

1. This paper consists of four questions. You must answer three of the four questions.
2. You must answer one question from each of section A and Section B and one other.
3. Write neatly and number your answers exactly as the questions are numbered.
4. A separate addendum with diagrams is supplied with this booklet.
5. Write your name on your answer booklet as well as your question paper and return your question paper with your answer booklet.

## SECTION A CLIMATE, SA WEATHER AND GEOMORPHOLOGY

### Question One

1.1 Study the synoptic map fig 1.1 and answer the following questions:

- |   |   |
|---|---|
| 1.1.1 State two reasons why this map represents a summer situation.   | 2 |
| 1.1.2 Name the pressure belt of which cells B and E are a part.   | 1 |
| 1.1.3 State the atmospheric conditions that are caused by this pressure belt.   | 2 |
| 1.1.4 What type of cell is cell D?  | 1 |
| 1.1.5 State and account for the circulation of air around C.  | 3 |
| 1.1.6 Explain one reason why system C is not posing a significant threat to the people of Mozambique.                                     | 2 |
| 1.1.7 State and explain the direction of movement of C.   | 2 |
| 1.1.8 Describe two characteristics of systems like C that make them difficult for disaster planners and weather forecasters to deal with. | 4 |
| 1.1.9 At what stage of development is weather system F? Explain your answer.  | 4 |
| 1.1.10 Is the probability of rain high or low at Harare? State a reason from the map for your answer.                                     | 2 |
| 1.1.11 Describe and explain two changes in the weather that will take place in the weather at Port Elizabeth over the next 12 -20 hrs.    | 6 |

1.2 Study the diagram 1.2 showing drainage patterns within separate drainage basins.

- 1.2.1 Name the drainage patterns A- D labelled on the diagram 4
- 1.2.2 Explain what has resulted in patterns C and D. 4
- 1.2.3 Determine the stream order in grid block A 3 of the river system. 1
- 1.2.4 A new housing and commercial development is proposed for area E in grid A2. Write a single paragraph outlining how this development may affect the flow characteristics and health of this drainage basin. 8
- 1.2.5 Suggest one drainage basin management strategy to reduce any further negative impacts of the development on the basin. 3

1.3 Refer to the figure 1.3

- 1.3.1 Describe two conditions necessary for the formation of berg winds. 2
- 1.3.2 Explain the effects of berg winds on farming activities in South Africa. 4
- 1.3.3 Apart from berg winds describe two other climatic problems faced by farmers in South Africa. 4

1.4 Refer to the sketch 1.4 showing temperature patterns over an urban area.

- 1.4.1 Name the lines showing temperature patterns on the sketch. 1
- 1.4.2 Give evidence from the sketch that there is a temperature inversion over this area. 1
- 1.4.3 A similar temperature inversion exists over the interior of South Africa during winter.  
Explain how this temperature inversion affects weather conditions over South Africa. 2
- 1.4.4 Describe the relationship between temperature and land use that is evident on the sketch. 2
- 1.4.5 Suggest three reasons for the existence of a heat island over the urban area. 6
- 1.4.6 Outline two urban planning strategies that could counteract the effects of the heat island. 4

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## Question Two

2.1. Refer to the sketch 2.1 illustrating various representations of a tropical cyclone.

- 2.1.1 State why this system normally develops in late summer. 2
- 2.1.2 Describe the air circulation and the hemisphere of the system shown. 2
- 2.1.3 Describe two preconditions for the development of tropical cyclones. 4
- 2.1.4 Name the area of strongest wind speeds. 1
- 2.1.5 Name the main cloud type associated with the system. 1
- 2.1.6 Explain why these systems do not often affect South Africa. 4
- 2.1.7 Apart from the reasons you stated in 2.1.6, suggest reasons why the impact of tropical cyclones on Mozambique is often more serious than on South Africa. 6
- 2.1.8 Explain the link between man-made climate change and the effect of weather systems like these. 4

2.2 Refer to the sketch 2.2

- 2.2.1 Name the stream pattern at A and at B in the drainage basin. 2
- 2.2.2. Explain with the aid of diagrams how and why the cross profile of the river at AB may differ from that at CD on the longitudinal profile sketch. 6
- 2.2.3 Define the concept of "grade" as it relates to river profiles. 2
- 2.2.4 Explain two factors that will affect the drainage density of the drainage basin shown. 4
- 2.2.5 Suggest how overgrazing at AB due to stock farming could affect the functioning of the drainage system. 4

Refer to sketch 2.3 showing the process of river capture.

2.3.1 Match the letters C-G on the sketch with the following features of river capture.

- beheaded stream
  - captive stream
  - captor stream
  - area where a knick point may form
- 4

- 23.2 Headward erosion is a key process in river capture. Explain the process of headward erosion. 2
- 23.3 Outline two probable causes of this river capture occurring. 4
- 23.4 Explain why rejuvenation would occur as a result of river capture. 2
- 23.5 Explain one environmental impact of river capture for the area labelled G. 4

24 Refer to the sketch 2.4 to answer the following questions.

- 2.4.1 Explain why the climatic situation shown is often referred to as a micro-climate. 2
- 2.4.2 Explain the term "aspect." 2
- 2.4.3 Account for the different land uses on the two slopes of this valley. 4
- 2.4.4 What hemisphere is this valley in? 1
- 2.4.5 Explain how katabatic air flow in this valley would affect the people living in this valley 4
- 2.4.6 Suggest two effects of temperature inversions on activities and people living in valleys like this. 4

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## SECTION B SETTLEMENT AND SOUTH AFRICAN ECONOMICS

### Question One

1.1 Figure 1B showing one of South Africa's core industrial regions. It contributes 40% of South Africa's manufacturing sector.

- 1.1.1 In which province is this industrial region located? 1
- 1.1.2 Name one important industry that occurs in this area. 1
- 1.1.3 There was rapid rural to urban migration to this region at the start of the twentieth century. Suggest a reason for this. 2
- 1.1.4 Johannesburg and its surrounds makes up a conurbation. Explain this term with respect to Johannesburg. 2

- 1.15 Outline two ways in which this region contributes to the economy of South Africa. 4
- 1.15 Explain four factors that enabled this region to develop into such an important industrial centre. 8
- 1.17 Overconcentration has become a problem in this region. Explain the impact of overconcentration on the region and surrounding areas. 4
- 1.18 Explain one other factor that has limited industrial development in this region. 3
- 1.2 Study the figure 1.2B showing urban profile and land use zones in a typical South African city.
- 1.2.1 Describe the typical urban profile. Give a reason for this profile. 4
- 1.2.2 Account for the decrease in land value with increased distance from the city centre. 4
- 1.2.3 Give an example of a land use from each of:
- transition zone
  - rural urban fringe 2
- 1.2.4 **The area around the transition zone and CBD has suffered from urban decay/urban blight in South African cities.**
- Explain how this problem comes about. 4
  - Outline three strategies that city authorities and planners may employ to reverse or slow this process and rejuvenate the city. 6
- 1.2.5 Suggest why there is a township area in the outermost land use of this city. 2
- 1.2.6 Explain why RDP housing appears on this diagram. 4
- 1.2.7 Explain three challenges caused for the city by the "informal" housing land use areas that appear. 6
- Refer to the part of the diagram showing land use zones:
- 1.2.8 Give an example from the diagram to show how each of the following land use zones is represented:
- Hoyts sector theory
  - Multiple nuclei model
  - Concentric zone model 6

1.3 Refer to the figure 1.3 B. showing IDZ sites in South Africa.

1.3.1 What do the following abbreviations stand for?

- a. IDZ  
b. SDI 2

1.3.2 Describe two strategies that IDZ developments use to attract and cause development. 4

1.3.3 Describe three reasons for the choice of the site for the COEGA development outside Port Elizabeth. 6

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**Question Two**

2.1 Refer to the figure 2.1 B showing contribution by economic sector to the GDP of South Africa.

2.1.1 Name the sector- primary, secondary or tertiary which contributes the most to the economy. 2

2.1.2 Define GDP. 2

2.1.3 Suggest a reason for the relatively small contribution by agriculture to the GDP. 2

2.1.4 Outline two physical and two socio-economic challenges faced by farmers in south Africa. 8

2.1.5 Name two important agricultural exports from South Africa. 2

2.1.6 Mention one reason for food insecurity in Africa. 2

2.1.7 Explain how each of the following is assisting African countries ensure food security:

- A. GM foods  
B. climate research 6

2.1.8 Describe two physical factors that allowed the mining sector in South Africa to develop. 4

2.1.9 Explain two socio-economic problems faced by the mining sector. 2

2.2 Refer to the sketch map 2.2 B showing rural settlements in the North West province.

- 2.21 Suggest two pieces of evidence that supports the fact that this is subsistence farming and not Commercial farming. 4
- 2.22 Name the settlement pattern evident at Moweng. 2
- 2.23 Suggest two reasons for the siting of Bopane village. 4
- 2.24 Name and suggest a reason for the shape of the settlement at Radidu. 3
- 2.25 Explain how rural depopulation contributes to food insecurity in this region. 4
- 2.26 Explain how each of the following strategies could reduce rural depopulation and improve conditions in this region.
- a. Integrated Rural development      b. land reform      c. decentralisation of industry 6

2.3 Refer to the figure 2.3 B depicting service areas and range of settlements.

- 2.3.1 Name the theory Christaller developed to explain the distribution of settlements on the landscape. 1
- 2.3.2 The ranking of urban settlements according to function and size is called an urban \_\_\_\_\_ . (Just write the missing word) 1
- 2.3.3 The diagram shows range and threshold population for a centre. Explain these two terms. 4
- 2.3.4 Distinguish between high and low order centres. 2
- 2.3.5 Explain how the range and threshold population of a settlement is affected by the functions offered in it. 4

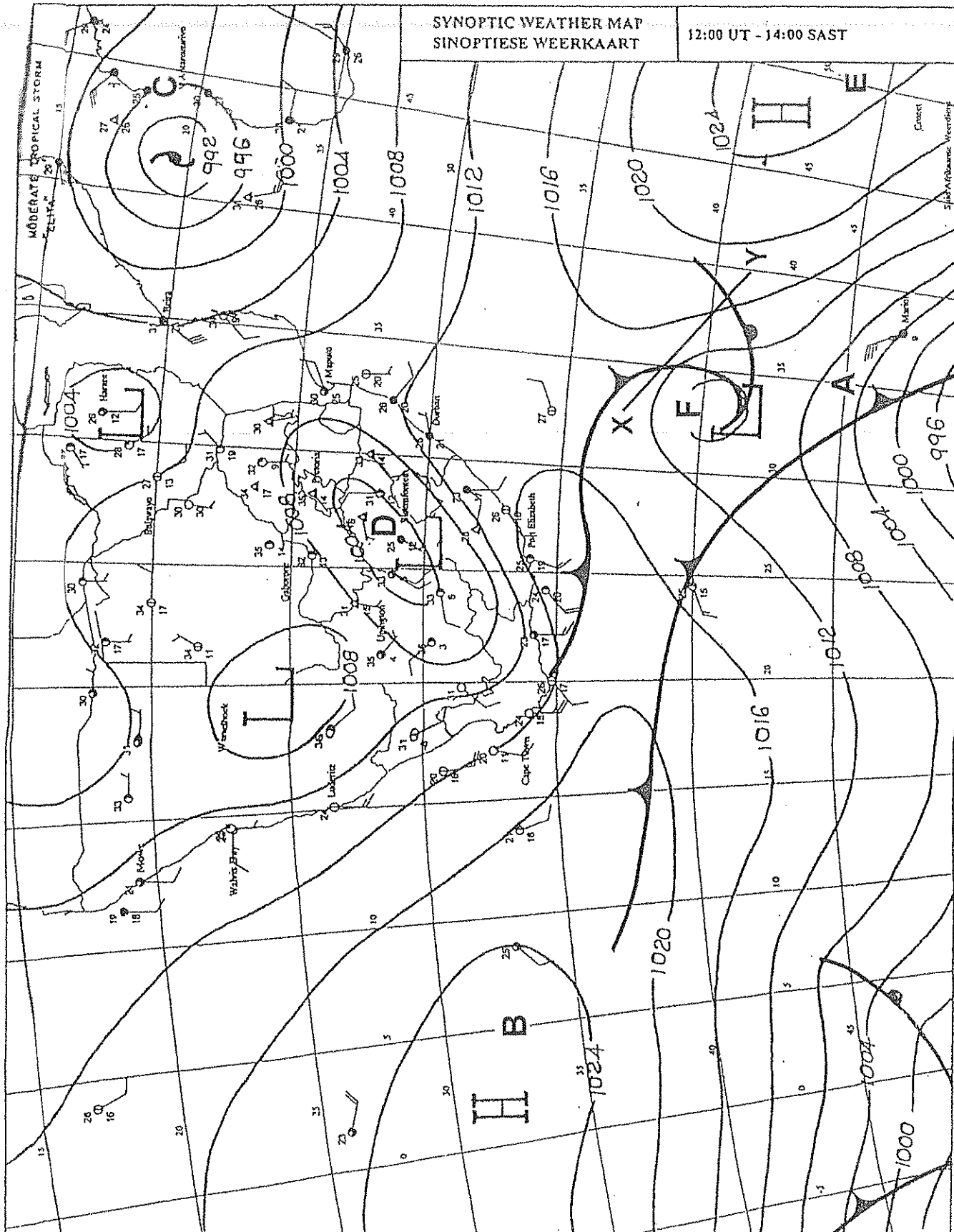
2.4 Read the extract on the informal sector. 2.4. B

- 2.4.1 Evaluate in a single paragraph of about 8-10 lines the effects that informal trading areas such as the Warwick junction market have on the city of Durban and the economy of the region 10



SYNOPTIC WEATHER MAP  
SINOPTIESE WEERKAART

12:00 UT - 14:00 SAST



**DISCUSSION:** The moderate tropical storm "Elta" was still situated over the Mozambique Channel. With a high south-east of the country and the surface trough extending from Namibia to the central interior, partly cloudy to cloudy conditions with thunderstorms developed over the Free State, KwaZulu-Natal and in places over Gauteng, the Limpopo Province and North-West. Partly cloudy conditions with light rain in places occurred along the south coast due to an onshore flow.

**BESPREKING:** Die matige tropiese storm "Elta" was steeds oor die Straat van Mosambiek geleë. Met 'n hoog suidoos van die land en die oppervlaktrog wat vanaf Namibië tot oor die sentrale binneland gestrek het, het gedeeltelik bewolkte tot bewolkte toestande met donderbule oor die Vrystaat, KwaZulu-Natal en plek-plek oor Gauteng, die Limpopo Provinsie en Noordwes ontwikkel. Gedeeltelik bewolkte toestande met ligte reën plek-plek het langs die suidkus voorgekom weens van 'n aanlandige vloei.

FIG. 1.2

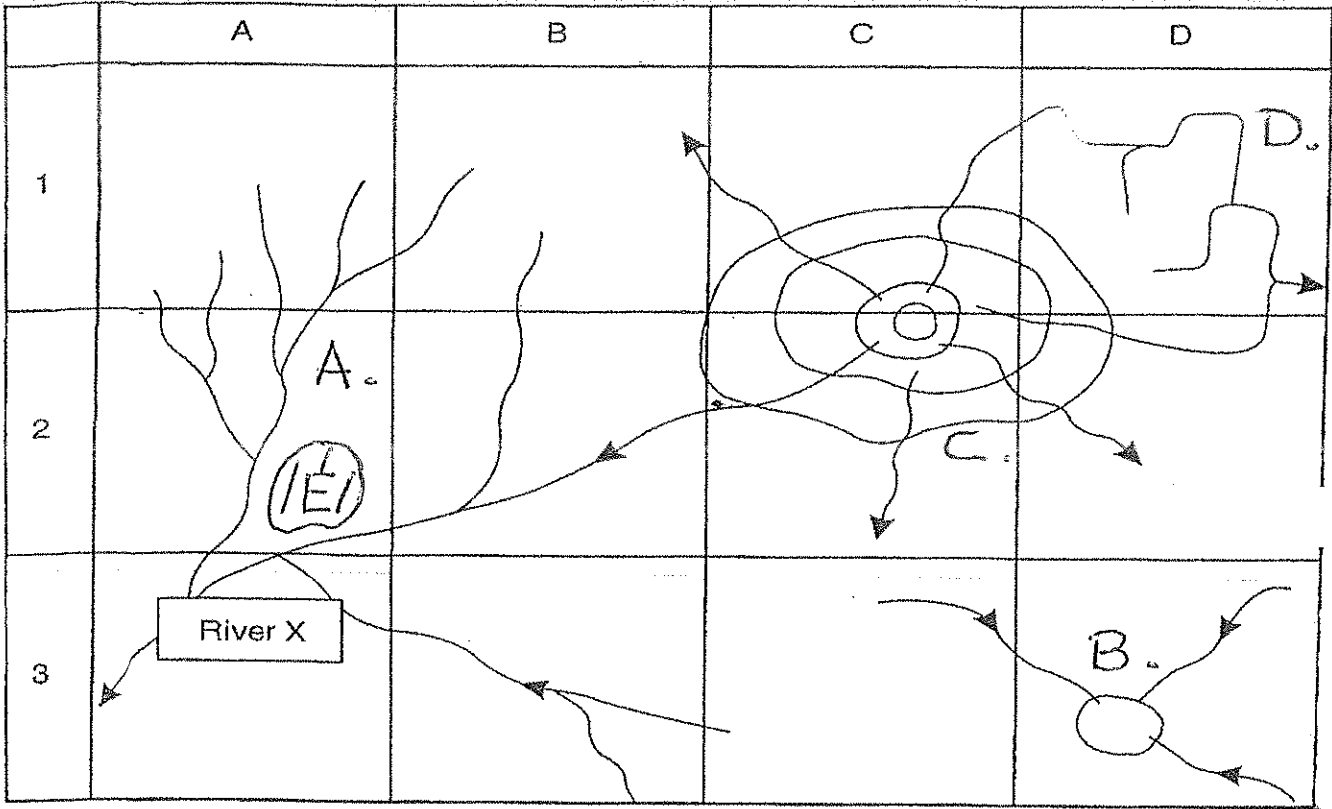


FIG. 1.3

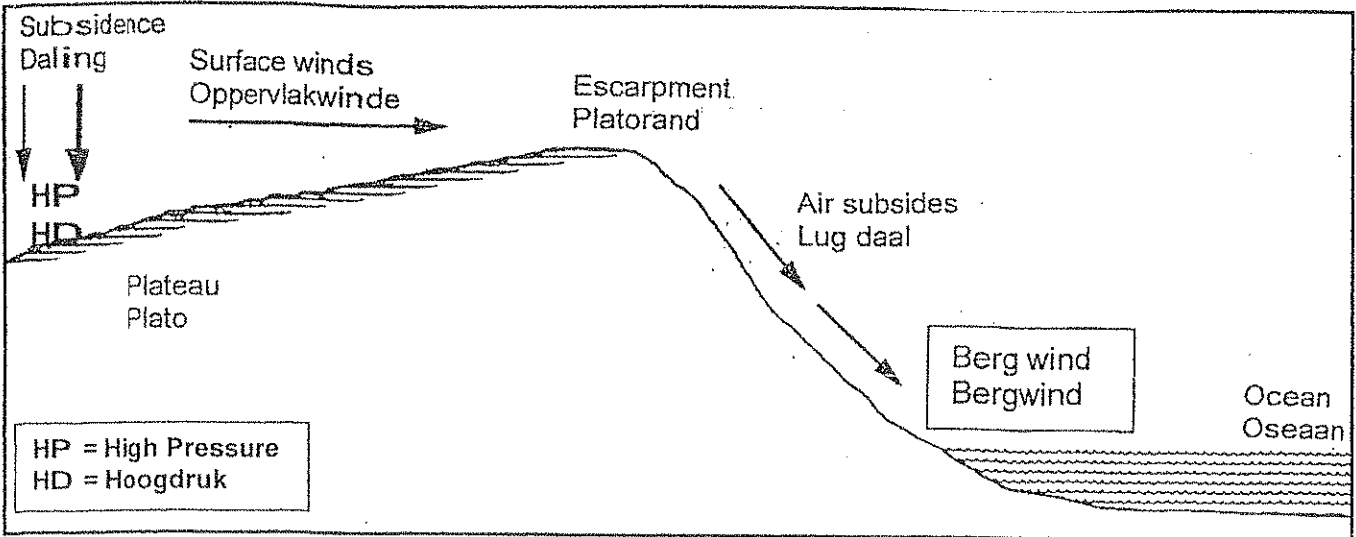


FIG. 1.4

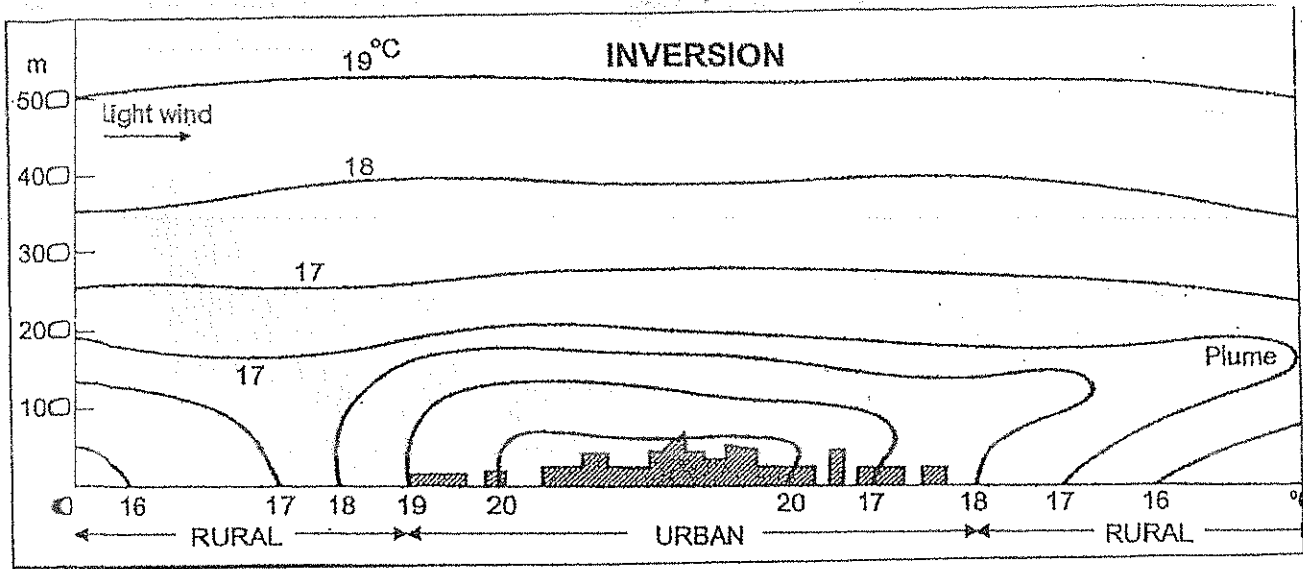
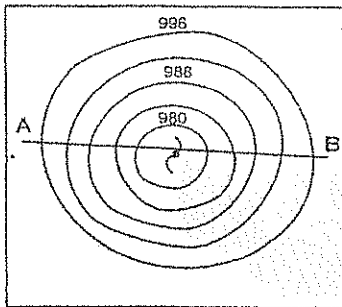
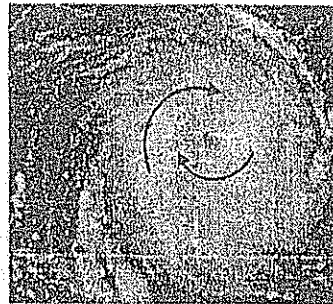


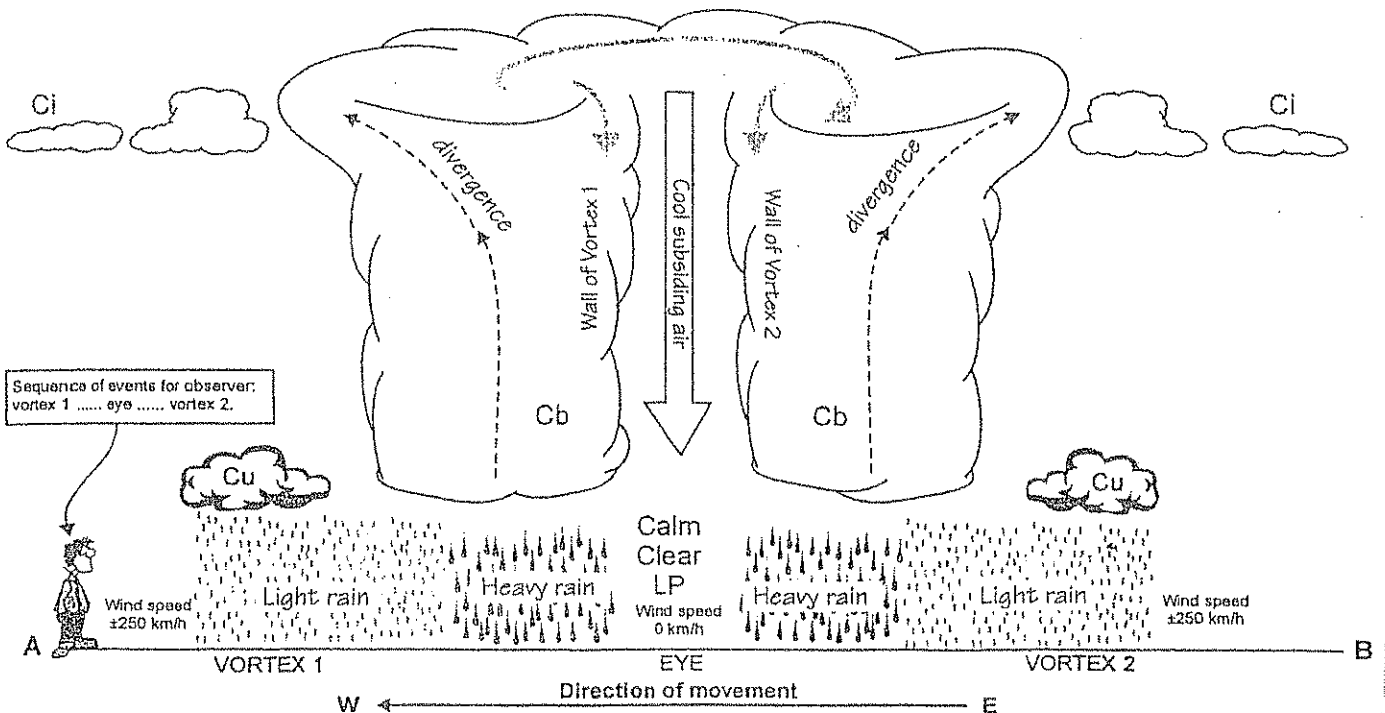
FIG. 2.1



Isobaric representation of a tropical cyclone



Satellite image of a tropical cyclone



6

FIG 1.2 B

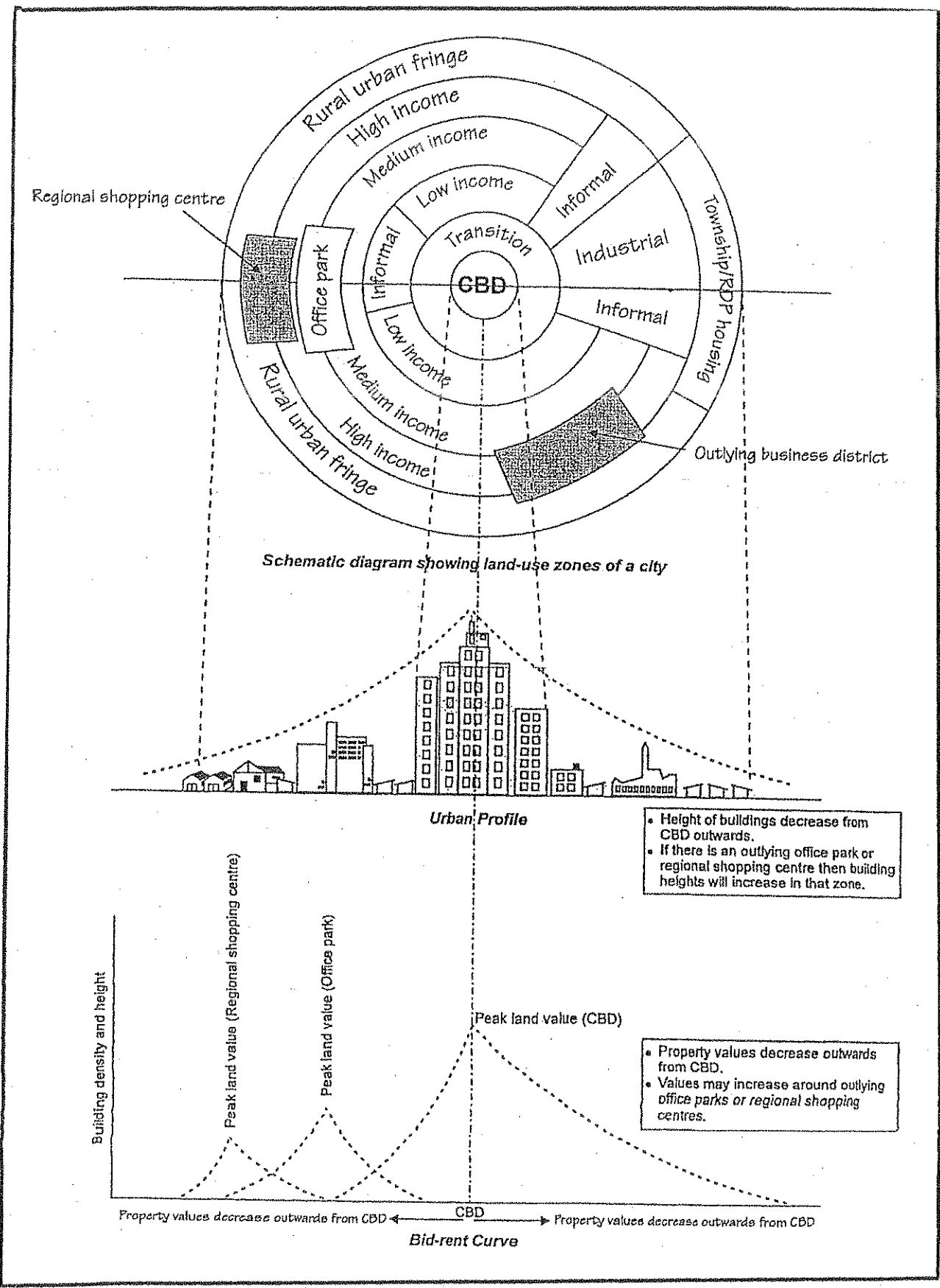


FIG. 1.3 B

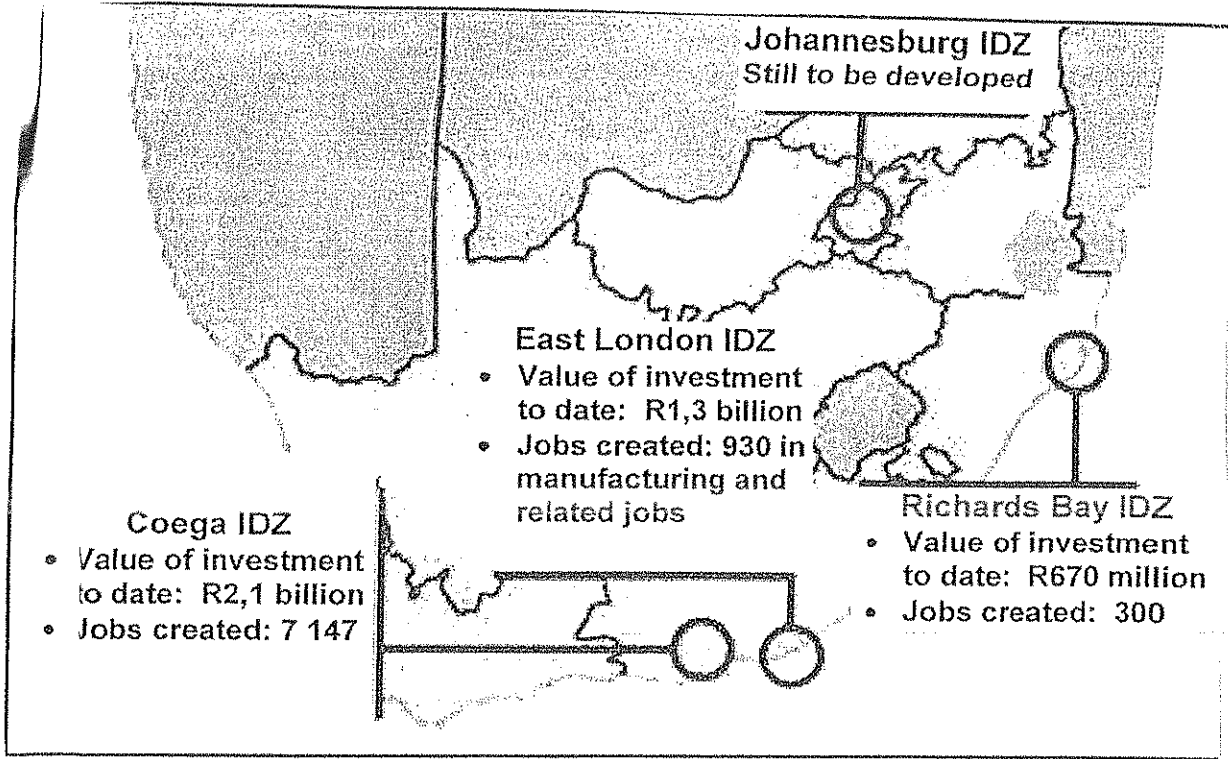
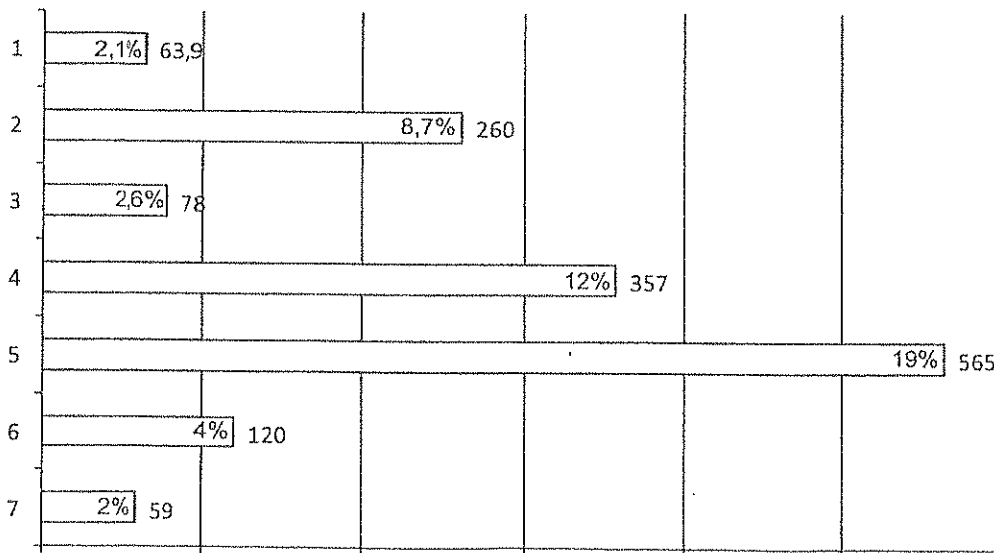


FIG. 2.1 B.

CONTRIBUTION TO GDP



KEY:

1. Agriculture
2. Mining and quarrying
3. Electricity, gas and water
4. Manufacturing
5. Finance
6. Construction
7. Internet

[Source: [www.internetmatters.co.za/images/contrib.png](http://www.internetmatters.co.za/images/contrib.png)]

