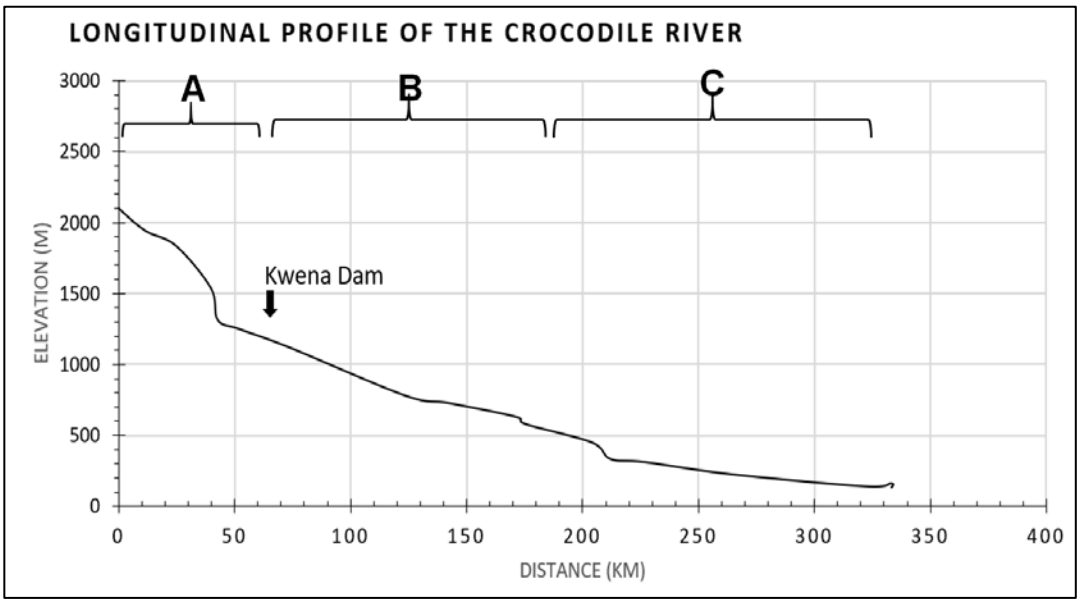
1.3.2 Explain why the smoke from the sugar mill gets trapped in the valley early in the morning on a clear day. (2)

1.3.3 With the aid of a diagram, explain why pollution concentrations will always be higher over the interior of South Africa during winter. (6)

1.4 Catchment and river management

Study Figure 4, the longitudinal profile of the Crocodile River.

Figure 4 – Longitudinal profile



[Source: <www.ee.co.za>]

1.4.1 Choose the term(s) from the box to complete the descriptions of the features found in Figure 4. Write only the number of the question and the correct term, for example: (h) rapid.

graded; upper; temporary; waterfall;
lower; rejuvenation; oxbow lake; permanent;
headward erosion; ungraded; lateral erosion; middle

(a) The stage labelled **A** is known as the … course. (1)

(b) The Kwena Dam is a … base level of erosion. (1)

(c) The dam will cause … along the river course. (1)

(d) The Crocodile River has a / an … profile. (1)

(e) In stage **B** the main form of erosion is … (1)

(f) Stage **C** is where the feature called a / an … is most likely to be found. (1)

1.4.2 In which stage of the river will you find the greatest volume of water? Explain why. (3)

1.5 Catchment and river management

Read the fact file below about a development along the Crocodile River near Malalane.

Fact File

- Malalane Safari Resort Investments have proposed the construction of a 240-bed Safari Lodge with a four-star rating in the Malalane region of the Kruger National Park alongside the Crocodile River and the Timfenheni River.
- The site for the proposed development is at the confluence of the Timfenheni River and the Crocodile River on the southern boundary of, and within, the Kruger National Park.
- Near the proposed lodge, surface water features consist of the **riparian zone** for both the Timfenheni and Crocodile rivers and floodplain **wetlands** (flood benches) within the **riparian zone** of the Crocodile River.

[<www.sanparks.org>]

1.5.1 Define the following:

(a) *wetland* (1)

(b) *drainage divide* (1)

1.5.2 Describe TWO benefits that a *wetland* adds to a river system. (2)

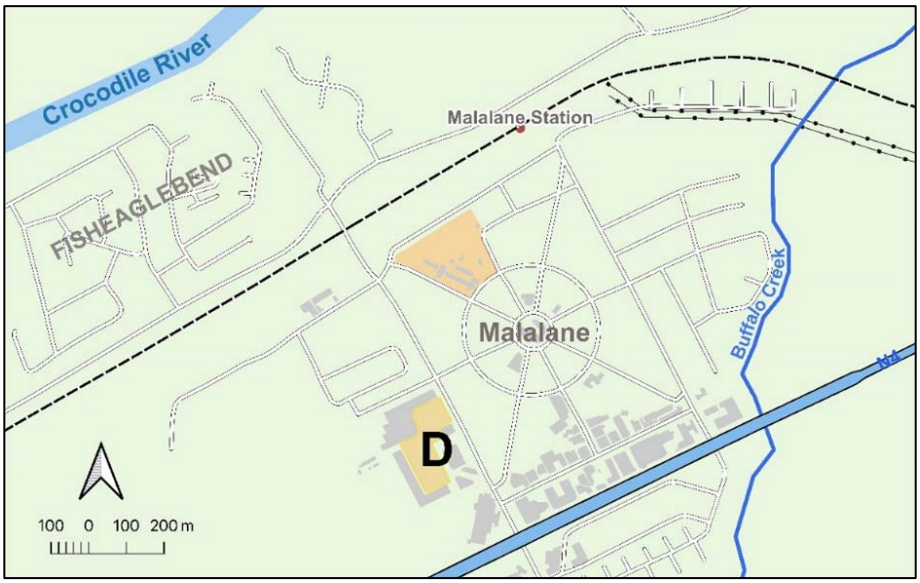
1.5.3 Assess TWO reasons why this development should ensure that it maintains the *riparian zone* along the river. (4)

1.5.4 Analyse THREE negative impacts that human activities can have on the catchment areas of rivers in South Africa. (6)

1.6 Urban structure and patterns

Study Figure 5, an OpenStreetMap of Malalane. The settlement relies on the agricultural industry and the passing trade of the tourists going to and coming from the Kruger National Park.

Figure 5 – Map of the settlement of Malalane



[<www.openstreetmap.org>]

1.6.1 Name the street pattern of **Malalane** and **Fish Eagle Bend**. (2)

1.6.2 Name TWO features that influenced the shape and development of Malalane. (2)

1.6.3 Explain why most of the businesses are found along the N4 highway. (2)

1.6.4 The building labelled **D** is a major shopping centre that services the Malalane area.

(a) Define the terms:

(i) *anchor tenant*

(ii) *chain store* (2)

(b) Analyse why retail chain stores would need to consider the factors below when trying to find the best location for a retail business.

(i) *range*

(ii) *threshold population*

(iii) *market area* (6)

1.6.5 Some people move from larger urban areas to minor country towns. Suggest TWO different reasons why people might move to minor country towns like Malalane. (4)

1.7 Agriculture

Malalane is one of the major sugar-producing areas in South Africa. Study Figure 6, an infographic outlining information about the sugar industry in South Africa.

Figure 6 – Infographic

[Source: <apps.fas.usda.gov&SARS>]

1.7.1 Calculate the total yield of cane crushed for 2019 / 2020 in MT per hectare. (2)

1.7.2 Account for the decrease in the area harvested between 2014 / 15 and 2016 / 17. (2)

1.7.3 Name TWO major uses of sugar in South Africa. (2)

1.7.4 Besides Mpumalanga, where else in South Africa is sugar cane grown? (1)

1.7.5 In 2018, South Africa introduced a *sugar tax*. Explore TWO possible impacts this might have had on the sugar industry. (4)

1.8 Rural development strategies

Read the following fact file on the land reform process in the Malalane region of Mpumalanga.

Sugar company's sweet deal with Malalane small-scale growers

[Source: Examiner's photo]

- Numerous sugar cane fields in South Africa have been claimed through **land restitution**. Were this land to go fallow or be used for other agricultural purposes, the potential loss of sugar production would hold dire consequences for the sugar **value chain**.
- Malalane is one of South Africa's largest sugar cane-producing areas.
- RCL Foods saw land restitution as an opportunity to build better communities.
- Community property associations (CPA) and RCL Foods created joint ventures. Each party has 50% ownership while the farmland is leased from the CPA.
- One of the focus areas of the agreements is skills transfer, and for this reason we prefer to employ members of the beneficiary communities.
- We provide support services such as extension officers, engineers, **agronomists**, financial teams and human resources.
- The golden thread throughout this entire process has been **sustainability**.

[Source: *Farmer's Weekly*]

1.8.1 Match the descriptions in Column B to the terms in Column A. Write only the number and the letter corresponding to your answer in your answer book, for example: (f) H. (All the terms in Column A appear in bold print in the preceding text.)

Column A		**Column B**	
(a)	Land restitution	A	To avoid the depletion of natural resources in order to maintain an ecological balance.
(b)	Value chain	B	The contacts and flow of information and / or materials between two or more industrial sectors or firms.
(c)	Sustainability	C	The process by which value is added to a product. This includes production, marketing and the provision of after-sales service.
(d)	Agronomists	D	Taking privately owned property against the wishes of the owners to be used for the benefit of the overall public.
		E	Giving land back to people who lost their land as a result of racially discriminatory practices during apartheid.
		F	They also work to improve the quality of seed and the nutritional value of crops.

(4)

1.8.2 You are asked by your local government to compile a report on the implementation of a community-based land restitution program such as the one between the community around Malalane and RCL Foods.

- Outline the *benefits* of this project / partnership.
- Evaluate why land reform is needed in South Africa.
- Explore the *drawbacks* of the current land reform process in South Africa.
- Discuss what support the government can provide to the people resettled on the land once land reform has taken place.

Note: You may draw on any examples you have studied to support your discussion. Use the rubric on the next page to plan and structure your report.

CRITERIA	MARKS
Writing skills • Take into consideration structure and presentation. • Use of brief introduction and conclusion. • Logical discussion and use of sub-headings.	**4**
Content knowledge • Correct use of geographical terminology and concepts. • Adherence to topic and sub-headings.	**12**
Supporting evidence – analysis and understanding • The ability to analyse and evaluate the topic is assessed in this category. • Reference made to case study material / fact file / source material provided. • If appropriate, reference must be made to familiar / local or other examples.	**4**

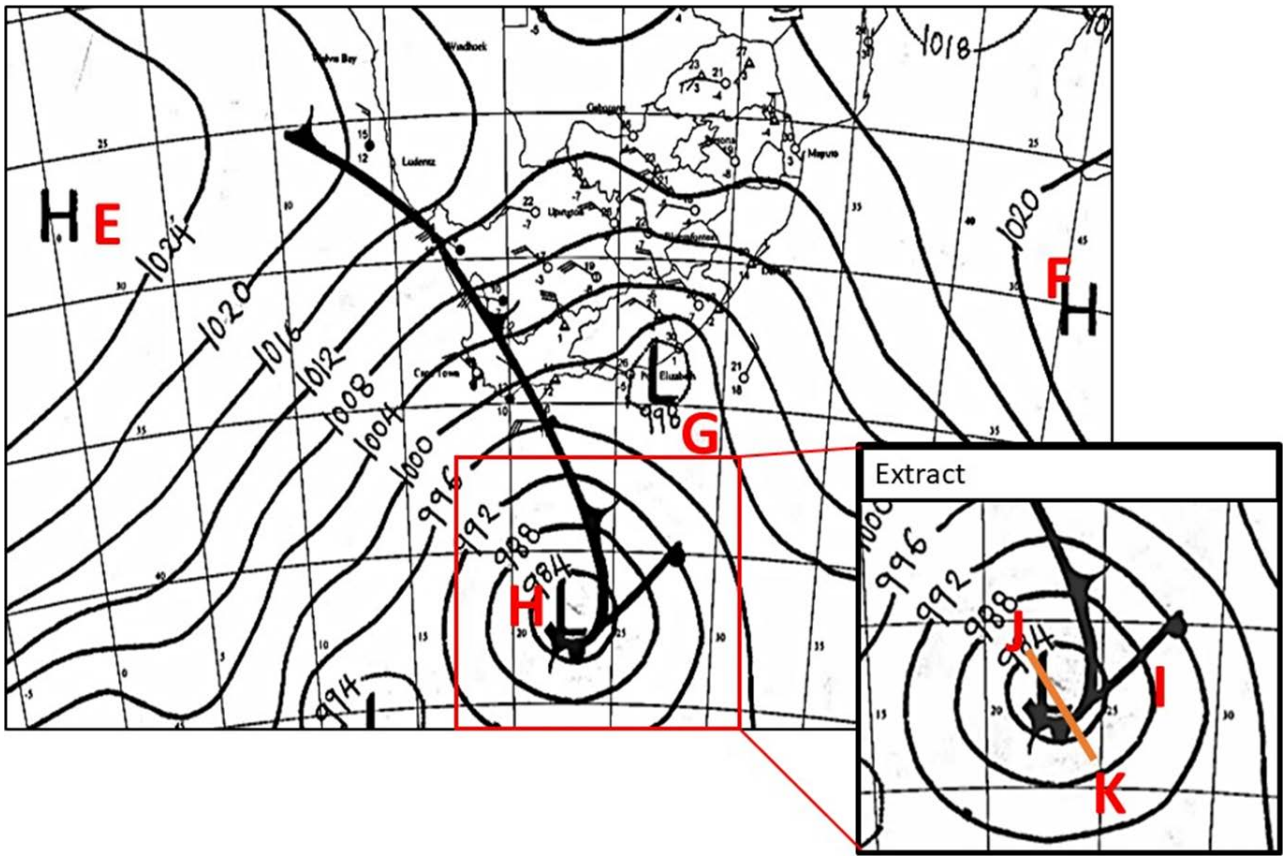
100 marks

QUESTION 2 CLIMATE, WEATHER AND GEOMORPHOLOGY

2.1 Subtropical anticyclones and associated weather conditions

Study Figure 7, a synoptic weather chart with an extract of a mid-latitude cyclone.

Figure 7 – Synoptic weather chart



[Source: SAWS]

Study the labels on the synoptic chart and select the word(s) in brackets that will make the statement TRUE, for example: 2.1.0 autumn.

2.1.1 Pressure system **E** is over the (Indian / Atlantic / Arctic) Ocean. (1)

2.1.2 This synoptic weather map depicts (spring / summer / winter) conditions. (1)

2.1.3 The system at **F** is known as the (South Atlantic / South Indian / interior) anti-cyclone. (1)

2.1.4 The weather associated with pressure cell **F** is (stable / unstable / fluctuating). (1)

2.1.5 The circulation of air at weather system **G** is (anticlockwise / clockwise / downward). (1)

2.1.6 The common wind associated with the low pressure at **G** is (katabatic / berg / anabatic). (1)

2.2 Mid-latitude cyclones

Study the mid-latitude cyclone labelled **H** and the highlighted extract in the synoptic chart (Figure 7).

2.2.1 Explain why warm fronts (**I**) seldom influence the weather of South Africa. (1)

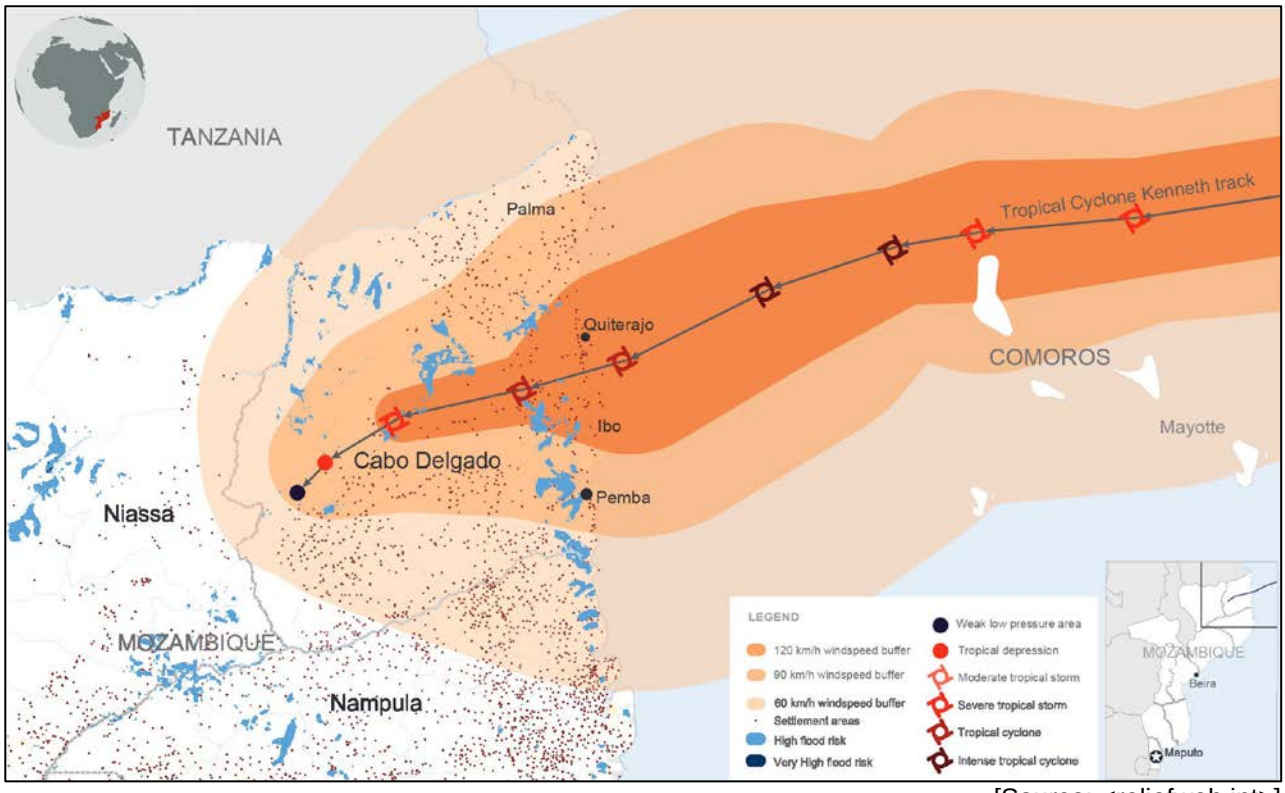
2.2.2 Elaborate on how a warm front occlusion can occur as the next stage of development of this mid-latitude cyclone. (2)

2.2.3 Draw a cross-section, from **J** to **K**, of the warm front occlusion. (5)

2.3 Tropical cyclones

Study the map below of the path and intensity of Tropical Cyclone Kenneth in April 2019.

Figure 8 – Tropical Cyclone Kenneth



[Source: <reliefweb.int>]

Answer the following questions by selecting the correct term in each instance. Write the number of the question and the letter corresponding to your answer, for example: 2.3.0 A.

2.3.1 How many tropical cyclones occurred before Kenneth in 2019?

A 9
B 10
C 11
D 12 (1)

2.3.2 Why does the intensity of the storm weaken as it moves over land?

A The water is too cool.
B The humidity of the air increases.
C The wind direction changes.
D It loses the moisture source and friction. (1)

2.3.3 The Mozambique Channel is an ideal region for the development of tropical cyclones because of the …

A warm water off the east coast.
B cold ocean current.
C ITCZ.
D the trade winds. (1)

2.3.4 What causes the dangerous quadrant / semicircle to form?

A Wind direction is the same direction as the movement of the storm.
B The wind shear direction within the vortex.
C The jet stream direction in the upper atmosphere.
D Air circulation around the low pressure. (1)

2.3.5 Which of the following conditions are found at the centre or in the eye of the storm?

A strong winds
B heavy rains
C clear and calm
D cold temperatures (1)

2.4 City climates

Refer to Photograph 1, showing the presence of pollution over the Sandton CBD.

Photograph 1 – Photograph of pollution

[Source: examiners photograph]

2.4.1 Identify the part of the city that experiences the highest temperature. (1)

2.4.2 List TWO causes of an *urban heat island.* (2)

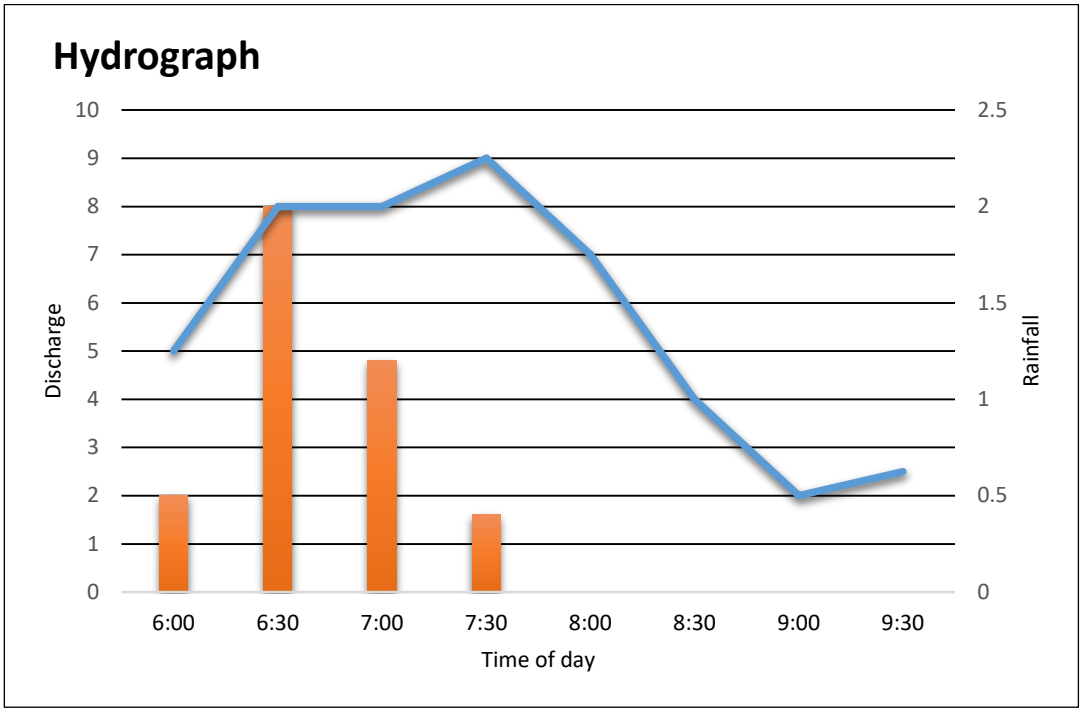
2.4.3 Explain why most major cities will experience a *pollution dome*. (1)

2.4.4 Suggest TWO measures that can be taken to reduce the effects of a pollution dome. (2)

2.5 Fluvial processes

While studying a river in an urban area, you collect and record discharge information, which you then graph using Excel (Figure 9).

Figure 9 – Hydrograph



2.5.1 Select the correct words to match the statements related to the hydrograph in Figure 9. Write only the question number and the corresponding word, for example: (e) river.

rising limb	**flood peak**	**cumec**	**millimetres**
peak rainfall	**falling limb**	**base flow**	

(a) The unit used for the discharge of a river is known as … (1)

(b) Rainfall on the hydrograph is measured in … (1)

(c) The point where the rainfall event is highest is known as … (1)

(d) The point where the discharge continues to rise is known as … (1)

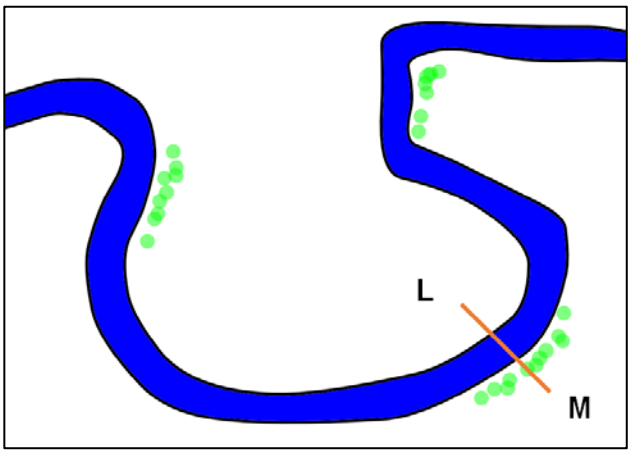
2.5.2 Examine TWO factors that affect a storm hydrograph during a rainfall event. (2)

2.5.3 Explain how a hydrograph's shape is related to the drainage basin's shape. (2)

2.6 Fluvial features

Study the diagram in Figure 10 below of a typical meander.

Figure 10 – Meander



2.6.1 Name and describe ONE erosional process that could happen at **M**. (3)

2.6.2 Draw and label a cross-section along the line **L** to **M** to show the following:

(a) the likely differences in the depth of the channel

(b) a slip-off slope

(c) a river cliff

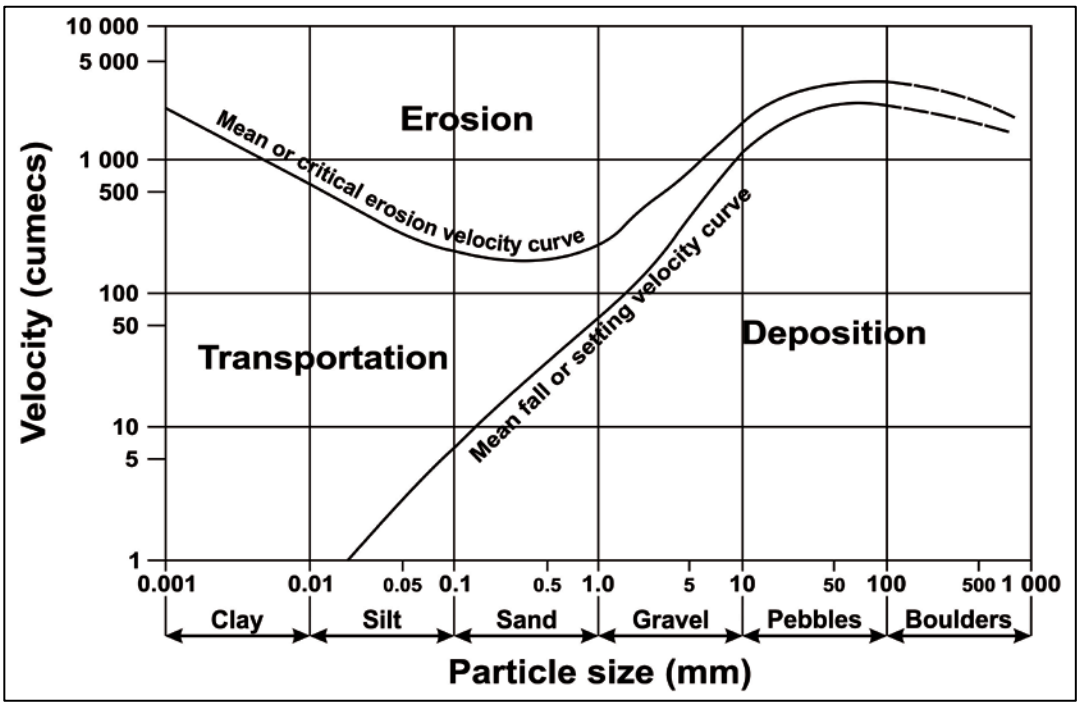
(d) undercut

(4)

2.7 Fluvial processes

Study Figure 11 below of a typical Hjulström curve.

Figure 11 – Hjulström curve



[<researchgate.net>]

2.7.1 Determine the mean settling velocity for a …

(a) 0,5 mm sand particle. (1)

(b) 50 mm pebble. (1)

2.7.2 Studying the Hjulström curve, explain the relationship between velocity, deposition and erosion for various particle sizes. (4)

2.7.3 Assess TWO possible limitations of the Hjulström curve. (4)

50 marks

QUESTION 3 RURAL AND URBAN SETTLEMENT AND ECONOMIC GEOGRAPHY OF SOUTH AFRICA

3.1 Settlement true and false

State whether the following statements are TRUE or FALSE. Write only the number of the question and whether it is True or False, for example: 3.1.0 False.

3.1.1 A central place is any settlement that provides goods and services for smaller neighbouring settlements. (1)

3.1.2 A round settlement often follows features such as roads and / or rivers. (1)

3.1.3 Filtering is a process whereby social groups move from one residential area to another, leading to changes in the social nature of residential areas. (1)

3.1.4 A dry point settlement is located where the main advantage is a water supply in an otherwise dry area. (1)

3.1.5 The zone of transition is found between the built-up area and the countryside, and there is often competition for land use. (1)

3.2 Rural settlement

Study Photograph 2 below of a typical rural settlement in KwaZulu-Natal.

Photograph 2 – Rural settlement

[Source: Examiners Photograph]

3.2.1 Select the term(s) in brackets that will make the statements TRUE. Write only the question number and the corresponding term, for example: (d) megalopolis.

(a) This settlement is known as a / an (isolated farmstead / hamlet / town). (1)

(b) The physical factor responsible for the choice of site for this settlement is the (flat land / river / valley). (1)

(c) This settlement is (unifunctional / multifunctional / quad-functional). (1)

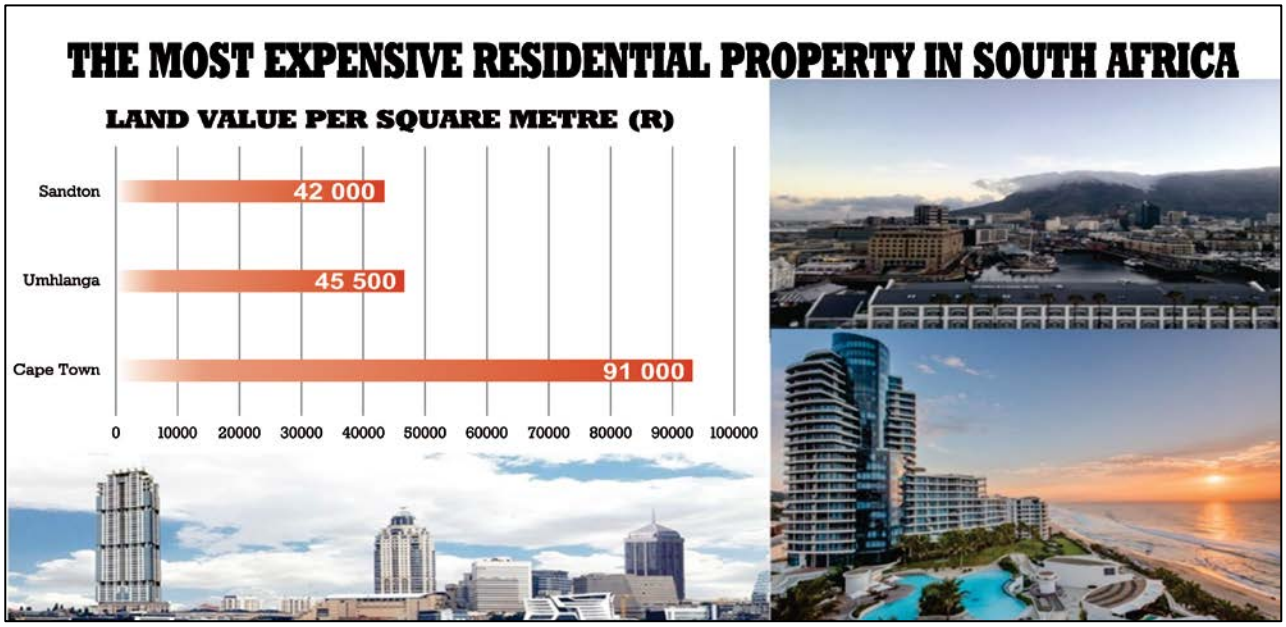
3.2.2 Name ONE service that is being provided to this settlement. (1)

3.2.3 Discuss TWO issues around service delivery for a settlement like the one in the photograph. (4)

3.3 Urban settlement issues

Study the infographic in Figure 12 of the most expensive residential properties in South Africa.

Figure 12 – Most expensive residential land



[Source: AfrAsia Bank and New World Wealth]

3.3.1 Name TWO factors that could affect land value. (2)

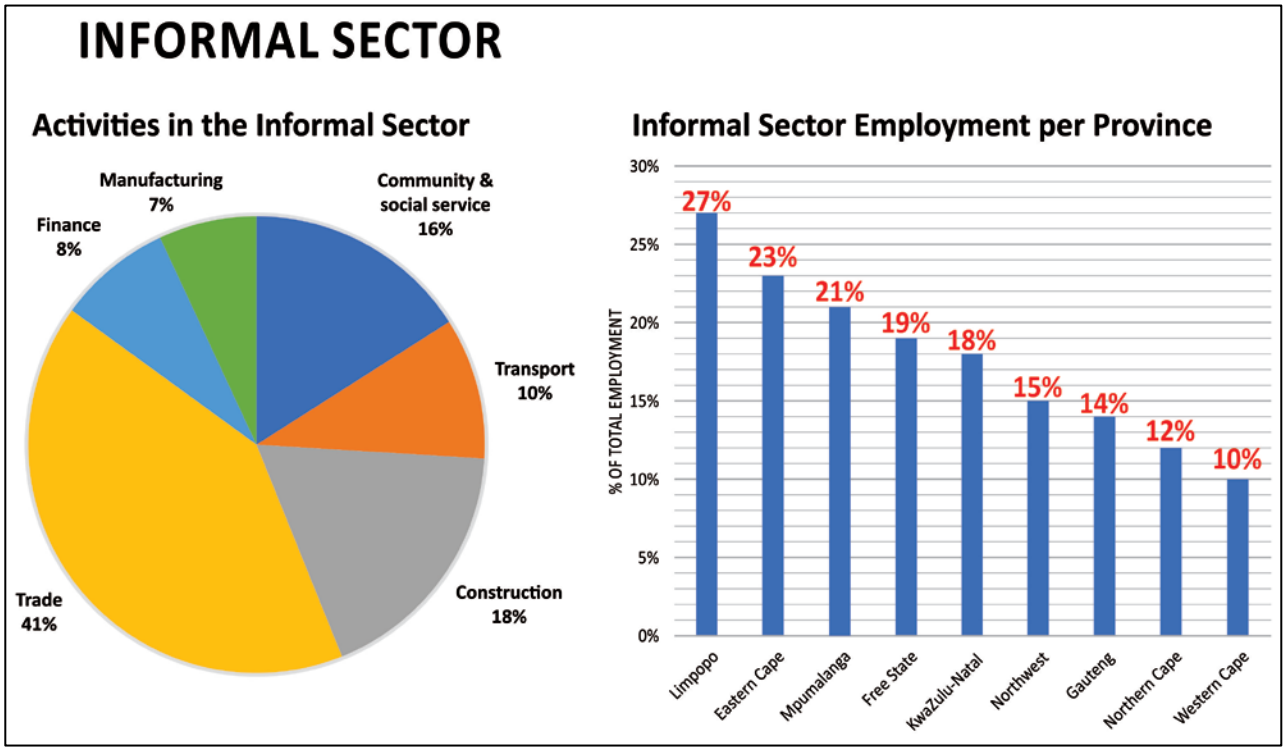
3.3.2 Predict TWO urban issues that could be faced by South African cities by 2050. (4)

3.3.3 Propose THREE sustainable strategies to deal with expanding urban settlements. (6)

3.4 Informal sector

Study the infographic in Figure 13 outlining the state of the informal sector of the South African economy.

Figure 13 – Infographic



[Source: <www.africancentreforcities.net>]

3.4.1 Explain why Limpopo has the highest percentage of informal employment. (2)

3.4.2 Suggest TWO reasons why <u>trade</u> makes up 41% of the informal sector of the economy. (4)

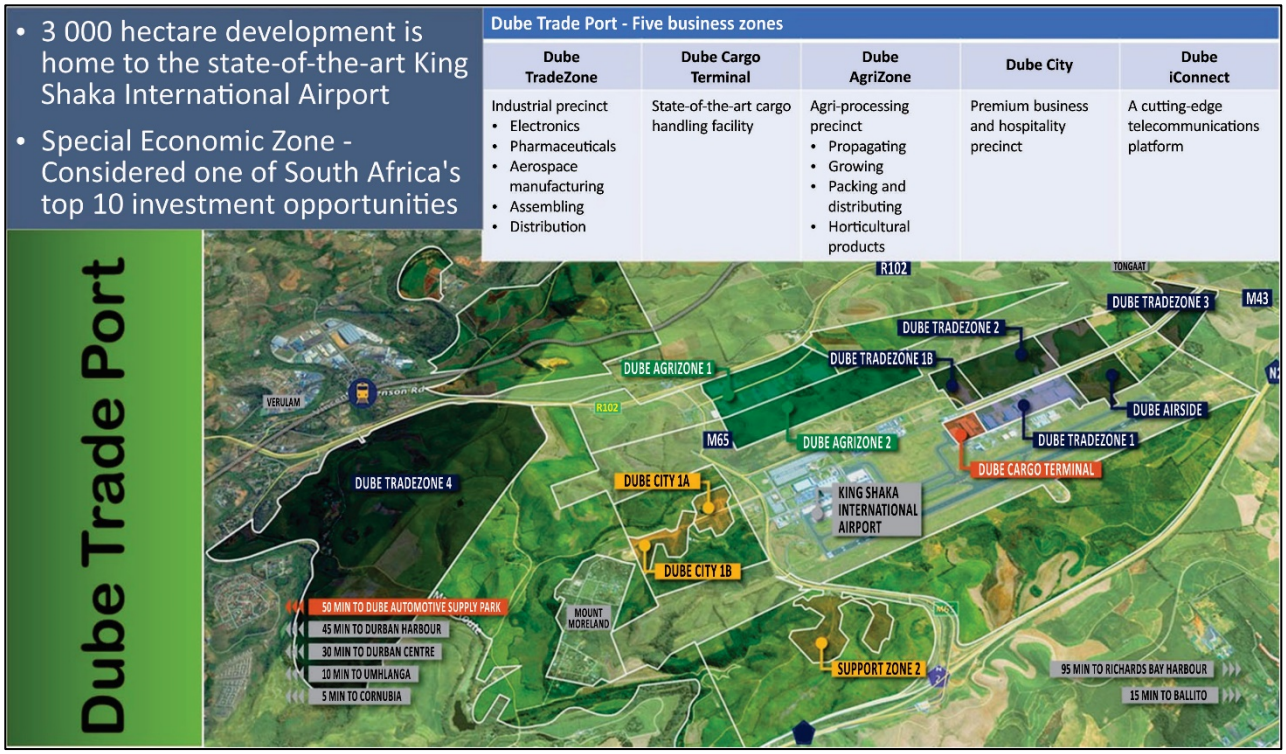
3.4.3 Evaluate the importance of female workers to the informal sector of the economy. (4)

3.4.4 Discuss TWO ways in which informal traders can be empowered to make a meaningful contribution to the South African economy. (2)

3.5 Secondary and tertiary sectors

The infographic in Figure 14 below outlines the major development around the Dube Trade Port north of the Durban City Centre.

Figure 14 – Dube Trade Port



[Source: <dubetradeport.mixed-reality.co.za>]

3.5.1 Define the following terms:

(a) *agri-processing*. (1)

(b) *green fields development*. (1)

3.5.2 Explain why South Africa could earn more money by exporting agricultural products in a processed form. (1)

3.5.3 Classify the economic sector that the Dube iConnect precinct falls under. (1)

3.5.4 List THREE factors that promote industrial development in the KwaZulu-Natal region. (3)

3.5.5 List TWO situational factors that can be seen in Figure 14 that determined the location of the Dube Trade Port. (2)

3.5.6 Explore the importance of the Dube Trade Port development to the economy of KwaZulu-Natal. (4)

50 marks

Total: 200 marks