



Province of the
EASTERN CAPE
EDUCATION

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

SEPTEMBER 2010

GEOGRAPHY – FIRST PAPER

MARKS: 300

TIME: 3 hours



This question paper consists of 13 pages.

INSTRUCTIONS AND INFORMATION

- 1 This question paper consists of FOUR questions.
- 2 Answer THREE questions of 100 marks each. Choose at least ONE question from SECTION A, at least ONE question from SECTION B and a THIRD question from SECTION A or B.
- 3 All diagrams are included in the annexure.
- 4 Number the answers correctly according to the numbering system used in this question paper.
- 5 Number all your answers in the CENTRE of the line.
- 6 Leave a line open between subsections of questions.
- 7 Start EACH question AT THE TOP of a NEW page.
- 8 Do NOT write in the margins of the ANSWER BOOK.
- 9 Encircle the numbers of the questions that you have answered on the front page of the ANSWER BOOK.
- 10 Where possible, illustrate your answers with labelled diagrams.
- 11 Write neatly and legibly.

SECTION A
PHYSICAL GEOGRAPHY

Answer at least ONE question from this section.

QUESTION 1

- 1.1 Refer to FIGURE 1.1, showing air movement in a valley. Choose the correct answer from the alternatives provided in brackets to make all the statements TRUE. Only write down the question number and the correct term next to it.

The movement of air in the diagram is known as an/a 1.1.1 [anabatic/katabatic] wind. This wind occurs during 1.1.2 [night/day]. Here air moves 1.1.3 [up slope/down slope]. 1.1.4 [Sublimation/Condensation] causes frost pockets on the floor of the valley. This air movement causes 1.1.5 [evaporation/temperature inversion] in the valley.

5x2=(10)

- 1.2 Refer to FIGURE 1.2, showing a landscape in its mature stage. Give the correct term for each of the statements below.

1.2.1 **A** is a landform with a flat top and it covers thousands of square kilometres.

1.2.2 Landform **B**'s width is greater than its height.

1.2.3 **C** is a landform whose height is greater than its width.

1.2.4 **D** is an almost vertical slope found at the top of feature **A**.

1.2.5 **E** is a flat surface that is created after the erosion of landforms such as landform **A**.

5x2=(10)

- 1.3 Refer to FIGURE 1.3, showing temperature differences and answer the following questions.

1.3.1 Define the term *urban heat island*.

1x2=(2)

1.3.2 Compare the temperature of areas **A** and **B**.

1x2=(2)

1.3.3 Give THREE reasons for the difference in temperature of areas **A** and **B** as mentioned in QUESTION 1.3.2.

3x2=(6)

1.3.4 Mention, with reasons, the effect of the temperature change mentioned in QUESTION 1.3.2 on rainfall patterns in the mapped area.

3x2=(6)

- 1.4 Refer to FIGURE 1.4 showing a mid-latitude cyclone (**X**) off the southwest coast of South Africa and answer the following questions.
- 1.4.1 What evidence on the synoptic weather map suggests that the low-pressure system **X** is a mid-latitude cyclone? 1x2=(2)
- 1.4.2 Give the general direction in which this mid-latitude cyclone moves. 1x2=(2)
- 1.4.3 Give ONE reason for the direction of movement as given in QUESTION 1.4.2 above. 1x2=(2)
- 1.4.4 Draw a cross-section sketch from **G** to **H** of the cold front. Clearly label and indicate the positions of the
- cold sector;
 - warm sector; and
 - main rain bearing cloud. 3x2=(6)
- 1.4.5 Mid-latitude cyclone **X** is considered a blessing and a curse to the South-western Cape. In a single paragraph (no more than 12 lines), explain why this is the case. 6x2=(12)
- 1.5 Refer to FIGURE 1.5 showing river capture along the South African escarpment, and answer the following questions.
- 1.5.1 Define the following terms:
- (a) *River capture* 1x2=(2)
- (b) *Rejuvenation* 1x2=(2)
- 1.5.2 State the type of river capture that is taking place. 1x2=(2)
- 1.5.3 Which river, the Tugela or the Orange, will enlarge its river basin after river capture has occurred? 1x2=(2)
- 1.5.4 Name ONE factor that could have caused this river capture. 1x2=(2)
- 1.5.5 Which river, the Tugela or the Orange, will experience rejuvenation as a result of the river capture taking place? 1x2=(2)
- 1.5.6 Give TWO reasons for your answer to QUESTION 1.5.5. 2x2=(4)

- 1.6 Read the extract of the Naturella flood and answer the following questions.

The Naturella flood causes much damage

Naturella, a settlement situated along the banks of the Kungano River, experienced massive destruction when the Kungano River flooded. Naturella experienced approximately 300 mm of rainfall over four days. Intense line thunderstorms were experienced during this period. Recent droughts resulted in very little vegetation covering the surface of the area. Limited vegetation, a narrow drainage basin, overgrazing, mining and an increase in settlements resulted in a massive increase in the runoff in this area. These factors contributed significantly to the floods.

Hydrologists who tested the drainage discharge of the Kungano River in the Naturella area prior to this flood found it to be high. They warned the local council of the possibility of this type of disaster.

- 1.6.1 Define the term *flooding*. 1x2=(2)
- 1.6.2 Briefly explain any ONE way in which physical (natural) factors, mentioned in the extract, contributed to the Naturella flooding. 2x2=(4)
- 1.6.3 Explain any ONE way in which humans, mentioned in the extract, contributed to the Naturella flooding. 2x2=(4)
- 1.6.4 Provide evidence from the extract indicating that this flood could have been prevented. 1x2=(2)
- 1.6.5 Physical and human factors have contributed greatly to the Naturella flood disaster. It is important to find solutions to these problems so that this type of disaster can be avoided in the future. In a single paragraph (no more than 12 lines) outline ways in which we could reduce the effects of the physical and human factors causing the Naturella flood disaster. 6x2=(12)
- [100]**

QUESTION 2

- 2.1 Refer to FIGURE 2.1 showing berg wind conditions. Indicate whether the following statements are TRUE or FALSE. Choose the correct answer and only write 'true' or 'false' next to the question number.
- 2.1.1 The berg wind is a warm dry wind.
- 2.1.2 Moist air moves from the interior and heats up adiabatically as it flows over the escarpment.
- 2.1.3 For berg winds to occur there must be an interior high-pressure system and a thermal low-pressure system over the coast.
- 2.1.4 Berg winds are often experienced in summer.
- 2.1.5 Berg winds are especially responsible for veld fires. 5x2=(10)

- 2.2 Refer to FIGURE 2.2 showing a flow hydrograph. Match each of the letters **A, B, C, D** and **E** with ONE of the concepts below. Write down the letters one below the other and next to it the correct concept.
- peak flow
 - rainfall peak
 - surface run-off
 - base flow
 - lag time
 - rising limb
 - initial discharge
- 5x2=(10)
- 2.3 Refer to FIGURE 2.3, a synoptic map of Southern Africa, and answer the following questions.
- 2.3.1 State, with ONE reason, the season indicated on this synoptic weather map. 2x2=(4)
- 2.3.2 Name the high-pressure cell (**H**) situated west of South Africa. 1x2=(2)
- 2.3.3 Compare any THREE weather conditions at Durban to that of Port Nolloth (state the weather conditions in tabular form). 3x2=(6)
- 2.3.4 Port Nolloth and Durban are found on the same line of latitude but their temperatures are different. Give ONE reason why this is the case. 1x2=(2)
- 2.4 Read the extract below and answer the questions that follow.

Africa stalls climate talks in support of Kyoto goals

UN climate change talks failed yesterday as Africa and other developing countries caused dispute over the future of the Kyoto Protocol. They demanded that unwilling rich countries raise their pledges for reducing greenhouse gas emissions. This dispute which resulted in a deadlock (no decision was taken) was seen as an attempt to make emission reductions the first item for discussion.

- 2.4.1 Define the term *climate change*. 1x2=(2)
- 2.4.2 State the main aim of the Kyoto protocol and mention ONE main way in which it aims to achieve this goal. 2x2=(4)
- 2.4.3 State THREE ways in which you could assist in achieving the main goal of the Kyoto Protocol. 3x2=(6)
- 2.4.4 In a single paragraph (no more than 12 lines), explain why
- rich countries are reluctant to raise their pledges for reducing greenhouse gas emissions; and
 - why the developing countries are putting more pressure on the rich countries to reduce greenhouse gas emissions than on themselves.
- 6x2=(12)

- 2.5 Refer to FIGURE 2.5 showing the slope elements/forms and answer the following questions.
- 2.5.1 Where in South Africa is landform **F** typically found? 1x2=(2)
- 2.5.2 Identify slope elements/forms **H** and **I**. 2x2=(4)
- 2.5.3 Mention the main geomorphological activities taking place on slope elements **H** and **I** respectively. 2x2=(4)
- 2.5.4 Explain why slope element **J** is more suitable to support plant growth than slope element **H**. 2x2=(4)
- 2.5.5 Cuestas will not occur naturally in the type of landscape illustrated in FIGURE 2.5. Why is this the case? 1x2=(2)
- 2.6 Read the extract below and answer the questions that follow.

South Africa could face serious water shortages in the near future

By the year 2030 it is predicted that South Africa could experience serious water shortages. Mankind, through increases in urbanisation, agriculture, mining and industry, is increasing usage of water drastically. It is therefore important to carefully manage our drainage basins and catchment areas in order to avoid huge water shortages in the future.

- 2.6.1 Define the following terms:
- (a) *Drainage basin* 1x2=(2)
- (b) *Catchment area* 1x2=(2)
- 2.6.2 Why is it important to manage drainage basins and catchment areas? 2x2=(4)
- 2.6.3 Explain THREE ways in which mankind could effectively manage catchment areas and drainage basins for future use. 3x2=(6)
- 2.6.4 Humankind, through increasing urbanisation, agriculture, mining and industry, is destroying drainage basins and catchment areas. Write a paragraph (no more than 12 lines) discussing how any ONE or MORE of these mentioned activities are destroying our drainage basins and catchment areas. 6x2=(12)

[100]

SECTION B
PEOPLE AND PLACES: RURAL AND URBAN SETTLEMENTS,
PEOPLE AND THEIR NEEDS

Answer at least ONE question from this section.

QUESTION 3

- 3.1 Nucleated rural settlements can have different shapes. Different types of nucleated rural settlements are shown in FIGURE 3.1. You are provided with five descriptors. Identify the type of nucleated rural settlement according to its shape. Write down the question number and next to each letter of the settlement that you have selected.
- 3.1.1 Linear – developed along a road
- 3.1.2 T-junction – nucleated settlement at a transport junction
- 3.1.3 Round – nucleated settlement around market activities
- 3.1.4 Linear – along a valley or narrow ridge
- 3.1.5 Star shaped – where many roads intersect 5x2=(10)
- 3.2 Choose the correct term from those given in brackets to make all the statements below TRUE. Write only the term next to the question number in the ANSWER BOOK.
- 3.2.1 Water is a [natural/man-made] resource.
- 3.2.2 An negative balance of trade will be a/an [disadvantage/advantage] to South Africa's GDP.
- 3.2.3 Sewage farms are a source of pollution for rivers which impacts [positively/ negatively] on food security in South Africa.
- 3.2.4 Settlements in the rural-urban fringe [only rely on ground water/rely on ground water and municipal water] for their daily use.
- 3.2.5 Subsistence farming [does not contribute/contributes only a small percentage] to the South African economy. 5x2=(10)

- 3.3 Farming is a major land use in rural areas. The land use is usually classified as being intensive or extensive and commercial or subsistence. We need sustainable strategies to manage rural settlements. Study FIGURE 3.3 showing a dairy farm in the rural-urban fringe of a city in Gauteng.
- 3.3.1 Define the term *site*. 1x2=(2)
- 3.3.2 Give TWO physical factors why this site was selected for the location of the farm. 2x2=(4)
- 3.3.3 Explain why a well-developed transport system is needed to sustain the farming activity shown here. 2x2=(4)
- 3.3.4 During times of drought and economic recession many people will migrate to cities from the farm. Discuss why this is the case. 3x2=(6)
- 3.4 The inner city is defined as the area that contains and surrounds the CBD. Edge cities are defined as large residential areas on the outskirts of cities with shopping centres, business and office parks and schools. Study FIGURE 3.4 showing a typical urban profile before answering the questions that follow.
- 3.4.1 What is an *urban profile*? 1x2=(2)
- 3.4.2 Why is the establishment of greenbelt areas important for any city? 2x2=(4)
- 3.4.3 Traffic congestion in cities is a major problem. Discuss TWO ways in which cities can reduce traffic congestion. 2x2=(4)
- 3.4.4 Many businesses migrate from the CBD to these so-called edge cities for various reasons. Therefore urban renewal is a focus of many cities around the world.
- (a) Define the term *urban renewal*. 1x2=(2)
- (b) Write a single paragraph (no longer than 12 lines) discussing how government and businesses have supported urban renewal in major cities like Cape Town and Johannesburg. 6x2=(12)
- 3.5 Refer back to FIGURE 3.3 before answering the following questions.
- 3.5.1 Would you classify the farming in FIGURE 3.3 as commercial or subsistence farming? Give ONE reason for your answer. 2x2=(4)
- 3.5.2 Give ONE reason why it is important that the farm is not too far from the factory where by-products are produced. 1x2=(2)
- 3.5.3 How will this farmer contribute to the local economy? 2x2=(4)

- 3.5.4 Give ONE way in which a government subsidy can assist dairy farmers in South Africa in general. 1x2=(2)
- 3.5.5 Name any ONE by-product that could be produced at the Gauteng Dairy Products factory. 1x2=(2)
- 3.5.6 Give ONE reason why the Gauteng Dairy Products factory is classified as a light industry. 1x2=(2)
- 3.6 The government's latest macro-economic strategy, introduced in 2006, to halve poverty and unemployment by 2014, is known as Accelerated and Shared Growth in South Africa (ASGISA). The Gauteng Province has introduced the Blue IQ as their special project to develop the region as the 'Powerhouse of Africa'. In doing so, this region will become more interconnected with the rest of the world – a process referred to as globalisation.
- 3.6.1 Name any TWO economic aims of ASGISA. 2x2=(4)
- 3.6.2 How did the FIFA World Cup bid, which was awarded to South Africa, contribute to achieve the aims mentioned in QUESTION 3.6.1? 2x2=(4)
- 3.6.3 Comment on the sustainability of maintaining these goals now that the excitement of the 2010 Soccer World Cup has subsided. 2x2=(4)
- 3.6.4 In a single paragraph (no more than 12 lines), discuss the advantages (positive effects) and disadvantages (negative effects) for the region in developing Gauteng as the 'Powerhouse of Africa'. 6x2=(12)
[100]

QUESTION 4

- 4.1 Urban settlements can be classified according to their function, and this may change over time. Different types of urban settlements are shown in FIGURE 4.1. You are provided with five descriptions. Identify the type of settlement according to its function. Write down the question number and next to each the letter of the settlement that you have selected.
- 4.1.1 Central place towns and cities
- 4.1.2 Trade and transport towns – break-of bulk-points
- 4.1.3 Trade and transport towns – junction towns
- 4.1.4 Trade and transport towns – gap or gateway settlements
- 4.1.5 Specialised towns 5x2=(10)

4.2 Study FIGURE 4.2 showing how the contributions of the respective economic sectors to the South African economy have changed over time before answering the questions that follows. Choose the correct answer from the various options and write only the letter (A – D) next to the question number in the ANSWER BOOK.

4.2.1 The Gross Domestic Product of a country refers to the total value of all the goods and services ...

- A. produced within the borders of a country within one year.
- B. which the tertiary sector contributes annually.
- C. imported from foreign countries.
- D. produced annually within the provincial borders.

4.2.2 Mining is a ... economic activity.

- A. primary
- B. secondary
- C. tertiary
- D. quaternary

4.2.3 Which sector of the economy's contribution to the GDP has grown the most from 1918 – 2008?

- A. Primary
- B. Secondary
- C. Tertiary
- D. Quaternary

4.2.4 Which sector of the economy's contribution to the GDP has declined the most from 1918 – 2008?

- A. Primary
- B. Secondary
- C. Tertiary
- D. Quaternary

4.2.5 The most recent contributor to the country's GDP is the ... sector.

- A. primary
- B. secondary
- C. tertiary
- D. quaternary

5x2=(10)

- 4.3 Refer to FIGURE 4.3 showing the street plan and shape of Graaff-Reinet, a central place town situated in the Eastern Cape.
- 4.3.1 Identify the street pattern in the centre of Graaff-Reinet. 1x2=(2)
- 4.3.2 Mention ONE problem associated with the street pattern mentioned in QUESTION 4.3.1. 1x2=(2)
- 4.3.3 Mention ONE advantage associated with the street pattern mentioned in QUESTION 4.3.1. 1x2=(2)
- 4.3.4 Defensibility played a role in selecting the site of Graaff-Reinet. With reference to FIGURE 4.3, explain this statement. 2x2=(4)
- 4.3.5 Provide evidence from FIGURE 4.3 that Graaff-Reinet is also a major tourist attraction in the Eastern Cape. 1x2=(2)
- 4.3.6 Explain why Graaff-Reinet can be classified as a central place town. 2x2=(4)
- 4.4 Industrial development in Gauteng attracted many rural inhabitants to the major cities of the province. Many of these people do not have the necessary skills to find gainful employment. They live in many informal settlements and are engaged in the informal sector of the economy to survive. Study FIGURE 4.4 before answering the questions that follow.
- 4.4.1 Explain the meaning of the term *informal settlement*. 1x2=(2)
- 4.4.2 Give ONE example of employment that is available in the informal sector of the economy. 1x2=(2)
- 4.4.3 What are the negative implications for the government of not being able to regulate the informal sector of the economy? 2x2=(4)
- 4.4.4 Mention any TWO problems inhabitants living in informal settlements may experience. 2x2=(4)
- 4.4.5 The Gauteng local government uses Agenda 21 as an approach to ensure sustainable development. With reference to FIGURE 4.4, write a short Local Agenda 21 proposal (a single paragraph of no more than 12 lines) outlining the measures that may be adopted and used to improve the quality of life of people living in these informal settlements. 6x2=(12)

- 4.5 There are many different forms of transport that move people and goods. Transport systems have networks, nodes and links which form various spatial patterns across our country and the globe. Study FIGURE 4.5 before answering the questions that follow.
- 4.5.1 Name the THREE endpoint nodes that are connected via the Gautrain network. 3x2=(6)
- 4.5.2 People will be able to board the train at various stations. How will this help to alleviate traffic congestion at the OR Tambo Airport? 2x2=(4)
- 4.5.3 The Gautrain project was developed in conjunction with various European countries. How does this benefit South Africa? 2x2=(4)
- 4.5.4 Why are all the people in the cartoon surprised at the announcement made by the train driver? 1x2=(2)
- 4.6 To meet the growing demands for water of the Port Elizabeth-Uitenhage Industrial Region, one of South Africa's first water transfer schemes, the Orange-Fish River Project, was developed. Study FIGURE 4.6 before answering the questions that follow.
- 4.6.1 What is a *water transfer scheme*? 1x2=(2)
- 4.6.2 Name the TWO rivers in the Eastern Cape that gained from the Orange-Fish River Project. 2x2=(4)
- 4.6.3 From which dam do the two rivers mentioned in QUESTION 4.6.2 receive their water? 1x2=(2)
- 4.6.4 Explain why the Fish River Tunnel had to be built. 2x2=(4)
- 4.6.5 Write a single paragraph (no more than 12 lines) to justify the initial costs of the Orange-Fish River Project. In your answer refer to the advantages that resulted from the development of this water transfer scheme. 6x2=(12)
- [100]**

GRAND TOTAL: 300

END



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**GEOGRAPHY – FIRST PAPER
ADDENDUM**

MARKS: 300

TIME: 3 hours

This addendum consists of 11 pages.

FIGURE 1.1

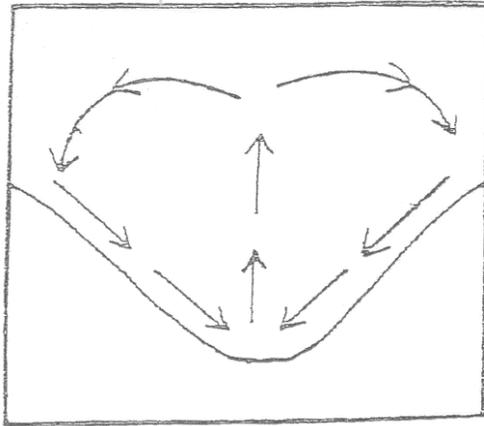


FIGURE 1.2

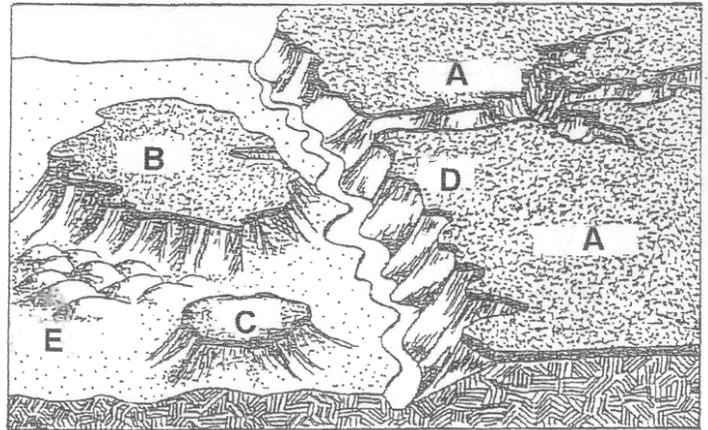


FIGURE 1.3

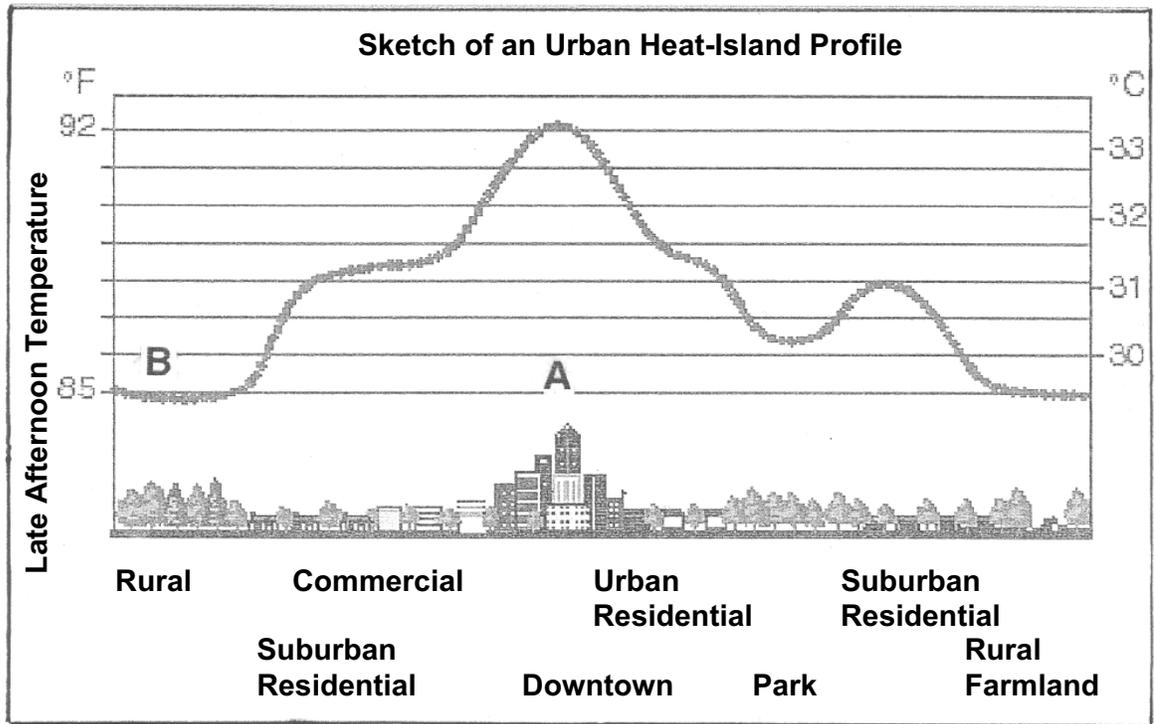


FIGURE 1.4

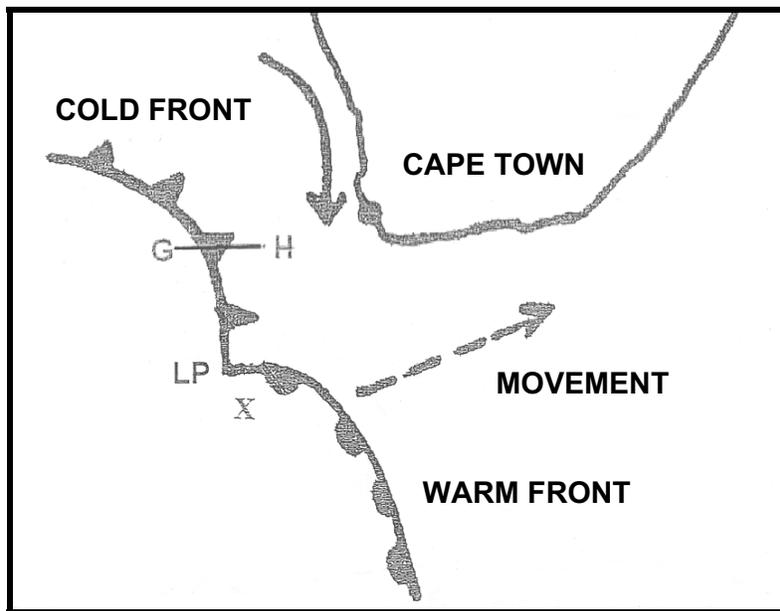


FIGURE 1.5

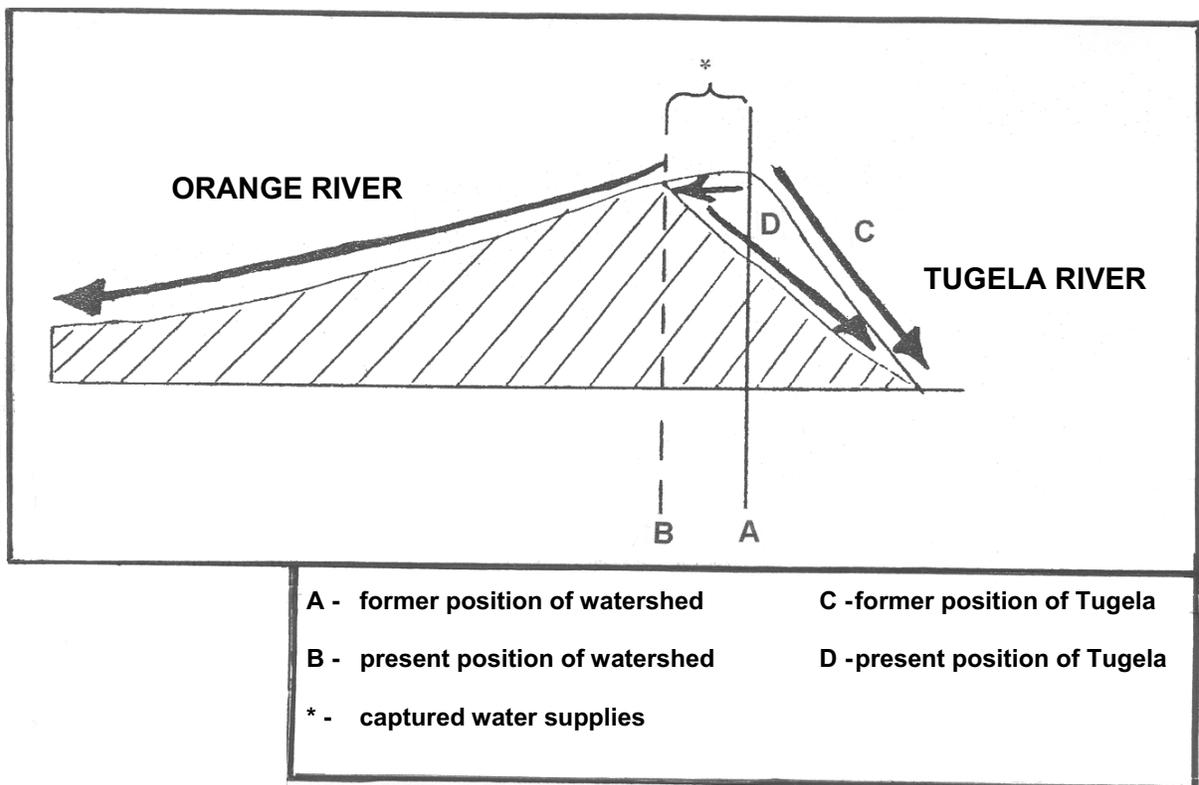


FIGURE 2.1

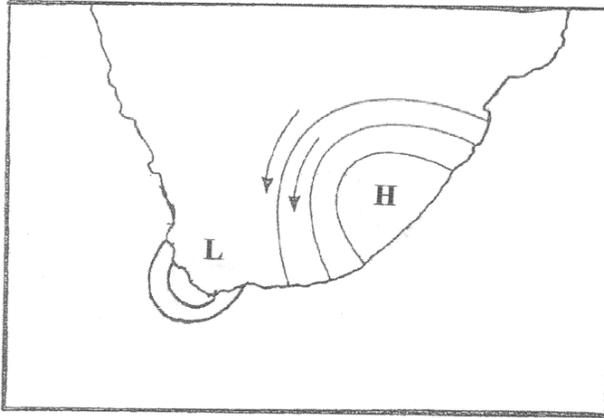


FIGURE 2.2

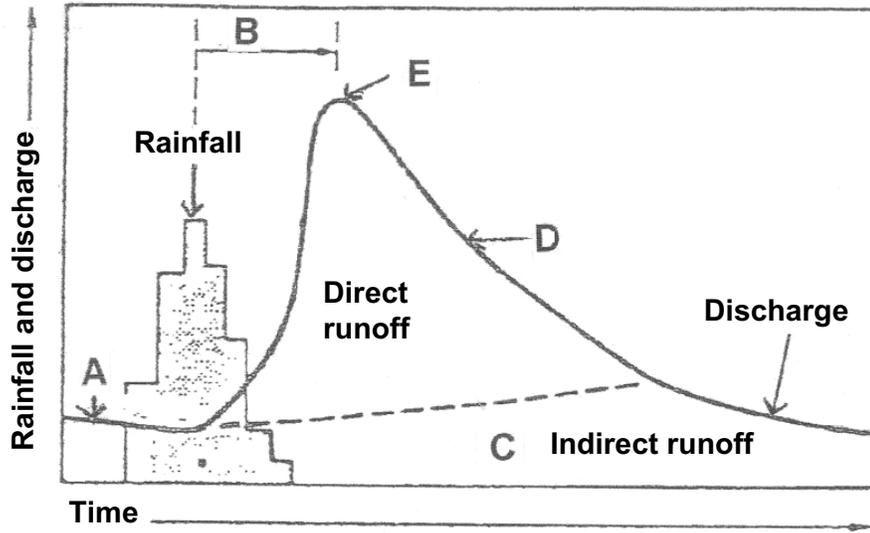


FIGURE 2.3

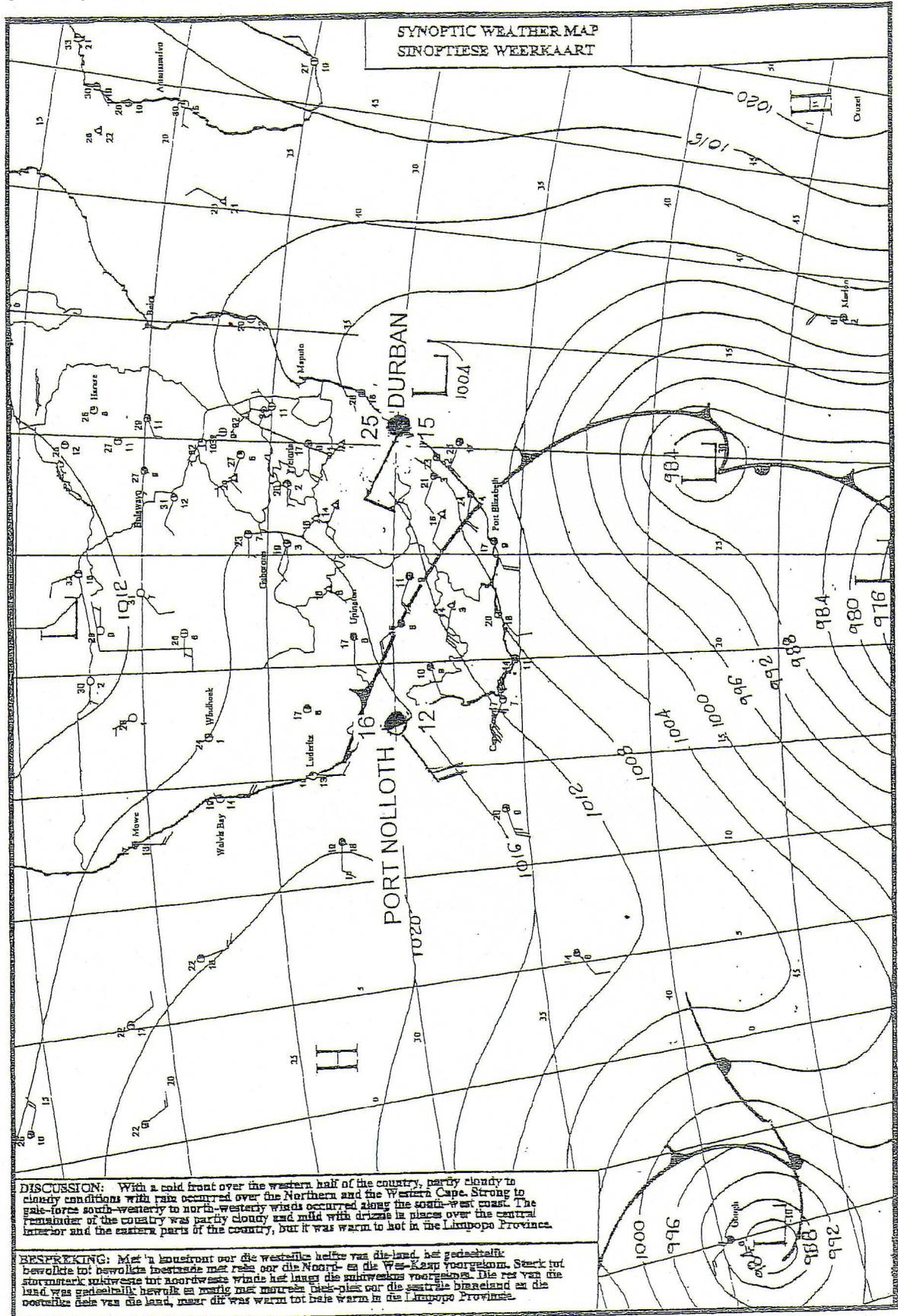


FIGURE 2.5

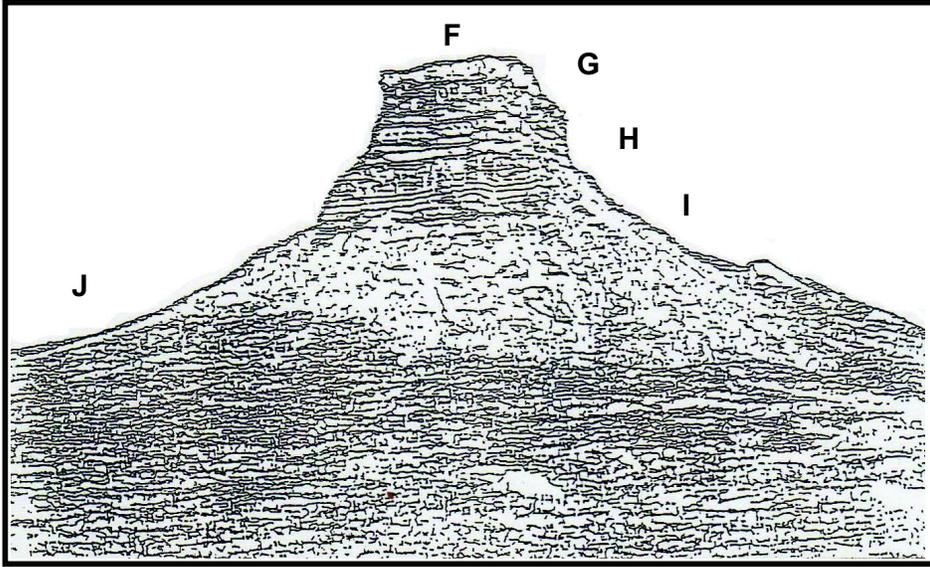


FIGURE 3.1

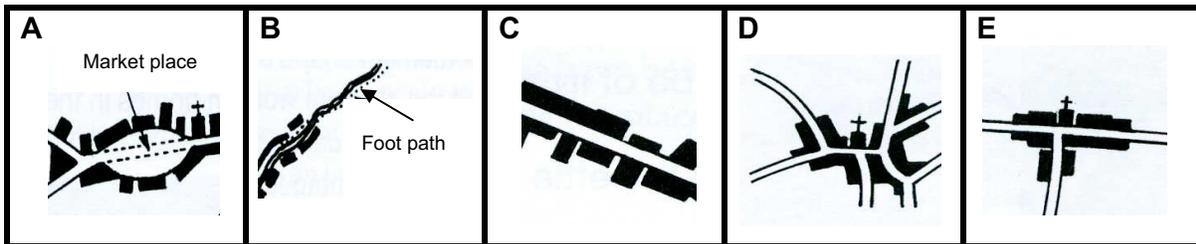


FIGURE 3.3



Dairy Farming



Dairy farm. This site was chosen by the farmer because the soil is very fertile and can support a large number of dairy cows on a small piece of land. From here the product is transported to a factory, Gauteng Dairy Products, where the milk is bottled and various other products produced. The farm must be close to the factory as the product is perishable.

FIGURE 3.4

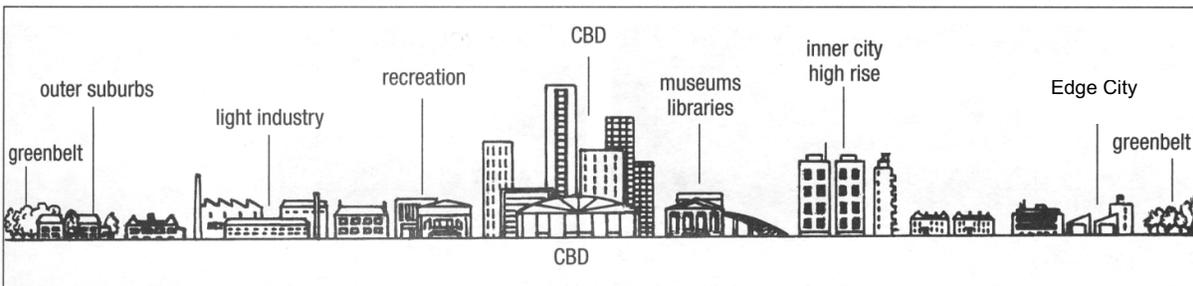


FIGURE 4.1

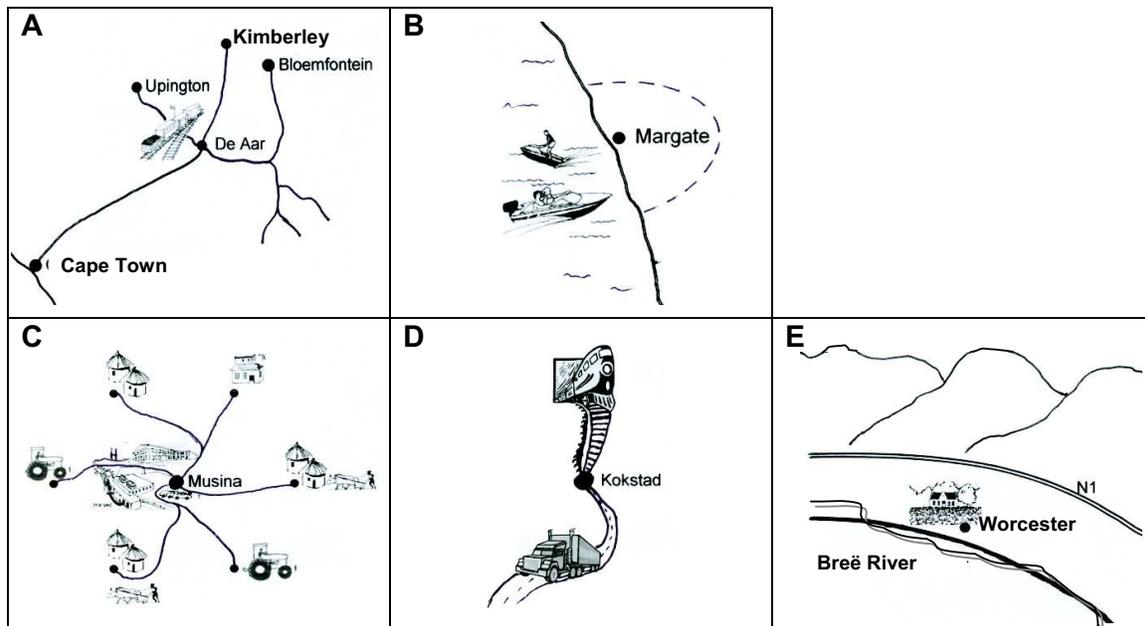


FIGURE 4.2

Contributions of the economic sectors to the South African economy

Sector	Percentage of the GDP			
	1918	1946	2004	2008
Primary	58.7	23	10.9	9.9
Secondary	5.5	21	23.9	22.9
Tertiary	35.8	56	64.7	66.1
Quaternary	---	---	0.5	1.1

FIGURE 4.3



FIGURE 4.4

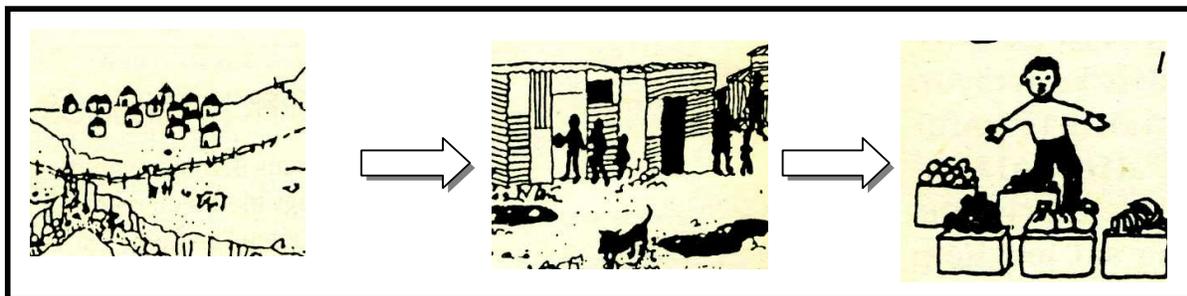


FIGURE 4.5

The Gautrain

The train links Johannesburg and Pretoria in less than 35 minutes at speeds of 160km/h or higher. Six trains per hour per direction are currently running and more trains will be added as the threshold population of passengers using the system increase. It is estimated that three million cars drive on the M1 between Johannesburg and Pretoria during peak periods. About 400 000 cars pass along the highway each hour at very low speeds.

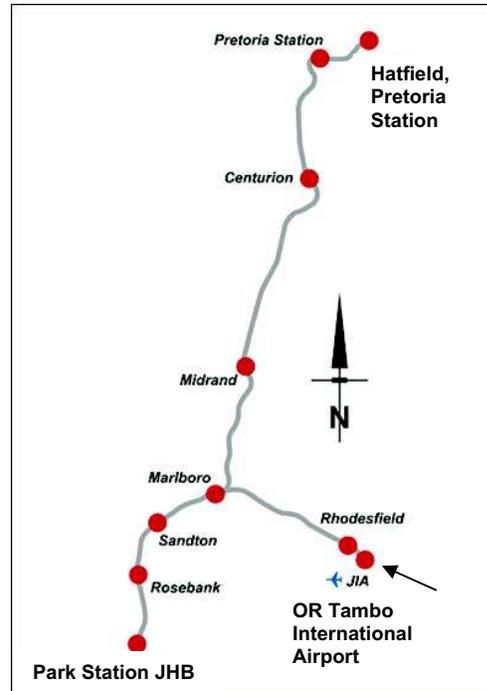


FIGURE 4.6

