

basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

GEOGRAPHY P1

NOVEMBER 2016

**NATIONAL
SENIOR CERTIFICATE**

GRADE 12

MARKS: 225

TIME: 3 hours

This question paper consists of 14 pages and an 11-page annexure.



INSTRUCTIONS AND INFORMATION

1. This question paper consists of FOUR questions.
2. Answer ANY THREE questions of 75 marks each.
3. All diagrams are included in the ANNEXURE.
4. Leave a line between the subsections of questions answered.
5. Start EACH question at the top of a NEW page.
6. Number the answers correctly according to the numbering system used in this question paper.
7. Number the answers in the centre of the line.
8. Do NOT write in the margins of the ANSWER BOOK.
9. Draw fully labelled diagrams when instructed to do so.
10. Answer in FULL SENTENCES, except when you have to state, name, identify or list.
11. Write neatly and legibly.



SECTION A: CLIMATE, WEATHER AND GEOMORPHOLOGY

Answer at least ONE question in this section. If you answer ONE question in SECTION A, you must answer TWO questions in SECTION B.

QUESTION 1

- 1.1 Refer to FIGURE 1.1 showing a graph of weather conditions in the mature stage of development of a tropical cyclone.
- 1.1.1 State the type of precipitation at **A**.
 - 1.1.2 State where the highest wind speed is recorded in the graph.
 - 1.1.3 Name the main cloud type that surrounds area **B**.
 - 1.1.4 Give the term that describes air movement towards **B**.
 - 1.1.5 Give a reason for the air movement at **B**.
 - 1.1.6 In which area does the tropical cyclone experience the lowest pressure?
 - 1.1.7 Why does air descend in area **B**? (7 x 1) (7)
- 1.2 Refer to FIGURE 1.2 showing a section of a river.
- 1.2.1 Name the course of the river depicted in FIGURE 1.2.
 - 1.2.2 Name river bank **B**.
 - 1.2.3 Give a reason for the deposited material at river bank **A**.
 - 1.2.4 Describe the shape of river bank **B**.
 - 1.2.5 Name ONE characteristic of a river channel that can be seen in a cross-section between **A** and **B**.
 - 1.2.6 Did river erosion or deposition initially form the oxbow lake (**C**)?
 - 1.2.7 State ONE difference between an *oxbow lake* and a *meander scar*.
 - 1.2.8 What is the narrow area **D** within the meander loop called? (8 x 1) (8)



- 1.3 FIGURE 1.3 is a sketch map showing berg-wind conditions.
- 1.3.1 Name TWO conditions visible on the sketch map, that are necessary for berg winds to form. (2 x 1) (2)
- 1.3.2 Draw a labelled cross-section to explain the formation of berg winds along the east coast of South Africa. (4 x 1) (4)
- 1.3.3 Why are berg winds most likely to occur in winter? (1 x 2) (2)
- 1.3.4 In a paragraph of approximately EIGHT lines, explain why berg winds are regarded as a threat to farming communities along the east coast of South Africa. (4 x 2) (8)
- 1.4 FIGURE 1.4 shows a mid-latitude cyclone.
- 1.4.1 What evidence in the diagram shows that Cape Town is experiencing winter? (1 x 1) (1)
- 1.4.2 Does front X or front Y have the greater effect on the weather of Cape Town? (1 x 1) (1)
- 1.4.3 The weather service forecasts severe weather conditions for Cape Town. State TWO of these expected weather conditions. (2 x 2) (4)
- 1.4.4 Explain how the severe weather conditions will affect people living in informal settlements in Cape Town. (2 x 2) (4)
- 1.4.5 Explain why there will be a difference in the weather experienced at Cape Town and at Mossel Bay. (2 x 2) (4)
- 1.5 Study FIGURE 1.5, which is based on drainage basins.
- 1.5.1 Define the term *drainage basin*. (1 x 1) (1)
- 1.5.2 Does drainage basin A (north of the watershed) or drainage basin B (south of the watershed) have the higher drainage density? (1 x 1) (1)
- 1.5.3 State ONE factor that could have contributed to the high drainage density of the drainage basin identified in QUESTION 1.5.2. (1 x 2) (2)
- 1.5.4 Determine the stream order at Z in drainage basin B. (1 x 2) (2)
- 1.5.5 Refer to drainage basin A and state the relationship between stream order and the:
- (a) Length of streams (1 x 2) (2)
- (b) Number of streams (1 x 2) (2)
- 1.5.6 Evaluate the effect of a prolonged period of drought on the stream order at point Y in drainage basin A. (2 x 2) (4)



- 1.6 Refer to FIGURE 1.6 showing river grade and the longitudinal profiles of a river.
- 1.6.1 Give a geographical term to describe the irregular shape of longitudinal profile **B**. (1 x 1) (1)
- 1.6.2 Name a temporary base level evident in longitudinal profile **B**. (1 x 1) (1)
- 1.6.3 What evidence suggests that rejuvenation has taken place in longitudinal profile **A**? (1 x 2) (2)
- 1.6.4 Describe, with reasons, the changes a river meander will undergo after rejuvenation. (2 x 2) (4)
- 1.6.5 In a paragraph of approximately EIGHT lines, explain the processes that assisted the graded river in profile **C** to have a steep gradient in the upper course and a gradual gradient in the lower course. (4 x 2) (8)
- [75]**

QUESTION 2

- 2.1 Refer to FIGURE 2.1 on city climates.

Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question number (2.1.1–2.1.8) in the ANSWER BOOK.

- 2.1.1 The sketch shows a (day/night) situation.
- 2.1.2 The inversion layer is found at a (higher/lower) altitude during the night.
- 2.1.3 The inversion layer (increases/decreases) pollution concentration over the city during the night.
- 2.1.4 The heating of the city at **B** is the result of (multiple reflections of heat/terrestrial radiation).
- 2.1.5 The channelling of wind between tall buildings (increases/decreases) the wind speed.
- 2.1.6 Temperature (increases/decreases) from **B** to **C**.
- 2.1.7 The influence of evapotranspiration on cooling the air will be (less/more) at **B** compared to **C**.
- 2.1.8 Area **B** is associated with (more/less) cloud coverage compared to area **C**. (8 x 1) (8)



- 2.2 Study FIGURE 2.2 showing three types of rivers named X, Y and Z.
- 2.2.1 Which river (X, Y or Z) is episodic?
- 2.2.2 Which river (X, Y or Z) flows only in the rainy season?
- 2.2.3 Which river (X, Y or Z) is dependent on surface water only?
- 2.2.4 Which river (X, Y or Z) flows throughout the year?
- 2.2.5 Which river (X, Y or Z) flows only for a very short period of time?
- 2.2.6 Name the river (X, Y or Z) in which the water table intersects the channel throughout the year.
- 2.2.7 Which river (X, Y or Z) displays the biggest change in water levels between seasons? (7 x 1) (7)
- 2.3 Study FIGURE 2.3, which shows the influence of slope aspect in a valley in the Southern Hemisphere (30°S).
- 2.3.1 Define the term *slope aspect*. (1 x 1) (1)
- 2.3.2 Which slope in FIGURE 2.3 receives direct rays of the sun? (1 x 1) (1)
- 2.3.3 Refer to the slope labelled 'shadow zone' in the picture.
- (a) Give a reason for the high moisture content of the soil on this slope. (1 x 2) (2)
- (b) Why is there a lack of human activity in the shadow zone, despite the high soil moisture content? (1 x 2) (2)
- 2.3.4 Give a possible reason for the location of the farmhouse on the valley floor. (1 x 2) (2)
- 2.3.5 In a paragraph of approximately EIGHT lines, explain, from a climatic point of view, why the location of the farmhouse and the surrounding farmland on the valley floor is not necessarily ideal. (4 x 2) (8)



- 2.4 Refer to FIGURE 2.4, which shows a synoptic weather map.
- 2.4.1 Identify high pressure system **V**. (1 x 1) (1)
- 2.4.2 Identify the low pressure system at weather station **X**. (1 x 1) (1)
- 2.4.3 Refer to the high pressure system at **V**.
- (a) Give ONE reason for its existence. (1 x 2) (2)
- (b) How does this high pressure system influence weather conditions over the interior during the winter months? (2 x 2) (4)
- 2.4.4 Refer to the low pressure system at weather station **X**.
- (a) Give a reason for the wind direction at **X**. (1 x 2) (2)
- (b) Explain the high temperature experienced at weather station **X**. (2 x 2) (4)
- 2.5 FIGURE 2.5 is a sketch showing two drainage patterns.
- 2.5.1 What is a *drainage pattern*? (1 x 1) (1)
- 2.5.2 Name drainage patterns **A** and **B**. (2 x 1) (2)
- 2.5.3 Give evidence from the diagrams to support your choices in QUESTION 2.5.2. (2 x 2) (4)
- 2.5.4 Compare the underlying rock structures of drainage patterns **A** and **B** in the sketch. (2 x 2) (4)
- 2.5.5 Draw a simple, labelled plan view sketch of a drainage pattern that will develop in a folded landscape. (2 x 2) (4)
- 2.6 FIGURE 2.6 is a photograph of a river channel.
- 2.6.1 Give TWO pieces of evidence that show that the river channel is in its lower course. (2 x 1) (2)
- 2.6.2 Refer to the river confluence at **A**.
- (a) What is a *river confluence*? (1 x 1) (1)
- (b) Why is flooding more likely to occur at this river confluence? (1 x 2) (2)
- 2.6.3 Give a reason why the trees on the banks of the river are important in flood control. (1 x 2) (2)
- 2.6.4 In a paragraph of approximately EIGHT lines, evaluate the role of regular flooding in maintaining the health of a river and its surrounding flood plain. (4 x 2) (8)

[75]



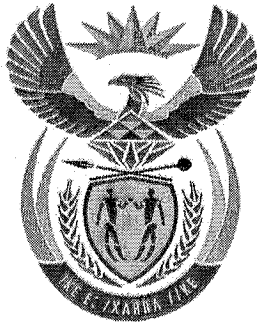
SECTION B: RURAL AND URBAN SETTLEMENTS AND SOUTH AFRICAN ECONOMIC GEOGRAPHY

Answer at least ONE question in this section. If you answer ONE question in SECTION B, you must answer TWO questions in SECTION A.

QUESTION 3

- 3.1 Study FIGURE 3.1. Match the descriptions below to the labels in FIGURE 3.1. Write the label next to the question number (3.1.1–3.1.8) in the ANSWER BOOK.
- 3.1.1 Movement of people from rural areas to cities
 - 3.1.2 Movement of people from cities to rural areas
 - 3.1.3 A term that describes the physical growth of a city
 - 3.1.4 An area of decay on the outskirts of the CBD
 - 3.1.5 Refers to the modernisation of old houses by wealthy people
 - 3.1.6 A feature that prevents urban sprawl
 - 3.1.7 Renovation of buildings to reduce migration and improve the urban environment
 - 3.1.8 The percentage increase of people living in cities (8 x 1) (8)
- 3.2 Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question number (3.2.1–3.2.7) in the ANSWER BOOK.
- 3.2.1 The dispersal of industries away from core areas is known as industrial (centralisation/decentralisation).
 - 3.2.2 An initiative that promotes industrialisation along major routes is called (spatial development initiatives/industrial development zones).
 - 3.2.3 Industries that are located between the raw material and the customer are called (bridge/footloose) industries.
 - 3.2.4 An oil refinery will be classified as a (heavy/light) industry.
 - 3.2.5 A food-processing factory is a (primary/secondary) economic activity.
 - 3.2.6 The sector of the economy that is associated with research and development is the (tertiary/quaternary) sector.
 - 3.2.7 A coal-fired power station is (raw-material/market) orientated. (7 x 1) (7)





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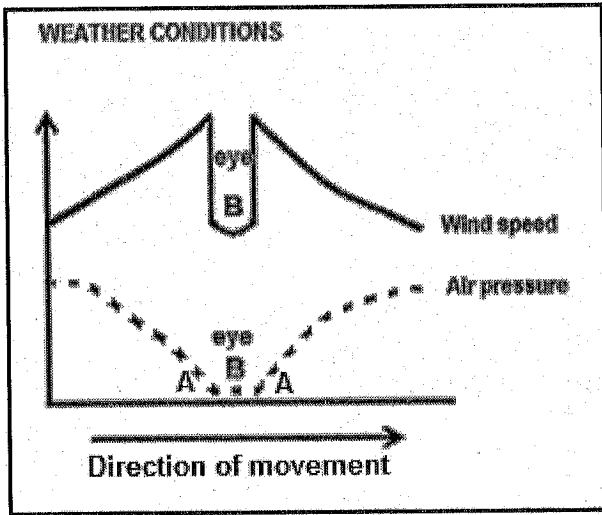
NOVEMBER 2016

ANNEXURE

This annexure consists of 11 pages.

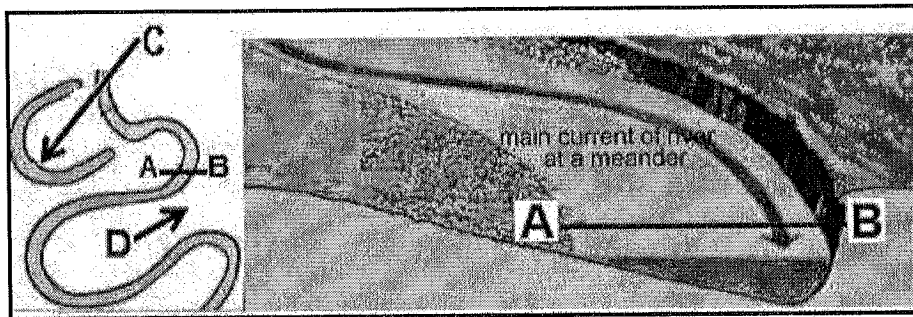


FIGURE 1.1: MATURE STAGE OF DEVELOPMENT OF A TROPICAL CYCLONE



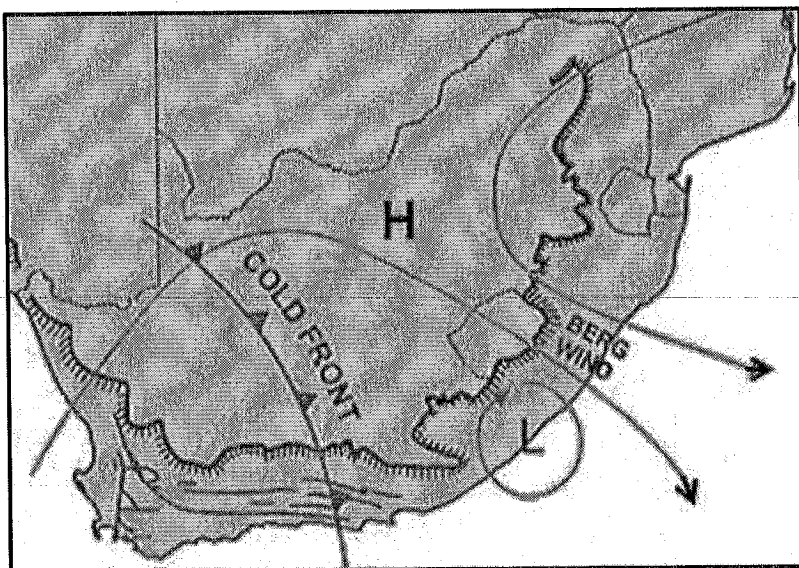
[Source: Examiner's own sketch]

FIGURE 1.2: SECTION OF A RIVER



[Adapted from easymapwork.blogspot.com]

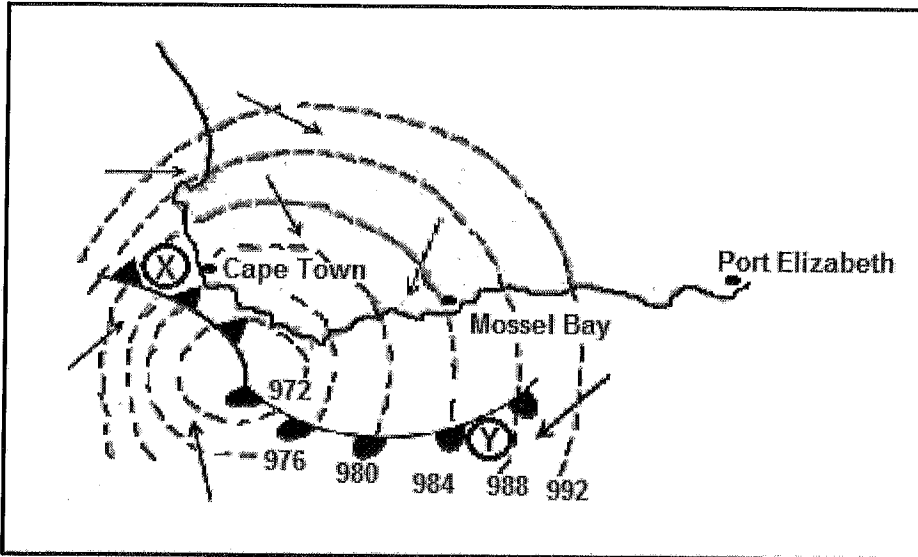
FIGURE 1.3: BERG WIND CONDITIONS



[Adapted from www.wikipedia.org]

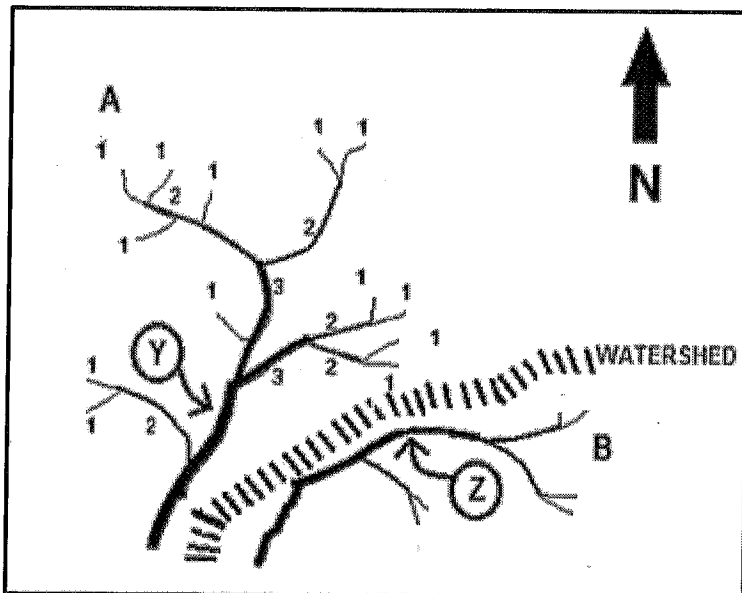


FIGURE 1.4: MID-LATITUDE CYCLONE



[Adapted from *Geography of Africa* by WJ Minns]

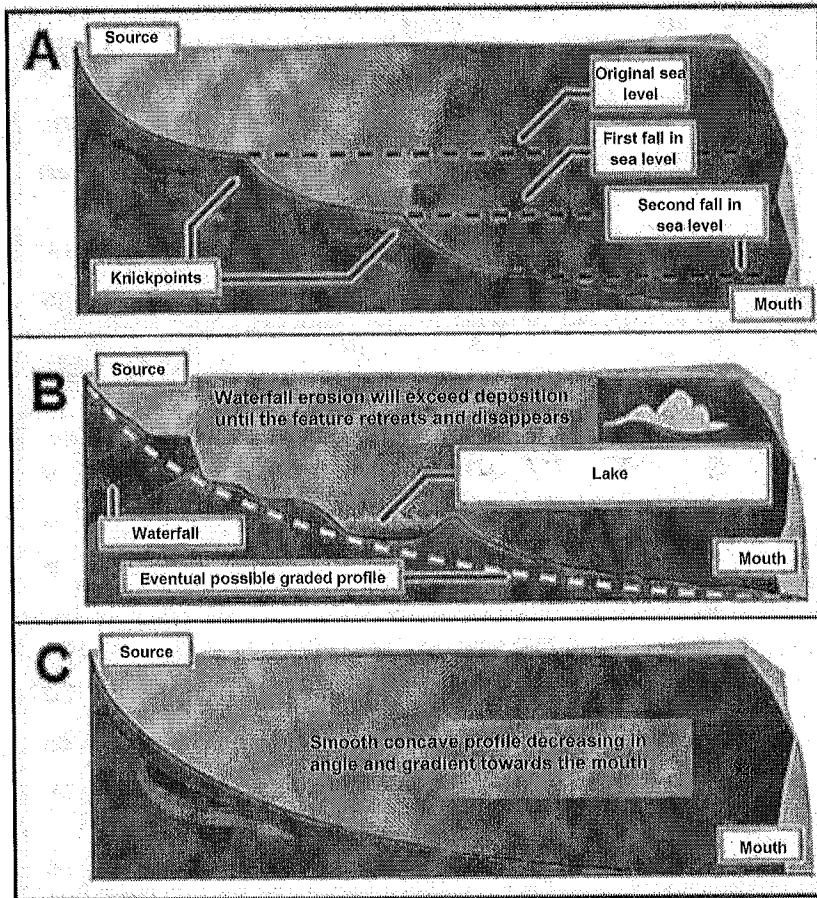
FIGURE 1.5: DRAINAGE BASINS



[Source: Examiner's own sketch]

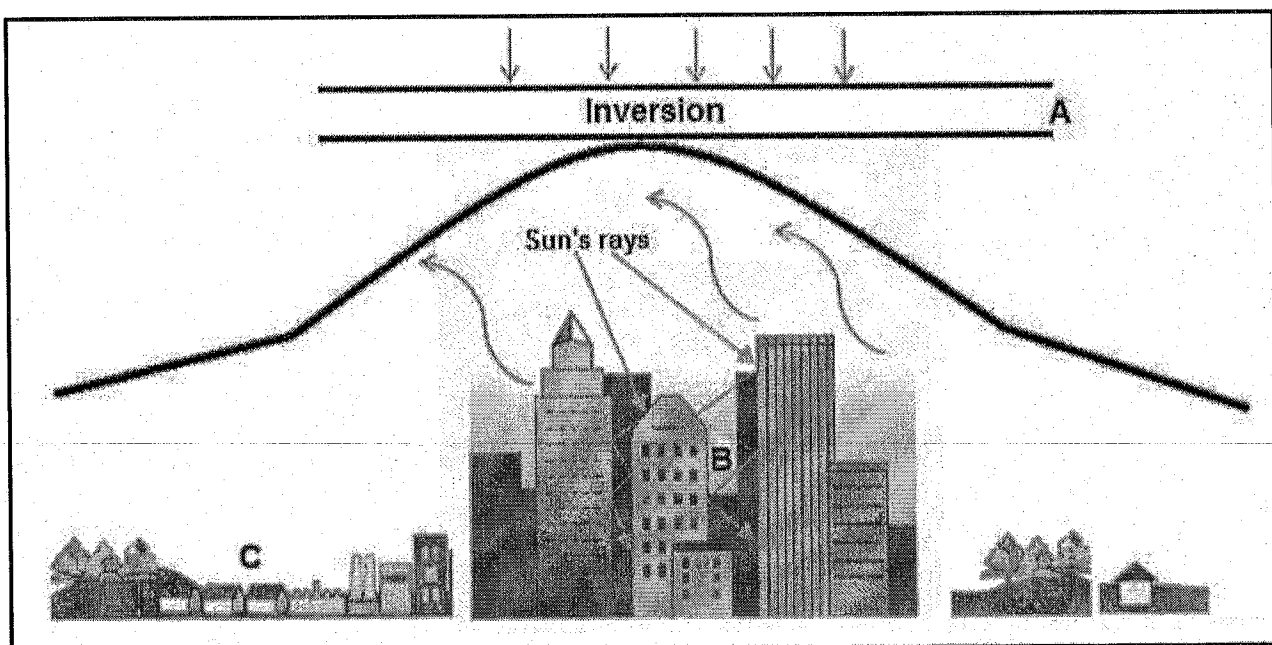


FIGURE 1.6: RIVER GRADE AND LONGITUDINAL PROFILES OF A RIVER



[Adapted from alevelgeography.com]

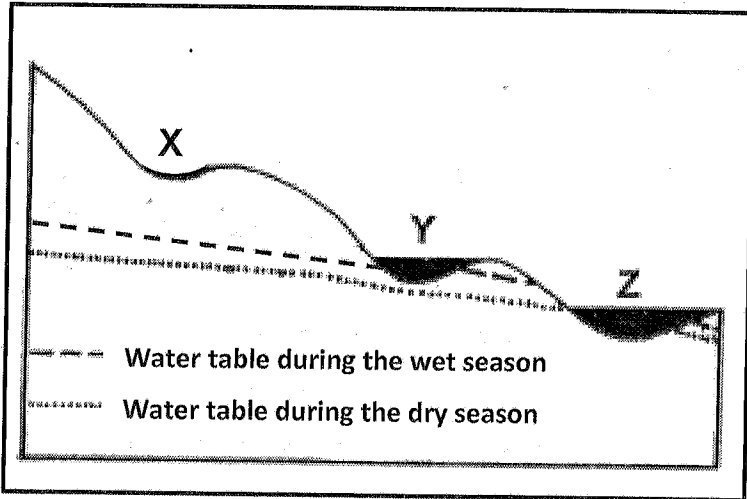
FIGURE 2.1: CITY CLIMATES



[Source: Examiner's own sketch]

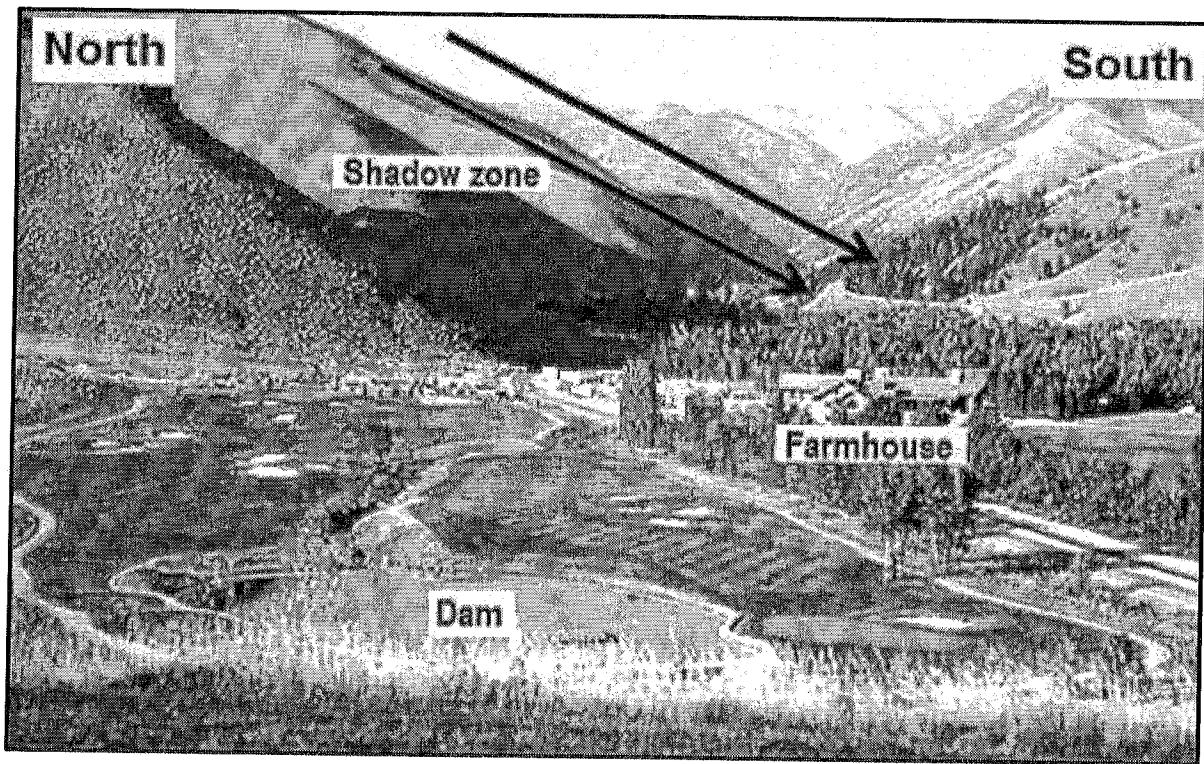


FIGURE 2.2: TYPES OF RIVERS



[Source: Examiner's own sketch]

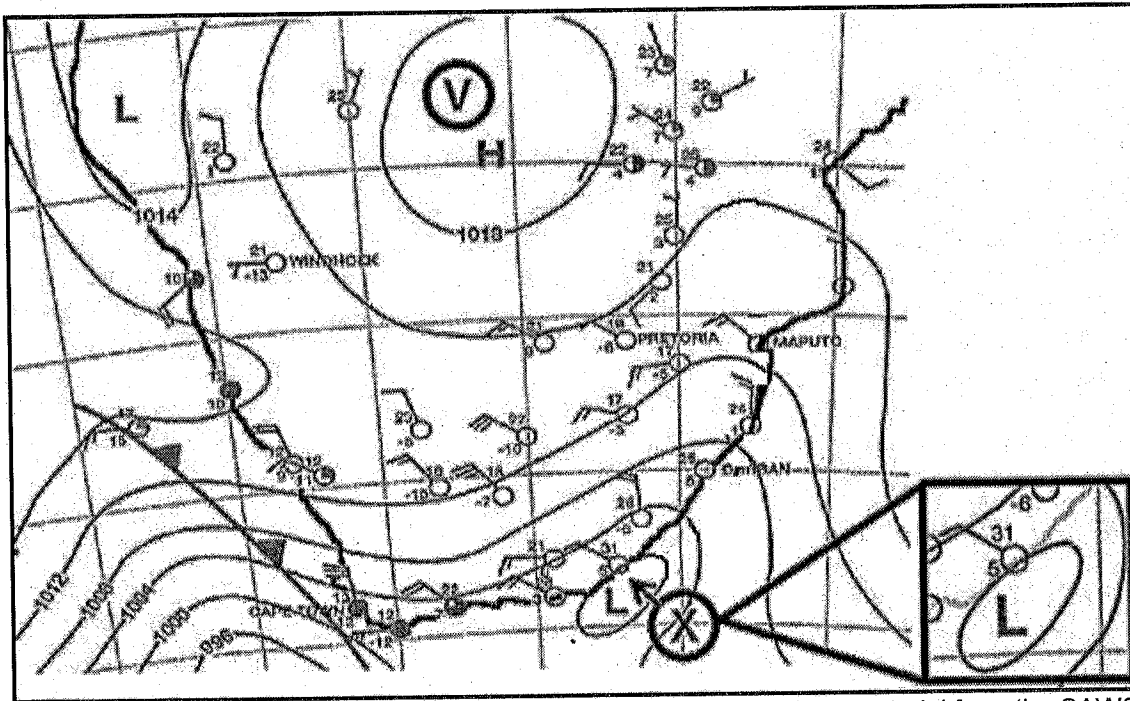
FIGURE 2.3: A VALLEY IN THE SOUTHERN HEMISPHERE (30°S)



[Adapted from www.classicjetcharters.com]

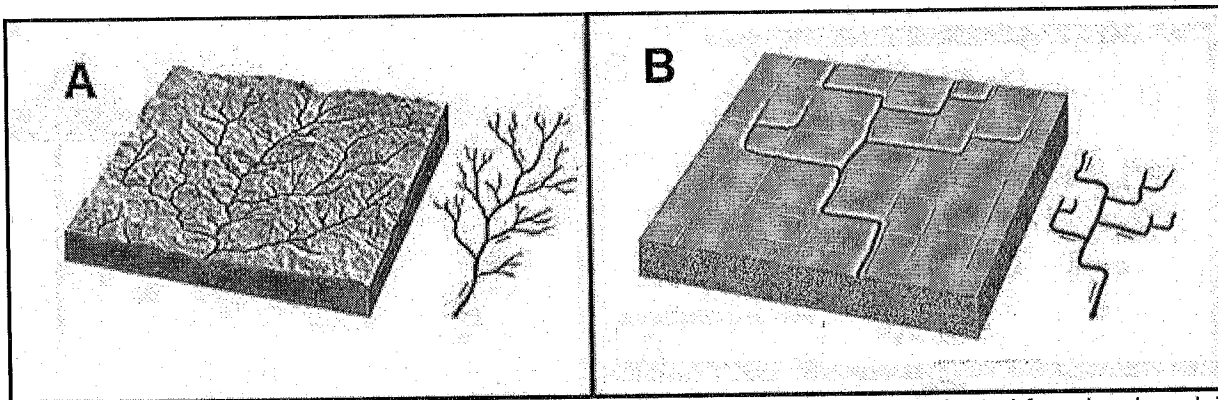


FIGURE 2.4: SYNOPTIC WEATHER MAP



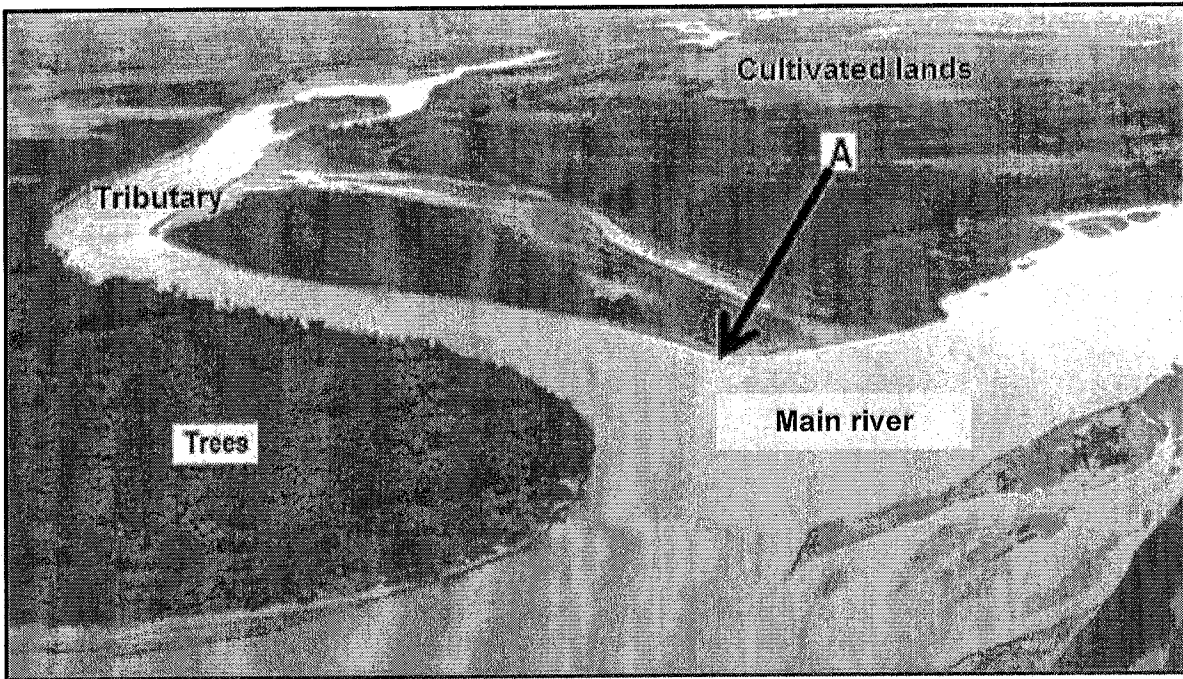
[Adapted from material from the SAWS]

FIGURE 2.5: DRAINAGE PATTERNS



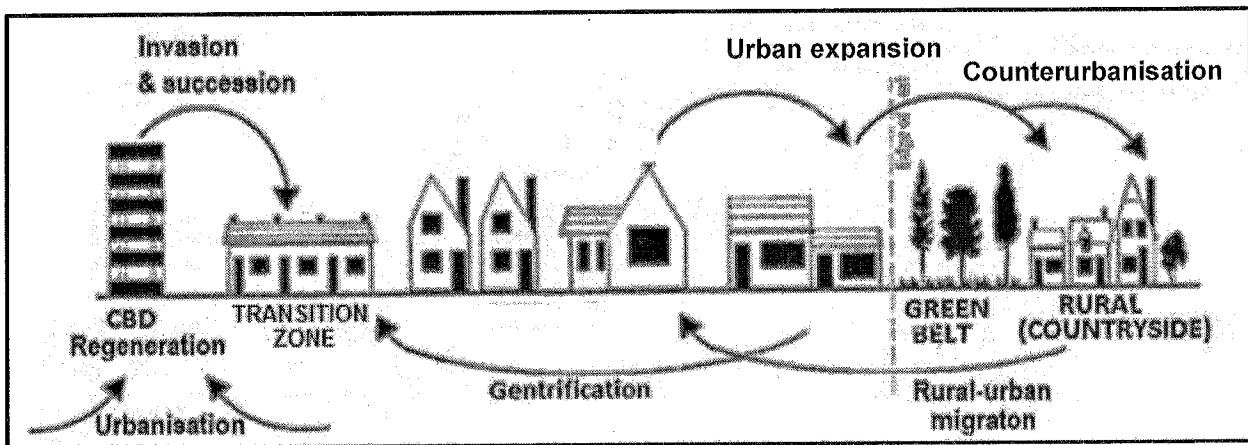
[Adapted from kgs.ku.edu]

FIGURE 2.6: RIVER CHANNEL



[Adapted from www.clarkandlewis.com]

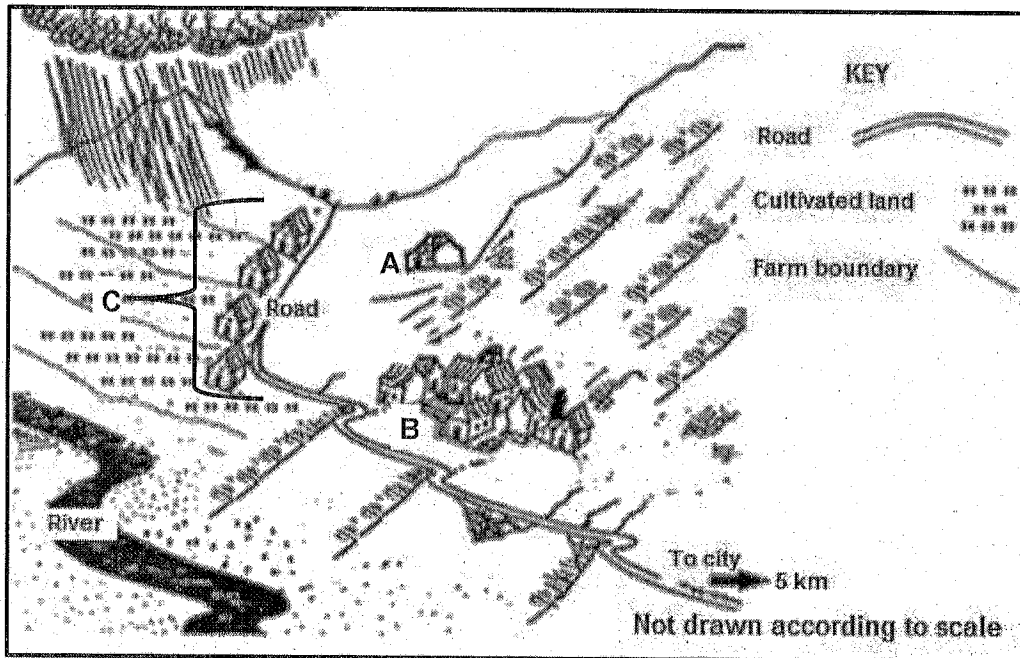
FIGURE 3.1: URBAN CHARACTERISTICS



[Adapted from garsidej.wordpress.com]

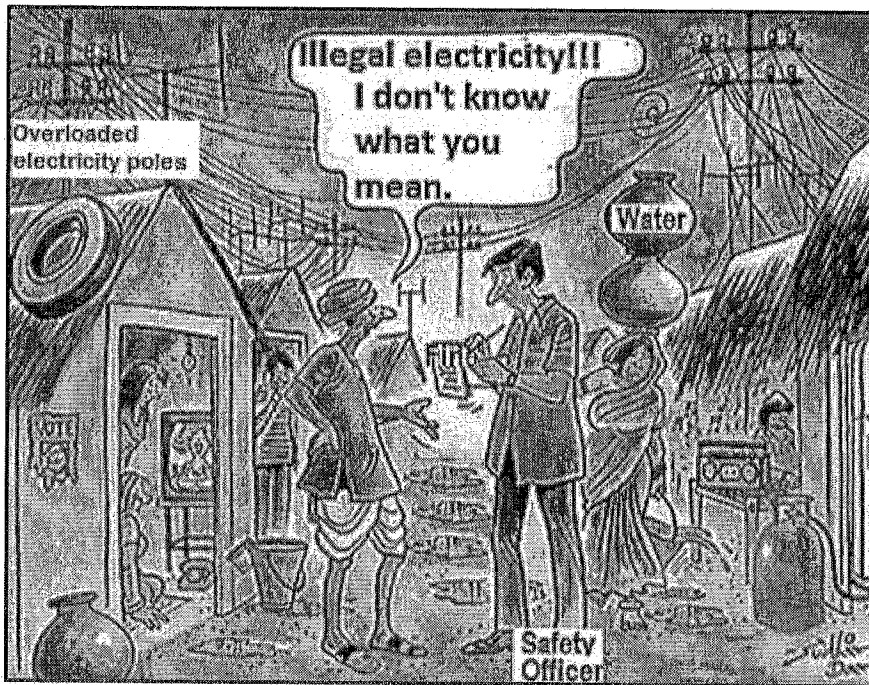


FIGURE 3.3: TYPES OF RURAL SETTLEMENTS



[Adapted from *Themes in Human Geography*]

FIGURE 3.4: AN INFORMAL SETTLEMENT IN INDIA



[Adapted from www.inclusivebusinesshub.org]



FIGURE 3.5: MINING IN SOUTH AFRICA

RENEWAL OF THE SA MINING INDUSTRY

Friday 11 September 2015, 18:21

The South African mining and minerals industry has been the basis of the South African economy for more than a century. Mining contributes approximately 17% to the gross domestic product (GDP) of the country, both directly and indirectly.

The South African mining sector faces significant challenges under the current downturn in commodity prices. Platinum, coal, steel and gold markets are affected. The increase in input costs, such as labour and direct and indirect energy-related costs, coupled with lower productivity levels, has impacted negatively on the sector.

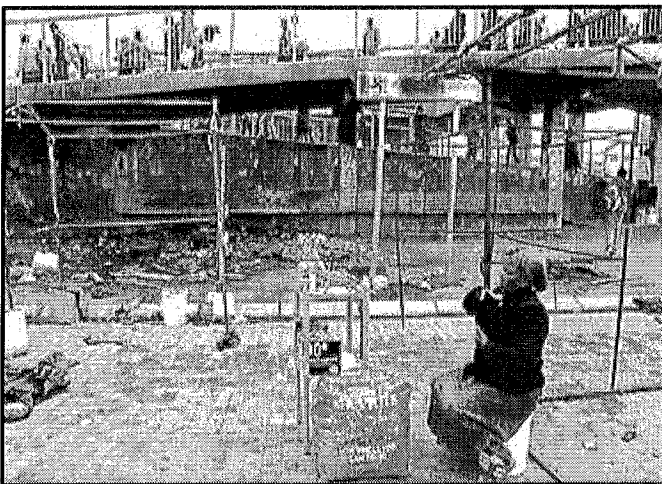
While there have been improvements in mining along the way, it is still very reliant on traditional methods of extraction, which are labour-intensive and costly, and have elements of risk to employees' safety and health.

[Adapted from www.csir.gov.za]

FIGURE 3.6: INFORMAL TRADING IN SOUTH AFRICA

METRORAIL BURNS DOWN HAWKERS' STALLS

Nombulelo Damba/WCN



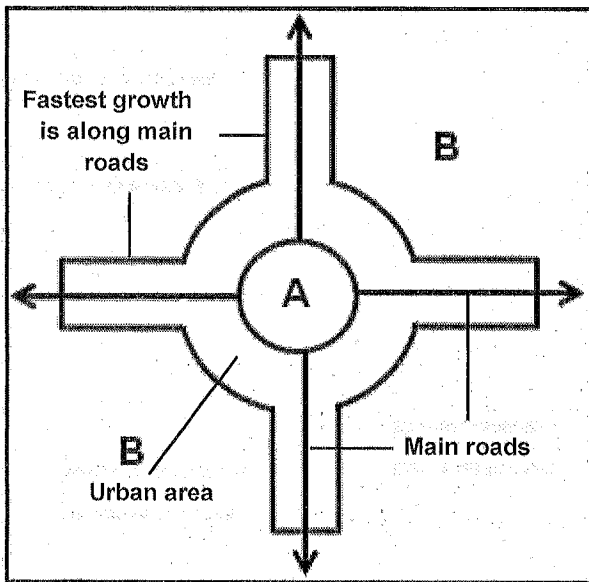
A hawker determinedly sets up her sweets stand amid the burnt-out remains of hawkers' stalls that were set alight at Khayelitsha Station by Metrorail security guards.

Metrorail security guards stand accused of burning down about 50 stalls from which hawkers traded at the Khayelitsha railway station, resulting in many of the traders losing the stock they had locked up there at night.

Metrorail has claimed that the hawkers were illegally trading on Metrorail property and 'rubble and waste' were burnt. Metrorail said the lack of formal trading amenities led to excessive littering, which posed a health hazard and had become an 'additional financial burden'.

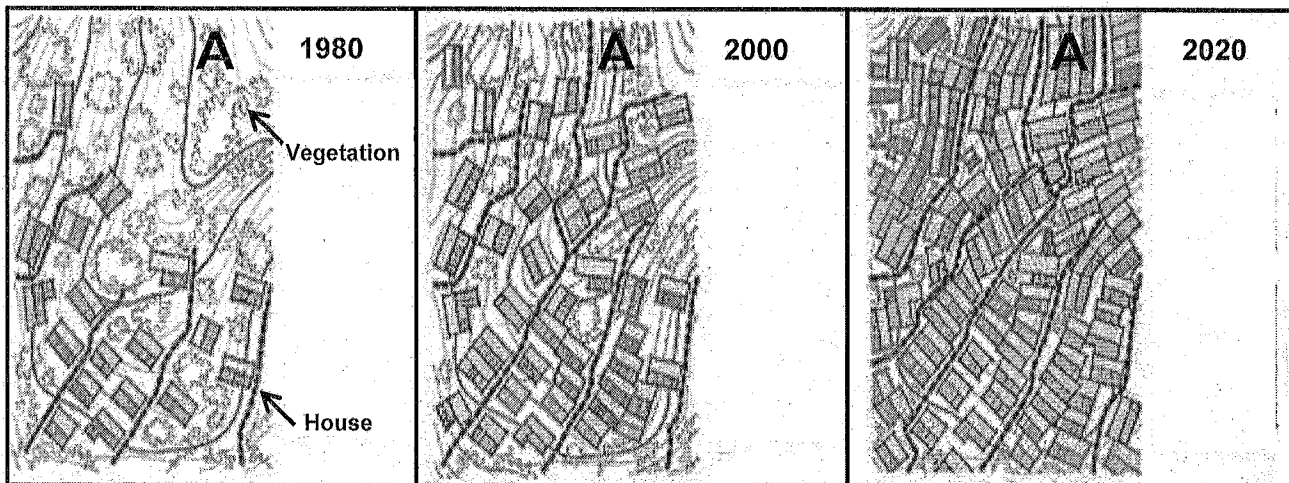
[Adapted from www.wcn.co.za]

FIGURE 4.3: URBAN EXPANSION



[Source: Examiner's own sketch]

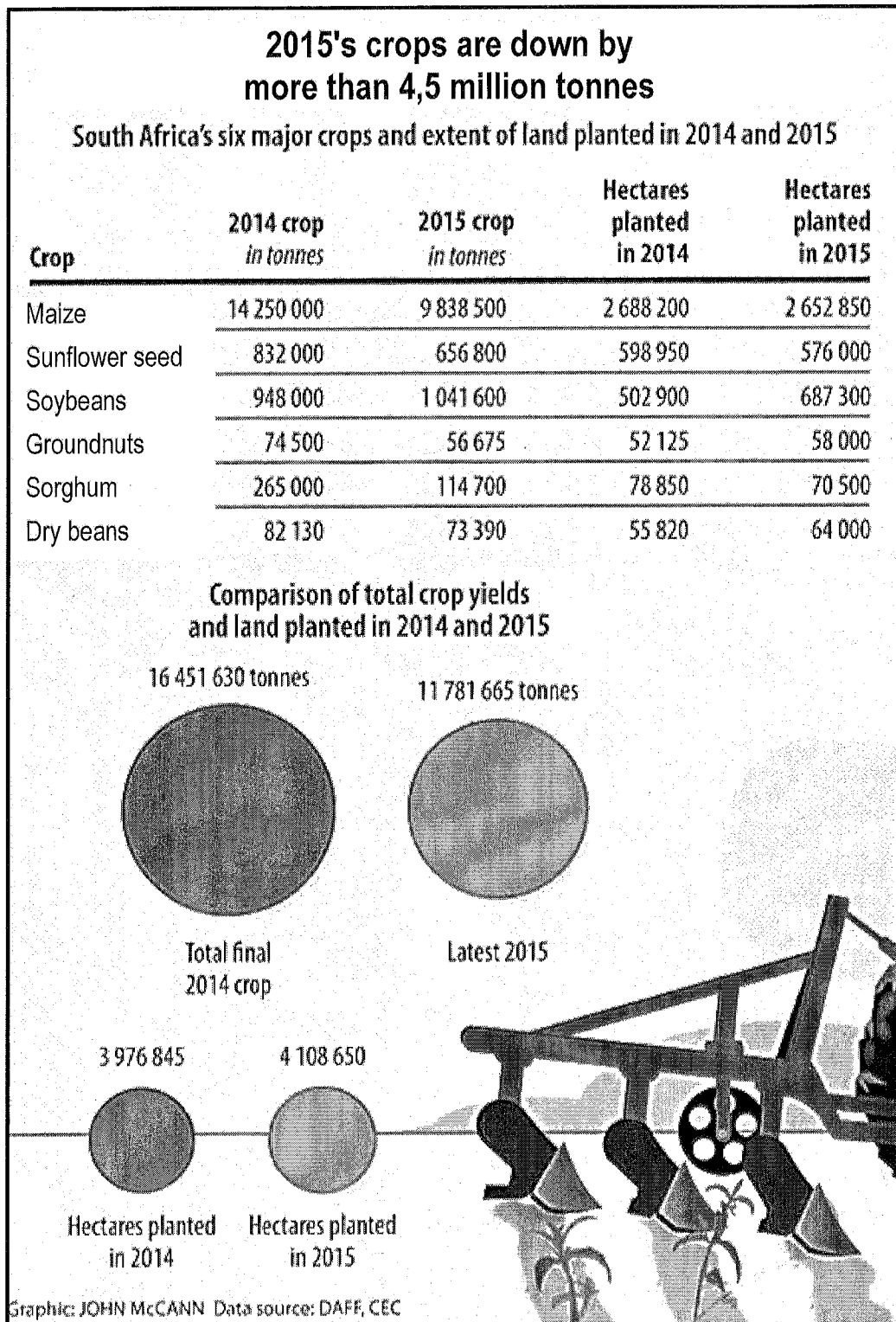
FIGURE 4.4: URBAN SPRAWL



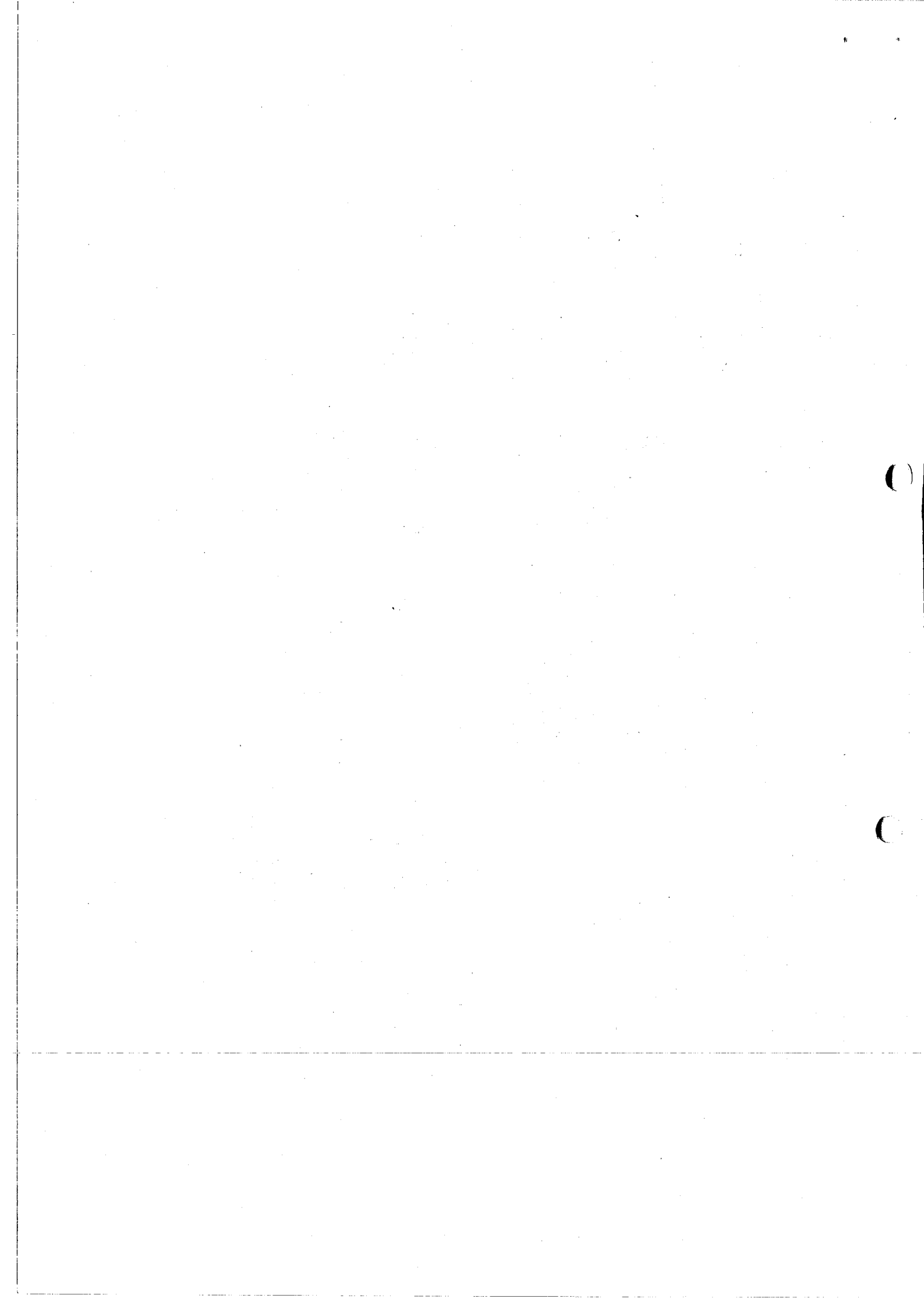
[Source: Unknown]



FIGURE 4.5: AGRICULTURAL PRODUCTION



[Source: *Mail & Guardian*, 4 September 2015]



- 3.3 FIGURE 3.3 depicts various types of rural settlements.
- 3.3.1 What evidence suggests that **B** is a dry-point settlement? (1 x 1) (1)
- 3.3.2 State TWO social advantages of living in settlement **B**. (2 x 1) (2)
- 3.3.3 Refer to settlement **C**.
- (a) Identify the settlement shape at **C**. (1 x 1) (1)
- (b) Suggest a reason for the elongated (long and narrow) shape of the individual farms in settlement **C**. (1 x 2) (2)
- (c) Explain why the farms at **C** are likely to experience soil erosion. (2 x 2) (4)
- 3.3.4 A decision was taken to upgrade the existing road in the village at **B**. Explain how and why this decision would change the classification of the village in the urban hierarchy. (2 x 2) (4)
- 3.4 Study FIGURE 3.4 showing an informal settlement in India.
- 3.4.1 What is an *informal settlement*? (1 x 1) (1)
- 3.4.2 Name ONE basic service that an informal settlement possibly lacks. (1 x 1) (1)
- 3.4.3 Explain why illegal electricity connections are also common in informal settlements in South Africa. (2 x 2) (4)
- 3.4.4 Explain why the safety officer is justified in giving the informal settlement inhabitant a fine. (1 x 2) (2)
- 3.4.5 In a paragraph of approximately EIGHT lines, evaluate how the inhabitants and their activities in informal settlements negatively affect the environment. (4 x 2) (8)
- 3.5 Read the extract in FIGURE 3.5 based on mining in South Africa.
- 3.5.1 Give TWO reasons in the extract for the decrease in the contribution of mining to the GDP. (2 x 1) (2)
- 3.5.2 State ONE physical factor that could endanger a miner's life below surface. (1 x 2) (2)
- 3.5.3 Discuss TWO possible reasons for the increasing input costs of labour. (2 x 2) (4)
- 3.5.4 Write a paragraph of approximately EIGHT lines and discuss the direct and indirect contribution of mining to the GDP of South Africa. (4 x 2) (8)



- 3.6 Study FIGURE 3.6 based on informal trading in South Africa.
- 3.6.1 Why did the Metrorail security guards burn down the hawkers' stalls? (1 x 1) (1)
- 3.6.2 Give a reason why the Khayelitsha railway station is ideally located for informal trading. (1 x 1) (1)
- 3.6.3 Why does Metrorail view informal trading as an 'additional financial burden'? (2 x 1) (2)
- 3.6.4 What do the words, 'A hawker determinedly sets up her sweets stand' reveal about her socio-economic condition? (1 x 2) (2)
- 3.6.5 Suggest TWO ways in which informal traders could be assisted. (2 x 2) (4)
- 3.6.6 Evaluate why the South African government should encourage informal trading in future. (2 x 2) (4)
- [75]**



QUESTION 4

- 4.1 People living in large urban settlements experience various problems on a daily basis.

Choose the correct word(s) from those given in brackets. Write only the word(s) next to the question number (4.1.1–4.1.7) in the ANSWER BOOK.

- 4.1.1 Traffic congestion is characteristic of the (rural-urban fringe/CBD).
- 4.1.2 Noise pollution is intensified in the (light/heavy) industrial zone.
- 4.1.3 Overcrowding is a result of urban (growth/expansion).
- 4.1.4 In South Africa informal settlements are commonly found (in the city centre/on the outskirts of cities).
- 4.1.5 Traffic congestion in large urban settlements may be solved by increasing the number of (one-way streets/traffic lights).
- 4.1.6 Air pollution in a city may be reduced by developing more (green belts/industrial parks).
- 4.1.7 The increasing demand for services and infrastructure is the greatest in (informal settlements/high-income residential areas).

(7 x 1) (7)

- 4.2 Various options are provided as possible answers to the following questions. Choose the answer and write only the letter (A–D) next to the question number (4.2.1–4.2.8) in the ANSWER BOOK, for example 4.2.9 D.

- 4.2.1 Mining is an extractive activity that is an example of the ... economic sector.

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

- 4.2.2 Which ONE of the following characterises the tertiary sector?

- A Forestry
- B Manufacturing
- C Research
- D Transport



- 4.2.3 The overseas market where products are sold outside South Africa is known as the ... market.
- A home
 - B import
 - C export
 - D regional
- 4.2.4 An example of a value-added product:
- A Maize
 - B Soya beans
 - C Bread
 - D Sunflower seeds
- 4.2.5 The Maputo Development Corridor links the ... industrial region with the harbour in Maputo.
- A PWV
 - B Durban-Pinetown
 - C Port Elizabeth-Uitenhage
 - D Southwestern Cape
- 4.2.6 The major manufacturing industry in the Port Elizabeth-Uitenhage area is ...
- A iron and steel production.
 - B motor vehicle assembly.
 - C the canning of fish.
 - D sugar refining.
- 4.2.7 An industry that can be established where the modes of transport change is known as a/an ... industry.
- A ubiquitous
 - B raw material-orientated
 - C bridge
 - D footloose
- 4.2.8 ... promote industrialisation along major routes.
- A Spatial development initiatives
 - B Industrial development zones
 - C Growth points
 - D Deconcentration points
- (8 x 1) (8)

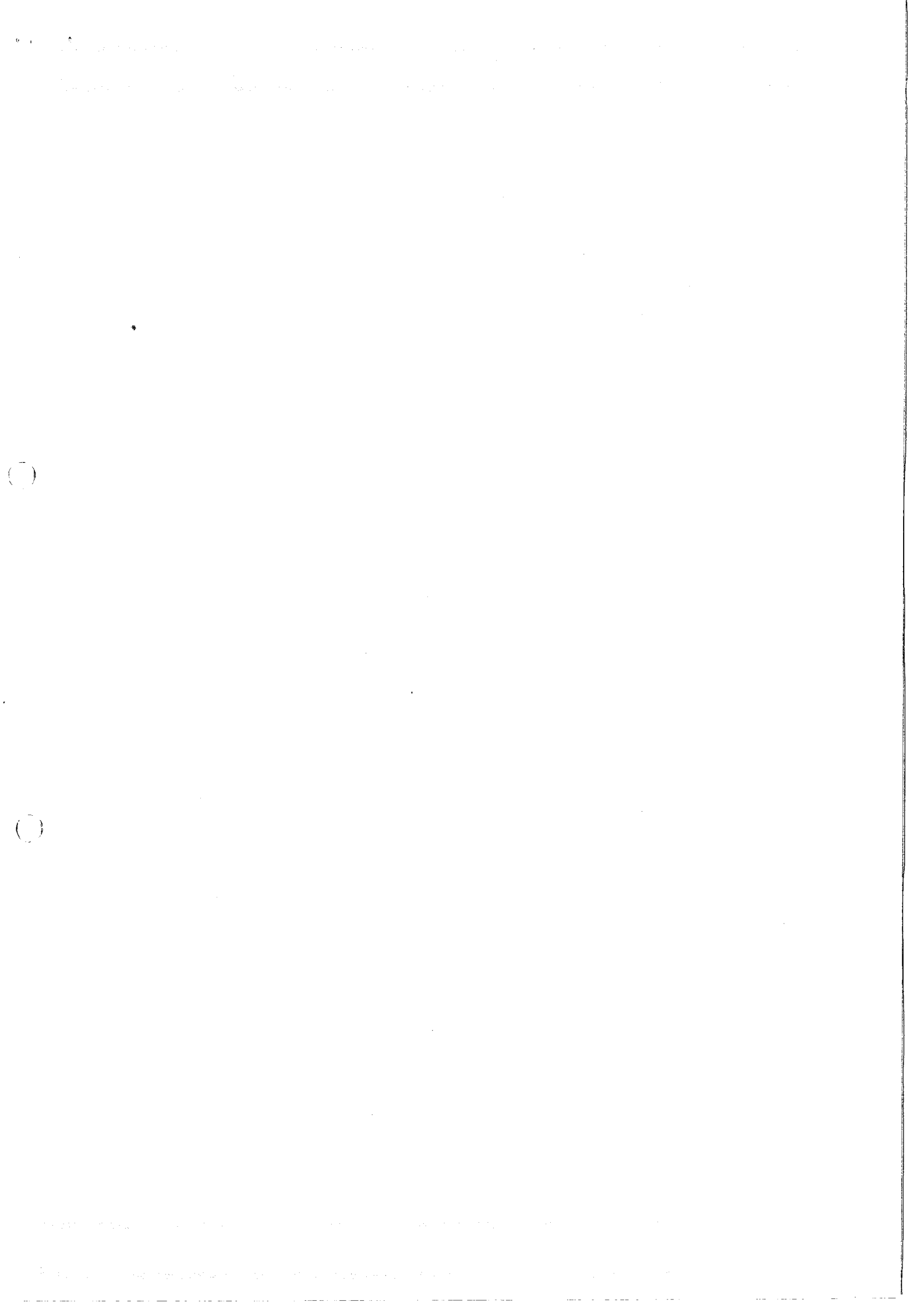


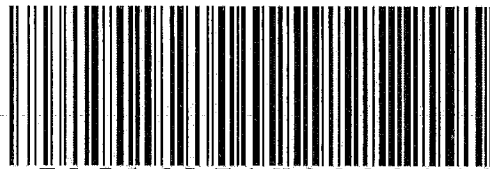
- 4.3 FIGURE 4.3 is based on urban expansion.
- 4.3.1 Name TWO characteristics of the CBD (**A**). (2 x 1) (2)
- 4.3.2 Give a reason why the fastest growth is taking place along the main roads. (1 x 2) (2)
- 4.3.3 Discuss TWO centrifugal forces that drive economic activities from the CBD towards the main roads. (2 x 2) (4)
- 4.3.4 Why is the area of old buildings around the CBD referred to as the transition zone? (1 x 2) (2)
- 4.3.5 Suggest TWO reasons for the new urban development that will take place in area **B** on the outskirts of the city in future. (2 x 2) (4)
- 4.4 Study FIGURE 4.4 showing urban sprawl in an urban settlement from 1980 to 2020.
- 4.4.1 Define the term *urban sprawl*. (1 x 1) (1)
- 4.4.2 Describe the effect of urban sprawl on housing density in this urban settlement. (1 x 1) (1)
- 4.4.3 Give a possible reason why area **A** was not used for urban development in 1980. (1 x 2) (2)
- 4.4.4 (a) Which street pattern would be most suitable for area **A** in the diagram for 2020? (1 x 2) (2)
- (b) Give ONE reason for your answer to QUESTION 4.4.4(a). (1 x 2) (2)
- 4.4.5 In a paragraph of approximately EIGHT lines, evaluate the effect that urban sprawl will have on the natural environment at **A** in 2020. (4 x 2) (8)
- 4.5 Study FIGURE 4.5, which shows current trends in the South African agricultural production.
- 4.5.1 Which crop in South Africa has shown an increase in production since 2014? (1 x 1) (1)
- 4.5.2 Name the crop showing the greatest decrease in production from 2014 to 2015. (1 x 1) (1)
- 4.5.3 State the relationship between crop yields and hectares planted for the period 2014 to 2015. (1 x 2) (2)
- 4.5.4 Give TWO possible reasons for your answer to QUESTION 4.5.3. (2 x 2) (4)
- 4.5.5 In a paragraph of approximately EIGHT lines, suggest measures that can be employed to improve crop production to meet the needs of the growing South African population. (4 x 2) (8)



- 4.6 The PWV/Gauteng industrial region is the largest contributor to the South African GDP. This was only possible by overcoming the problem of water scarcity in this region.
- 4.6.1 What does the abbreviation *PWV* stand for? (1 x 1) (1)
- 4.6.2 The discovery of which mineral led to the development of the PWV/Gauteng industrial region? (1 x 1) (1)
- 4.6.3 Name ONE mineral that you have studied and explain how it contributed to industrial development in this region. (2 x 2) (4)
- 4.6.4 Explain how the problem of water scarcity was overcome in the PWV/Gauteng industrial region. (2 x 2) (4)
- 4.6.5 Explain the contribution of this industrial region to the economic growth of Gauteng. (2 x 2) (4)
- TOTAL: 225**







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