NATIONAL SENIOR CERTIFICATE EXAMINATION
EXEMPLAR 2008

GEOGRAPHY: PAPER I

Time: 3 hours 300 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This paper consists of 24 pages and an insert of 4 pages (i – iv). Detach the insert from the middle of the question paper. Please check that your question paper is complete.

2. Read the questions carefully.

3. ANSWER THREE QUESTIONS AS FOLLOWS:
   One from Section A – **Compulsory question**
   One from Section B
   One from Section C

4. Credit will be given for:
   - interpretation and explanation; and
   - evidence of personal observation in the field where this is appropriate to the question.

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

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

7. Please **circle** the number of each question answered on the back inside flap of your answer book.

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

9. There is a GLOSSARY on page 2 explaining what the words in **bold** mean.

GLOSSARY

WORD	MEANING
Classify	To divide into groups or types so that things with similar characteristics are in the same group
Comment	To give your opinion or to make a statement about something; to write generally about something
Compare and contrast	Compare: To point out or show both similarities and differences Contrast: To stress the differences, dissimilarities or unlikeness of things
Defend	To give positive reasons to prove the statement is correct
Define	To give the precise meaning of …
Describe	To list the main characteristics of something; to give an account of [Note: a diagram or map may be part of a description.]
Design	To plan something, perhaps to draw
Discuss	To write about, to talk about in detail
Explain	To make clear or plain or to make sure that the reader understands what is being said
Explore	To comment on in detail in order to assess
Identify	To give the essential characteristics of …
Justify	To prove or give reasons or conclusions using logical argument
List	To present a list of names, facts, aspects or items
Mind Map	A diagram showing how different components of a system or topic relate to one another
Name	To state something; to list; to give; to identify; to mention
Predict	To say what is expected to happen; to foretell; to say in advance
Quoting	Refer to, using evidence from …
Review	To consider something carefully to see what is wrong with it or how it could be improved
Select	To choose
State	To present information or details plainly, directly and simply, without discussion
Substantiate	To give good reasons for this action
Suggest	To propose an explanation or a solution by way of a plan or a suggestion

SECTION A GEOGRAPHICAL ISSUES

QUESTION 1 GEOGRAPHY OF THE MGENI/ MZINDUZE RIVER BASINS

Note: This question is **compulsory**.

1.1 Geomorphology

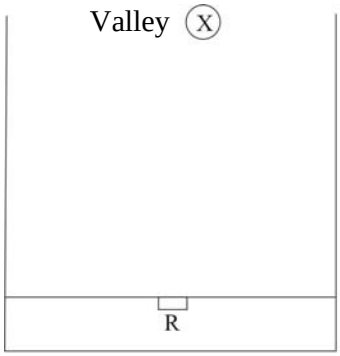
1.1.1 Study Figure 1 on page 4, which shows the Mgeni/ Mzinduze River Basin in KwaZulu-Natal. Read the following and choose the correct word in the brackets. Only write down the correct word next to the letter for each answer.

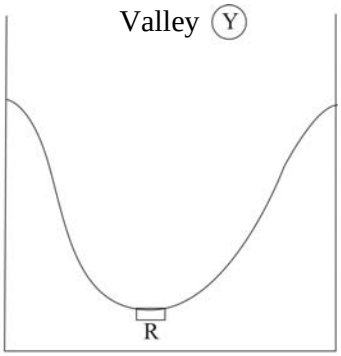
The Mgeni/ Mzinduze Rivers and their tributaries generally display a **((a) dendritic/ deranged)** drainage pattern. This means that the rock structure underlying the basin is **((b) badly faulted/ homogeneous)** and the pattern resembles **((c) the spokes of a wheel/ the branches of a tree).** The longitudinal profile of the Mgeni River is interrupted by a number of **((d) temporary/ permanent)** base levels which are created by waterfalls and dams. Hence the river is **((e) graded/ ungraded)**.

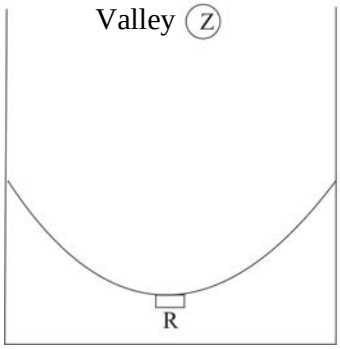
(5 x 2 = 10)

1.1.2 **River profiles**

The following transverse or cross-valley profiles were drawn at three points along the course of the Mgeni River: A, B and C (marked on Figure 1). **Select** which valley profile fits which point, giving ONE reason for each of your choices.



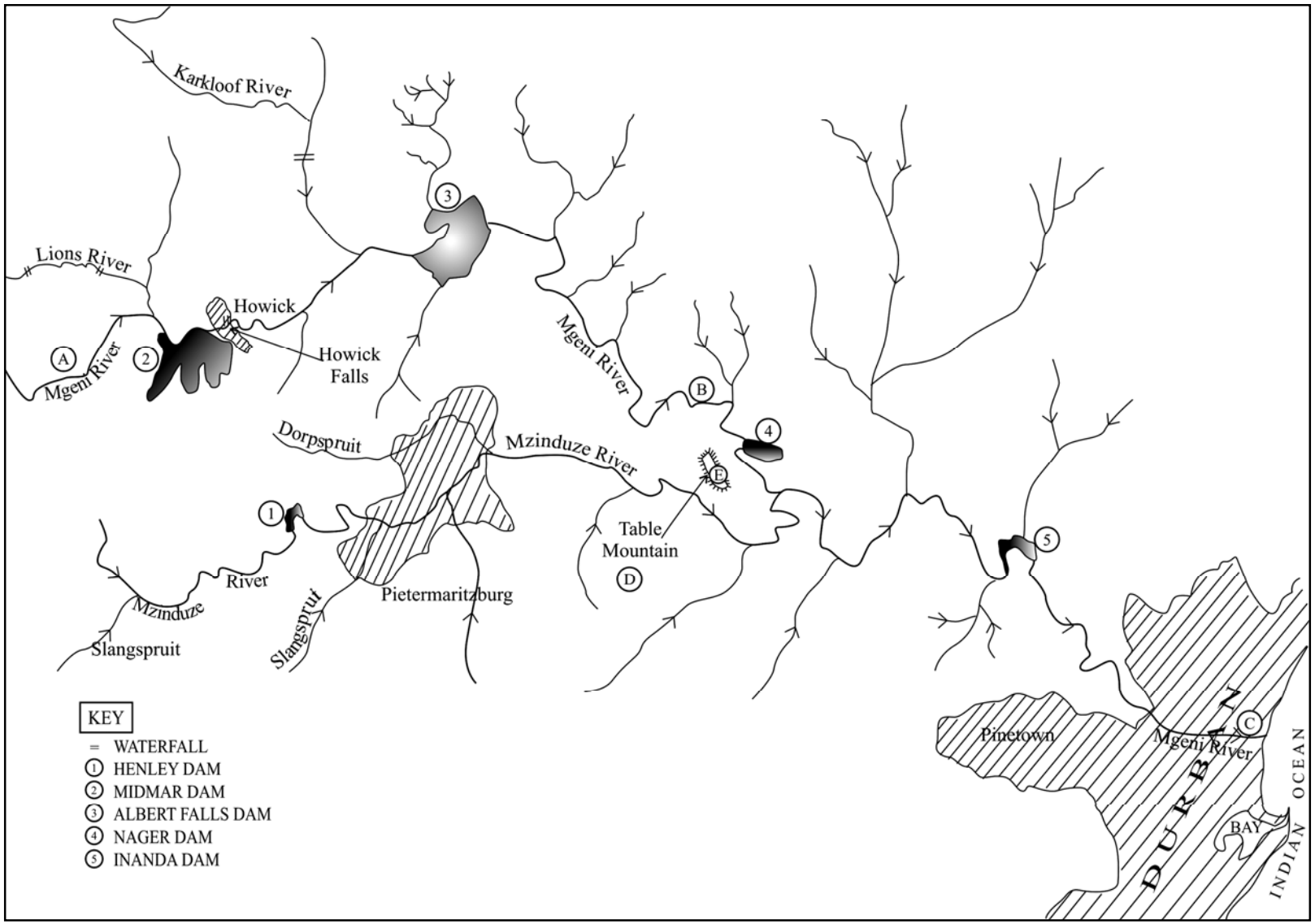




R : Mgeni River

(6 x 2 = 12)
[22]

Figure 1: The Mgeni/ Mzinduze River Basin

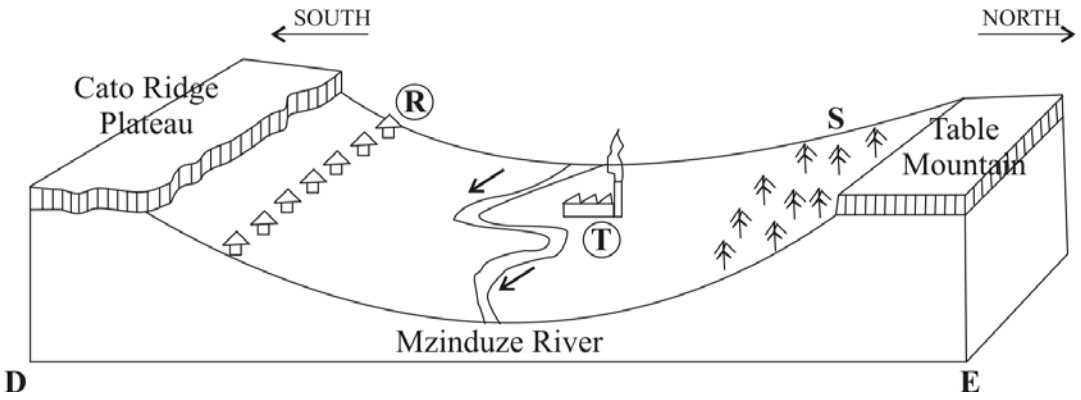


1.2 Climatology

1.2.1 Local climate

Study Figure 2, below, which is a sketch of a section of the Mzinduze River valley looking from D to E on Figure 1.

Figure 2: Mzinduze River Valley



(a) **Suggest** THREE reasons why a settlement developed at R. (3 x 2 = 6)

(b) As part of a strategy to raise the living standards in the area, a plantation of pine trees is planted at S. A Timber Mill is built at T to process the timber.
The inhabitants of the settlement of R complain that during the afternoon pollution from the mill falls out over their properties.
Using a neat sketch, **describe** the cause of this pollution fall out. (3 x 2 = 6)

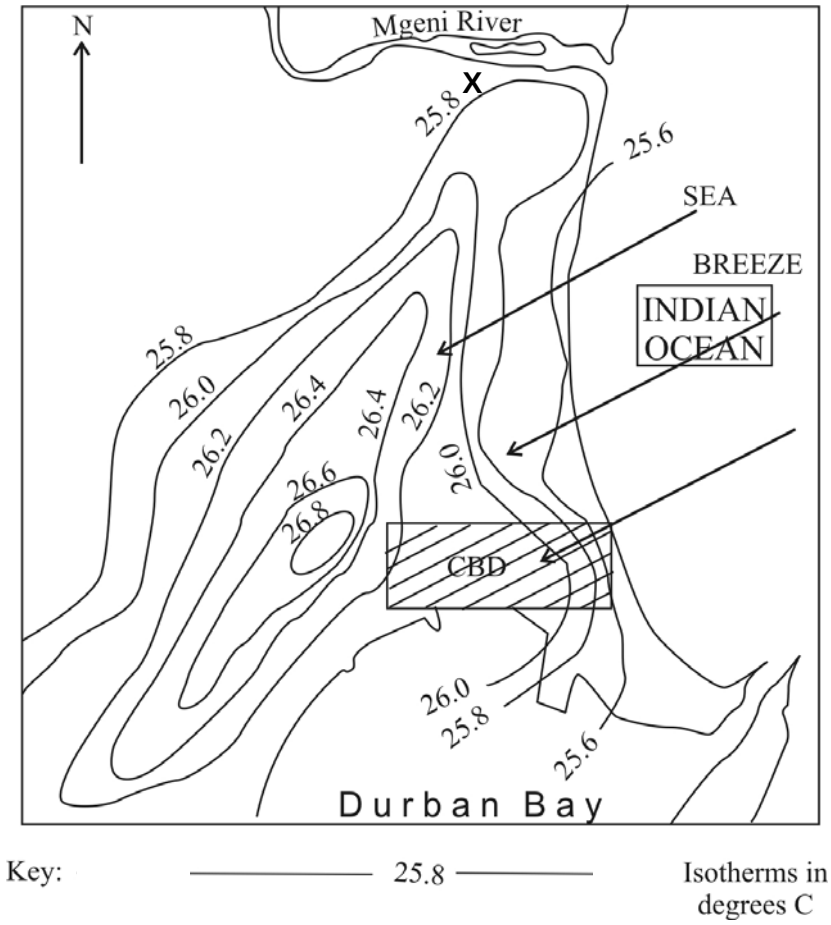
1.2.2 Human-made climate (urban climate)

Study Figure 3, below, which shows the temperatures over the City of Durban, at midday. A north-easterly sea breeze is blowing.

(a) With reference to Figure 3, **describe** an urban heat island. (2 x 2 = 4)
(b) **Explain** the development and position of the heat island over Durban. (4 x 2 = 8)
(c) **Explain** why temperatures are lower over the Mgeni River valley at X. (2 x 2 = 4)

[28]

Figure 3: City of Durban



People and places:

1.3 **Settlement**

Figure 4 on page 8, is an extract from the 1:50 000 topographical map of Cato Ridge (at D on Figure 1).

FACT FILE
Cato Ridge was chosen as a 'Border Industrial Area' during the 1970s and a manganese smelting plant was built at F on the topographical map. The area marked G on the topographical map was part of the former KwaZulu Homeland. The smelting plant has been so successful that a further two smelters are planned. Other industries have also developed at H.

1.3.1 Would you classify the rural settlement at G as dispersed, loosely nucleated or nucleated? (2)

1.3.2 **Explain** your answer to 1.3.1 above. (2 x 2 = 4)

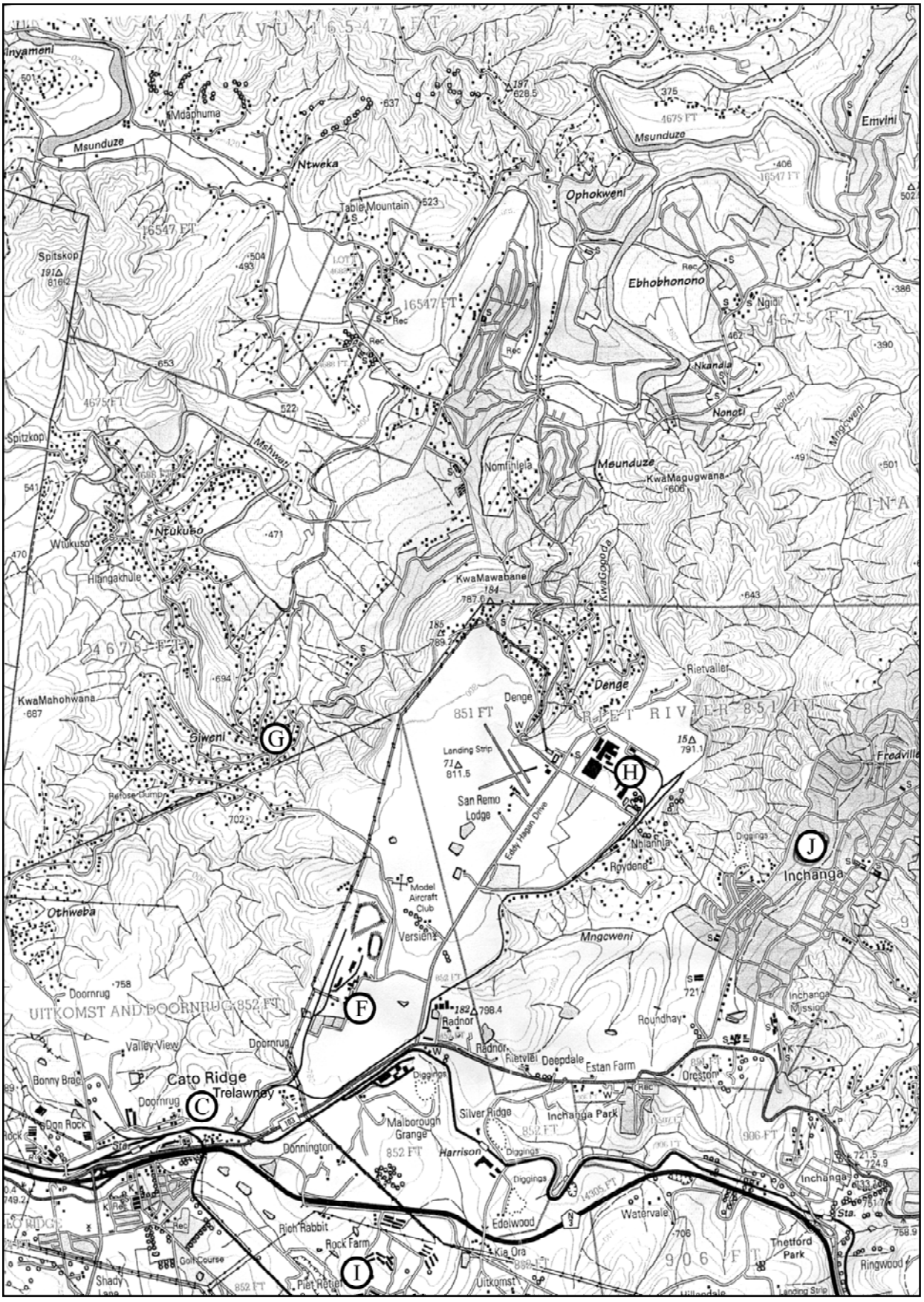
1.3.3 The settlement of Cato Ridge (C) is classified as a Central Place. With reference to the topographical map, **explain** this term. (4 x 2 = 8)

1.3.4 Between 1960 and 1970 a group of subsistence farmers were moved from their lands at I (Figure 4), to the 'Betterment Settlement' at Inchanga (J). Highly productive commercial chicken farms were built at I. The original owners of the lands at I have lodged a claim to return to their lands. Do you think that the original owners of the lands should be allowed to return to their lands? **Justify** your answer. (3 x 2 = 6)

1.3.5 A recent medical report shows high levels of illness amongst the residents of G (Figure 4). This is blamed on the pollution from the manganese smelter at F. As a result there have been calls for the closure of the factory. **Comment** on the positive and negative effects of closing the factory. (4 x 2 = 8)

[28]

Figure 4: Map of Cato Ridge (extract 1:50 000 topographical map)



1.4 **People and their needs: Economic development in the Durban/ Pinetown/ Pietermaritzburg Region**

The Durban/ Pinetown/ Pietermaritzburg economic region is the second largest industrial region in South Africa.

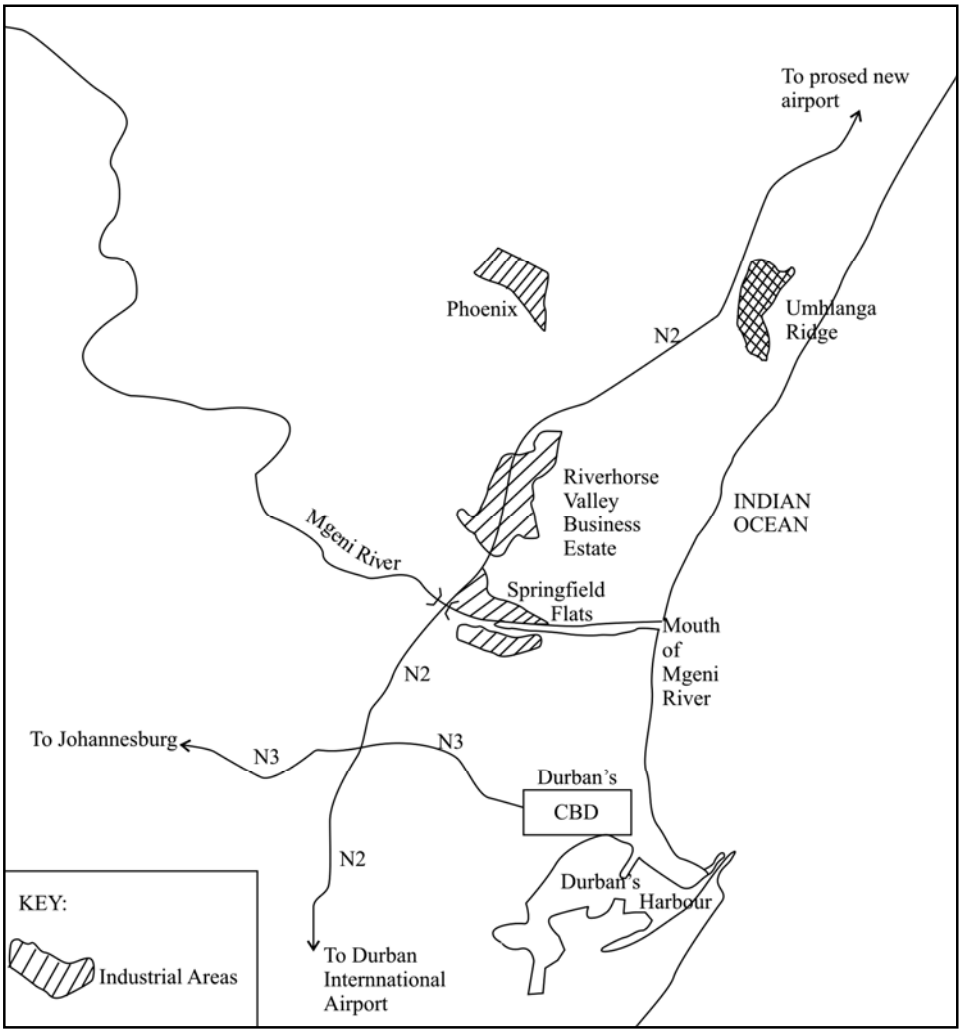
1.4.1 **Describe** FIVE reasons for the development of this economic region. (5 x 2 = 10)

1.4.2 **Industrial expansion**

Study Figure 5 below, which shows the sites of the location of industry to the north of Durban's CBD.

Recent industrial expansion in Durban has been to the north, to sites alongside the N2 Ring Road. One such site is the Riverhorse Valley Business Estate (see Figure 5). Most of the industries are 'Footloose Industries'.

Figure 5: Industry of the north of Durban's CBD



(a) Using an example, **describe** the meaning of 'Footloose Industries'.(2 x 2 = 4)

(b) Give TWO reasons why such industries locate at sites such as the Riverhorse Valley Business Estate. (4 x 2 = 8)

[22]

100 marks

SECTION B NATURAL ENVIRONMENTS

Answer **EITHER** Question 2 **OR** Question 3

QUESTION 2 CLIMATOLOGY, GEOMORPHOLOGY AND DRAINAGE MANAGEMENT

2.1 Climatology

2.1.1 **State** whether the following statements are TRUE or FALSE. If the statement is FALSE, then correct the statement.

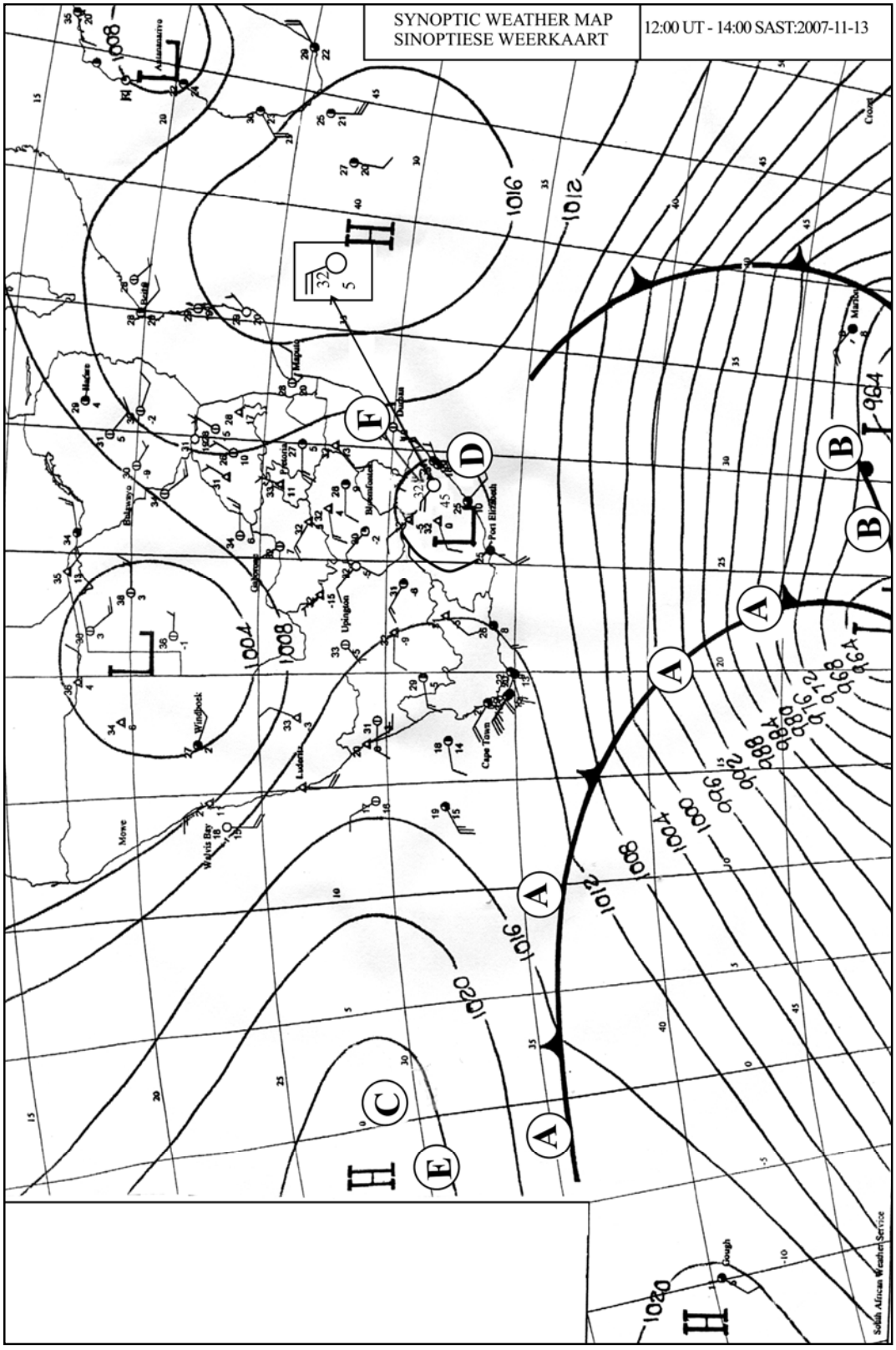
(a) Southern Africa's climate is not affected by the Sub-Tropical semi-permanent High Pressure Cells.
(b) The South Indian High Pressure Cell is normally located off the east coast of South Africa.
(c) The South Atlantic High Pressure Cell is a very weak anti-cyclonic system.
(d) During winter the interior High Pressure over South Africa prevents moist air from penetrating to the Interior Plateau.
(e) During summer most rainfall which falls over the interior of South Africa results from temperate depressions.
(f) During winter most rainfall which falls over the South-West Cape results from moisture front thunderstorms.

[20]

2.2 South African Synoptic Weather Map

Study Figure 6, below, which is the Synoptic Weather Map for 2007-11-13.

Figure 6: Synoptic Weather Map 2007-11-13

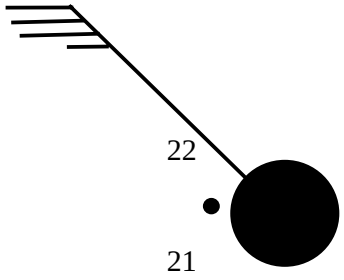


[Source: *SA Weather Services*]

2.2.1 Study Figure 6 (Synoptic Weather Map).
Identify the climatological features labelled A, B and C. (3 x 2 = 6)

2.2.2 What is the atmospheric pressure (hPa or mb) at D and E? (2 x 2 = 4)

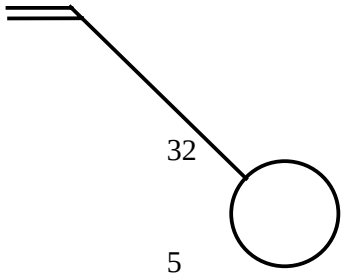
2.2.3 **Describe** the weather being experienced at Cape Town on this date. The weather symbols for Cape Town are as follows:



(6)

2.2.4 With reference to the synoptic weather map (Figure 6), **explain** why there is such a strong wind blowing at Cape Town. (2 x 2 = 4)

2.2.5 **Describe** TWO pieces of evidence which prove that Berg Winds are blowing at F on the synoptic weather map. The weather symbols for weather station F are as follows (also enlarged on Figure 6):



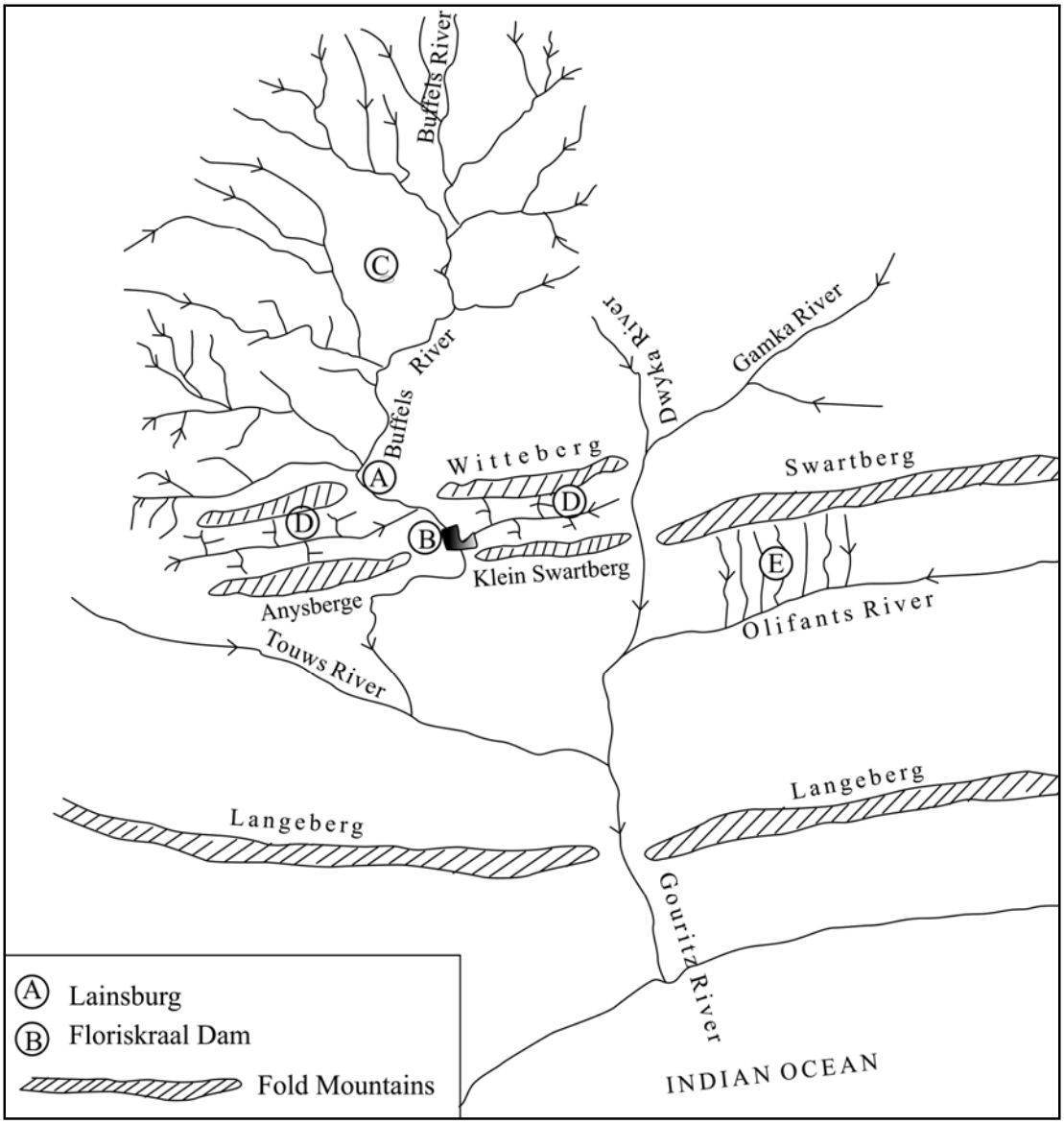
(2 x 2 = 4)

2.2.6 **Describe** THREE effects that this Berg Wind could have on the area over which it blows. (3 x 2 = 6)
[30]

2.3 Geomorphology

Study Figure 7 which shows the river basins of the Buffels, Dwyka, Olifants, Touws and Gouritz Rivers in the southern part of Western Cape.

Figure 7: The River Basins of the Buffels, Dwyka, Olifants, Touws and Gouritz Rivers



2.3.1 With reference to Figure 7, **define:**

(a) Watershed.
(b) river basin. (2 x 2 = 4)

2.3.2 **Identify** the drainage patterns at C, D and E. (3 x 2 = 6)

2.3.3 Choose one of the drainage patterns you have identified in 2.3.2 above. Name the one you have chosen and then **explain** how it develops. (2 x 2 = 4)

2.3.4 The main rivers in this area developed their drainage patterns before the fold mountains, shown on the map, were formed.

(a) **Name** this type of drainage. (2 x 2 = 4)
(b) **Explain** how this drainage developed. (3 x 2 = 6)
[24]

2.4 Managing drainage systems

In 1981 the town of Laingsburg (A on Figure 7) was completely devastated by a flood from the Buffels River and 104 people were drowned. Since then the town has been rebuilt.

On 15/11/07 the following warning was issued by the South African Weather Service: 'A deep trough of Low Pressure, extending from the north-west to south-east across South Africa, coupled with an advancing cold front, will create conditions for rapid uplift of moist air which will result in heavy rainfall over the Laingsburg area. Farmers and residents who live close to the Buffels River are strongly advised to evacuate their homes and to move to higher ground.'

As an advisor to the Laingsburg Municipality, write a report in which you:

(a) Briefly **describe**:
- the climatological conditions; and (4 x 2 = 8)
- the geomorphological conditions which could lead to the flooding of Laingsburg once again. (4 x 2 = 8)

(b) **Suggest** a long term strategy which is designed to manage the drainage basin to try to reduce the constant threat of flooding to the town of Laingsburg. (5 x 2 = 10)
[26]

100 marks

OR QUESTION 3

QUESTION 3 CLIMATOLOGY AND GEOMORPHOLOGY

3.1 Geomorphology: Massive igneous rocks

TRUE or FALSE

State whether the following statements are TRUE or FALSE. If FALSE then re-write the statement correctly.

3.1.1 When igneous rocks form they are laid down in horizontal strata.

3.1.2 Igneous rocks, such as granite, may be weathered, whilst still below Earth's surface, to eventually form Tors.

3.1.3 Sills form when igneous rock solidifies in horizontal cracks in the crust.

3.1.4 When dykes are exposed on the surface they can form the resistant caps of mesas and buttes.

3.1.5 Igneous rocks, which solidify on Earth's surface, form domes.

3.1.6 Batholiths, Laccoliths and Lopoliths are all features which form when igneous rock solidifies deep in the crust.

3.1.7 The most common type of igneous rock is granite.

[20]

3.2 Climatology: the general circulation of the atmosphere

Describe and **explain** the weather which is normally associated with the ITCZ (Inter-Tropical Convergence Zone). (3 x 2 = 6)

3.3 Tropical cyclones

Study Photograph 1 (page i of the Insert) which is a satellite photograph of Tropical Cyclone Favio, (22/02/07), in the Mozambique Channel, south-east of the port of Beira.

3.3.1 How can you tell that this system is a tropical cyclone by studying the satellite photograph? (2 x 2 = 4)

3.3.2 Draw a simple well-labelled synoptic weather map to show this cyclone as it approached the coast of Mozambique on 22/02/07. (4 x 2 = 8)

3.3.3 Tropical Cyclone Favio moved over the coast of Mozambique and caused a great deal of damage. As an advisor to the Mozambican Government, draw up a report in which you:

(a) **Describe** the environmental damage which Tropical Cyclones cause to developing countries such as Mozambique. (3 x 2 = 6)
(b) **Suggest** THREE precautions which could be taken to prevent major storm damage in the future. (3 x 2 = 6)

3.4 Local climate

Study Photograph 2 (page i of the insert) which shows a local valley in the Midlands of KwaZulu-Natal.

3.4.1 **Describe** and **explain** the differences in vegetation which are evident on slope A and on slope B. (4 x 2 = 8)

3.4.2 Using a neat sketch, **describe** the local winds which occur in this valley during the night. (3 x 2 = 6)

3.5 Human made climate (urban climate)

Study Photograph 3 (page ii of the Insert) which shows smog over the city of Cape Town in winter.

3.5.1 As a concerned resident of Cape Town, write a report in which you:

- **Describe** the causes of smog. (2 x 2 = 4)
- **Suggest** TWO solutions to this regular problem. (2 x 2 = 4)

[52]

3.6 **Horizontal rock strata**

Study Photograph 4 (page ii of the insert) which shows a mesa.

3.6.1 Draw a neat field sketch of the mesa, showing:
- The resistant rock layer; and
- The four elements of slope which are visible. (5 x 2 = 10)

3.6.2 **Quoting** evidence from Photograph 4, say which of the four slope elements is best suited to human activities, for example, agriculture. **Explain** your answer. (2 x 2 = 4)

[14]

3.7 **Mass wasting**

Study Photograph 5 (page iii of the Insert) which shows soil creep on a slope in a rural area.

3.7.1 **Explain** the causes of soil creep. (2 x 2 = 4)

3.7.2 As a farmer who owns this land, write a report in which you:

- **Describe** the effects of this mass movement on your farmlands and your farming infrastructure. (3 x 2 = 6)
- **Suggest** a solution to this problem. (2 x 2 = 4)

[14]

100 marks

SECTION C HUMAN ENVIRONMENTS

Answer ONE question from this section, **EITHER** Question 4 **OR** Question 5.

QUESTION 4 PEOPLE AND PLACES (RURAL AND URBAN SETTLEMENT) AND PEOPLE AND THEIR NEEDS

4.1 True or False

State if the following statements are True or False. If false, correct the statement.

4.1.1 Harbours are break of bulk points.

4.1.2 The morphology of a city refers to the appearance and shape of a city.

4.1.3 Rural areas always display a dispersed settlement pattern.

4.1.4 The threshold population is the population living on the rural-urban fringe.

4.1.5 Cape Town is known as a metropolitan area.

[14]

4.2 People and their needs

Read the extract below:

> The building of Coega's **I**ndustrial **D**evelopment **Z**one (**IDZ**) 20 km north of Port Elizabeth, and its deep water port of Ngqura, has been referred to as a 'ghost on the coast', because of the setbacks the project has endured. The multi billion rand aluminium smelter for Rio-Tinto-Alcan, an anchor tenant, has now been approved and 150 skilled Canadians have arrived to assist with its construction.

[Editorial *Weekend Post* Eastern Cape 5 January, 2008]

4.2.1 **State** THREE factors originally favouring industry in the Port Elizabeth area. (3 x 2 = 6)

4.2.2 **Classify** the following as economic activities, i.e. primary, secondary, tertiary or quaternary.

(a) port/harbour
(b) aluminium smelter (2 x 2 = 4)

4.2.3 **Explain** what you understand by the term 'anchor tenant'. (see extract above). (2)

4.2.4 **Comment** on how the arrival of the Canadian workforce will impact on the economy of Eastern Cape. (2 x 2 = 4)

4.2.5 **Explain** TWO negative influences this IDZ could have on the surrounding natural environment. (2 x 2 = 4)

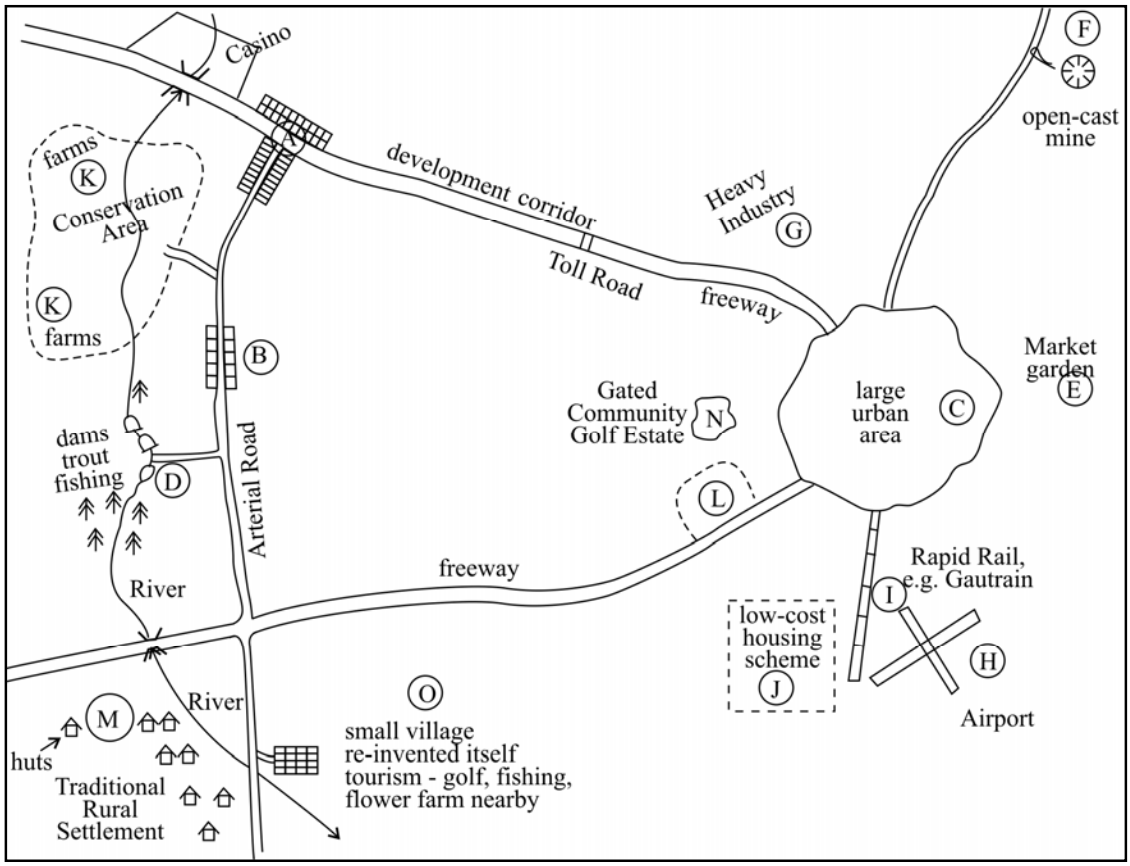
4.2.6 **List** FOUR industrial products traditionally associated with the Port Elizabeth industrial area. (4)

[24]

4.3 Rural and urban settlement

Study Figure 8 below, an imaginary area showing rural and urban settlements.

Figure 8: Urban settlement



4.3.1 **Identify** the shapes of the rural settlements at:

(a) A
(b) B (2 x 2 = 4)

4.3.2 **Explain** how the sphere of influence of settlement A will differ from that of settlement C. (2 x 2 = 4)

4.3.3 **Explain** why there has been an agglomeration of Bed and Breakfast accommodations and tourist activities at D. (2 x 2 = 4)

4.3.4 **Suggest** whether market gardening at E is classified as extensive/ intensive farming. **Justify** your answer. (2 x 2 = 4)

4.3.5 **State** ONE disadvantage and ONE advantage of a mining activity at F. (2 x 2 = 4)

4.3.6 **Suggest** how the location of a heavy industry at G has had an impact on both the road and the natural environment. (2 x 2 = 4)

4.3.7 **State** TWO reasons why the location at H is ideal for an airport. (2 x 2 = 4)

4.3.8 **Suggest** ONE advantage and ONE disadvantage of the rapid rail system (e.g. Gautrain) being built at I. (2 x 2 = 4)

4.3.9 The people staying in the dormitory suburb at J are termed 'commuters'. **Explain** what you understand by this term. (2)

4.3.10 **Suggest** why the farms in area K have been converted into a conservation/ ecotourism venture. (2 x 2 = 4)

4.3.11 **Suggest** why the site at L has become the location for an informal settlement. (2 x 2 = 4)

4.3.12

(a) **State** which type of farming economy the settlement at M would be associated with. (2)

(b) **Justify** your answer to (a) above. (2)

4.3.13 Draw up two columns **comparing** the advantages and disadvantages of living in the estate at N. (4 x 2 = 8)

4.3.14

(a) **Explain** why the village at O has remained sustainable. (2 x 2 = 4)

(b) Refer to a rural settlement you have studied or are familiar with and **explain** how it has 're-invented' itself to prevent rural depopulation and thereby ensure sustainability. (2 x 2 = 4)

[62]

100 marks

OR QUESTION 5

QUESTION 5 PEOPLE AND PLACES (RURAL AND URBAN SETTLEMENTS) AND PEOPLE AND THEIR NEEDS

5.1 Terminology and concepts

Suggest the appropriate Geographical word for each of the following statements. Write down the question number and the correct word.

5.1.1 The maximum distance a customer will travel to obtain a service is termed the …

5.1.2 Streets that intersect at right angles are known as a … street pattern.

5.1.3 The forces that encourage the migration of functions from the city centre to the fringe of a city are known as … forces.

5.1.4 Development of shops along major outgoing roads is known as a … commercial pattern.

5.1.5 A cross-sectional view of a city as seen from the side is known as its urban …

(5 x 2 = 10)
[10]

5.2 Urban planning – sustainable strategies

Study Photograph 6 (page iii of the Insert) and read the extract below:

> The 'Redbrick building', a 21st century development that has been designed to help reduce the building's carbon footprint on Mother Earth, was launched in Cape Town's inner city in September 2007.

[*Weekend Argus*, Sept. 2007]

5.2.1 **Suggest** what is meant by the term 'carbon footprint'. (2 x 2 = 4)

5.2.2 Draw a **mind map suggesting** and **explaining** FOUR features that would classify this building as a 21st century environmentally friendly building. (4 x 2 = 8)
[12]

5.3 A planned industrial new town

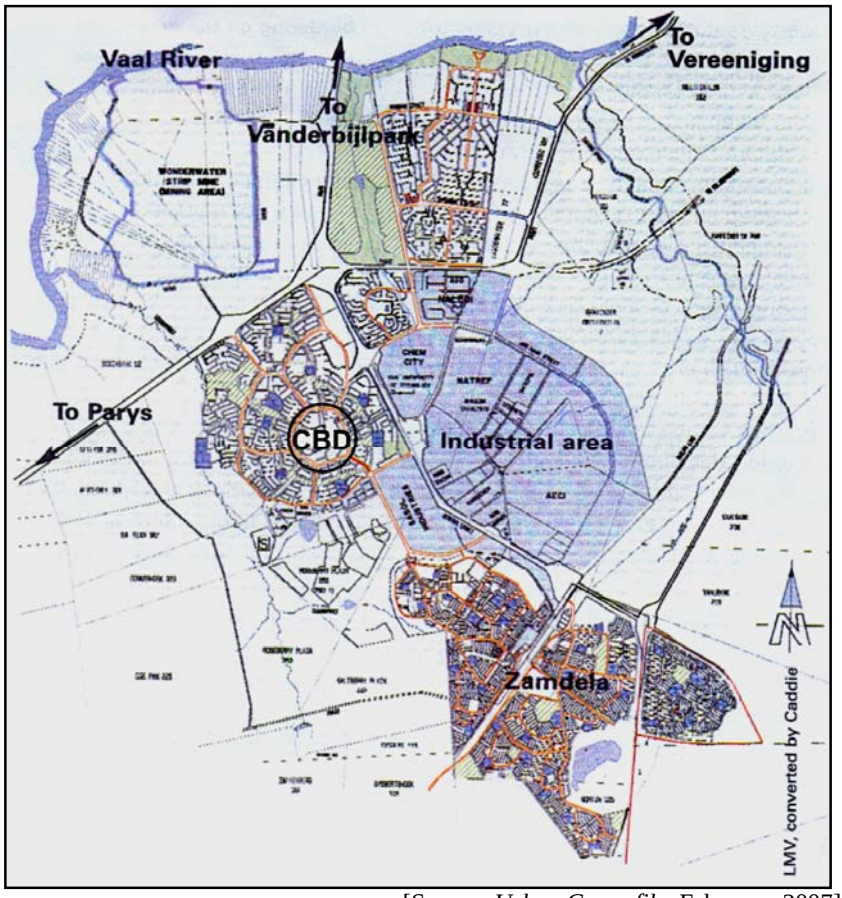
Read the extract below:

> Sasolburg in Free State is an industrial town considered a model 'new town' when it was built in the 1950s. It has wide streets, residential cell structures and parks and open spaces with 70 000 trees. A Golf Estate called Heron Banks is planned to be built on the Vaal River.

[*Urban Green File*, February 2007]

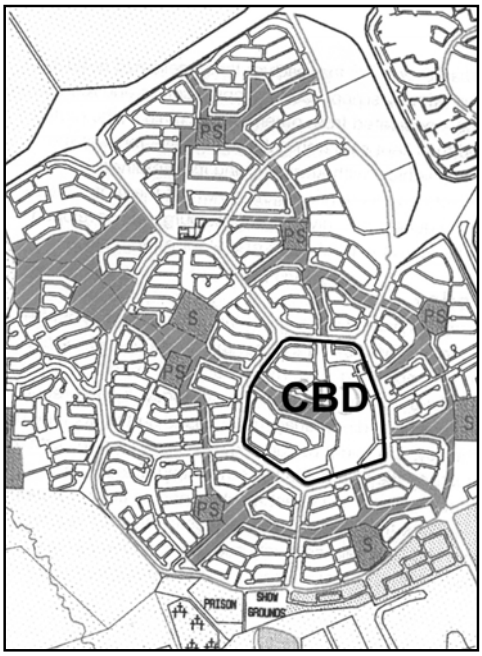
Study Figure 9A and 9B, below, two maps showing the layout of Sasolburg, and Photograph 7 (page iv of the Insert) depicting a section of the CBD.

Figure 9A: Sasolburg's layout



[Source: *Urban Green file*, February, 2007]

Figure 9B: An enlargement of Figure 9A showing detail of CBD of Sasolburg



[Source: *Urban Green File*, February 2007]

5.3.1 **Describe** the morphology/ layout of Sasolburg's CBD and **comment** on the location of the different land uses around it. (3 x 2 = 6)

5.3.2

(a) **State** the major industrial product associated with Sasolburg. (2)
(b) **Design** a mind map which illustrates the factors that favour the development of industry in this area. (3 x 2 = 6)
(c) **Explain** why the original town planners of Sasolburg insisted on including open spaces and planting 70 000 trees. (2 x 2 = 4)
(d) **Explore** the impact this industrial development and recreational land use will have on the Vaal River. (3 x 2 = 6)

5.3.3 **List** TWO reasons why this part of Free State is ideal for the growing of maize. (2 x 2 = 4)

5.3.4 A 'self help town' has been established to the north of Sasolburg called 'Orange Farm'. **Explain** the concept of a self help town, using any example you have studied. (2 x 2 = 4)

[32]

5.4 Globalisation and Trade

Study the extract below:

> 'Africa is economically underdeveloped, but certainly not undeveloped. Africa has **resources** that are desired by the whole world. What hurts our economy is that importing **technology** among other goods costs us more than **primary goods** we supply to the world. The **trade imbalance** is immense and should be looked into and adjusted. We need more **globalisation**, not less. Africa does not attract sufficient **foreign capital** to finance its development needs. Between 1960 and 1973 Africa's economic growth was no different from that of S.E. Asia. In 1957 Ghana was more prosperous than South Korea. Today South Korea's economy is 80 times larger than that of Ghana.

[Clive Percival, *The Star*, 17 October 2007]

5.4.1 **Suggest** the appropriate Geographical word for each of the following statements. Write down the question number and correct word.

(a) A primary resource produced by African countries is (maize/ tractors).
(b) The technology that Africa imports is (computers/ oil).
(c) The value of imports which is higher than the value of exports is known as a (favourable/ adverse trade balance).
(d) Africa needs to attract foreign capital from (Germany/ Mozambique).

(4 x 2 = 8)

5.4.2 **Define** 'globalisation'. (2 x 2 = 4)

5.4.3 **List** ONE advantage and ONE disadvantage of globalisation. (2 x 2 = 4)

5.4.4 Do you think 'we need more globalisation, not less?' **Defend** your answer. (2 x 2 = 4)

[20]

5.5 Lesotho Highlands Water Project

The Lesotho Highlands Water Project is providing a critical resource to South Africa. In a short essay of approximately ONE page:

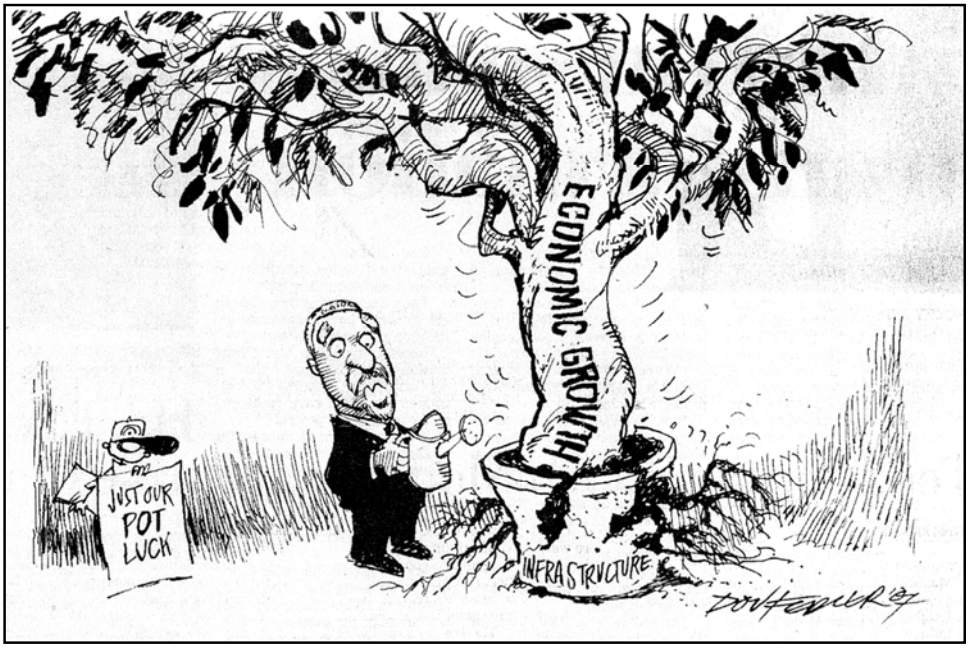
- **explain** why it was considered necessary to build this scheme.
- **suggest** how the building of the project impacted on Lesotho's people and the environment.
- **comment** on the long term sustainability of this project. (6 x 2 = 12)

[12]

5.6 People and their needs

Study the cartoon in Figure 10 below, published in the Business Report, 12 December 2007.

Figure 10: Cartoon (Business Report, 12 December 2007)



[Source: *Business Report*, 12 December 2007]

5.6.1 **Explain** the meaning of:

(a) economic growth
(b) infrastructure (2 x 2 = 4)

5.6.2 **Discuss** the relevance of the cartoon with reference to the power cuts and 'load shedding' in South Africa. (2 x 2 = 4)

5.6.3 **Suggest** THREE viable solutions to South Africa's energy crisis of 2008. (3 x 2 = 6)

[14]

100 marks

TOTAL FOR THIS PAPER: 300 MARKS