

Grade 12

Hillcrest High School

Marks: 200

Geography Paper 1

June 2015

Time: 2 Hours

Examiner: C. Madeley

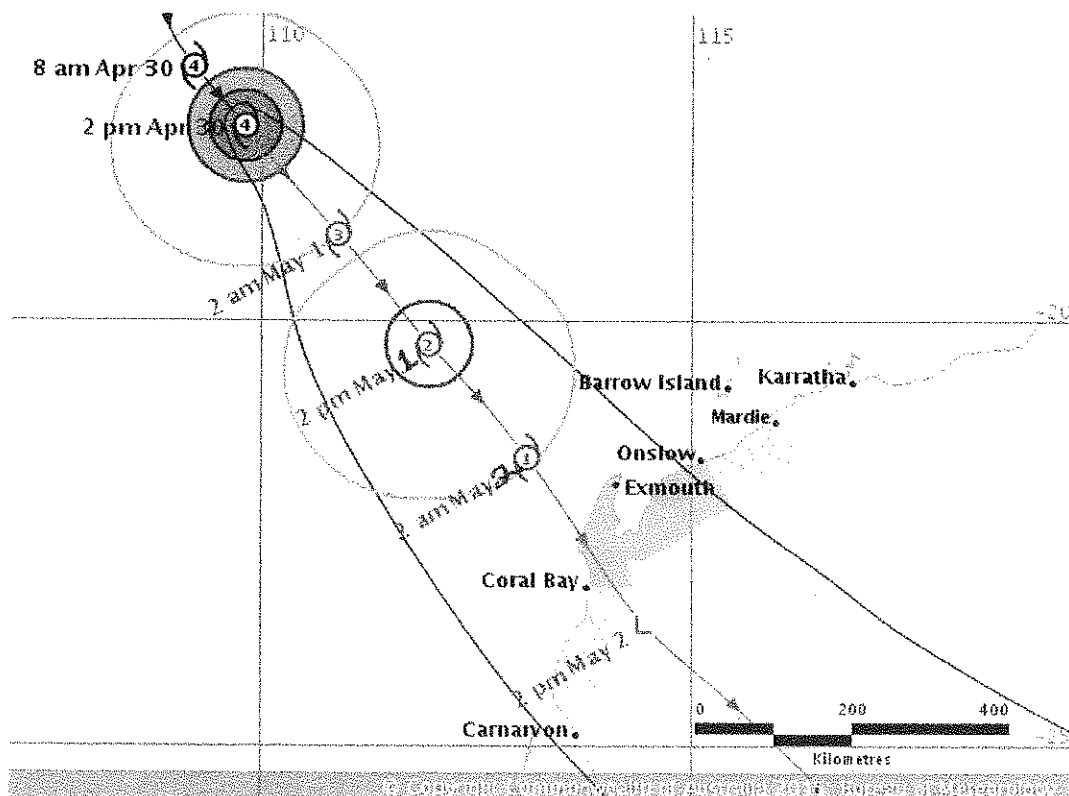
Instructions:

1. Answer all the questions in this paper. Write all answers on the answer booklet provided.
2. Number your answers exactly as the questions are numbered.
3. There are two sections to the paper. Section A is climate and section B is settlement.
4. Use the mark allocation to guide you as to the length of your answers. 2 marks are generally awarded per answer/fact.

Section A**Climatology****Question One**

Refer to the following image

The image below shows the track of Tropical cyclone Quang over Northern Australia this year. Read the accompanying report as well.



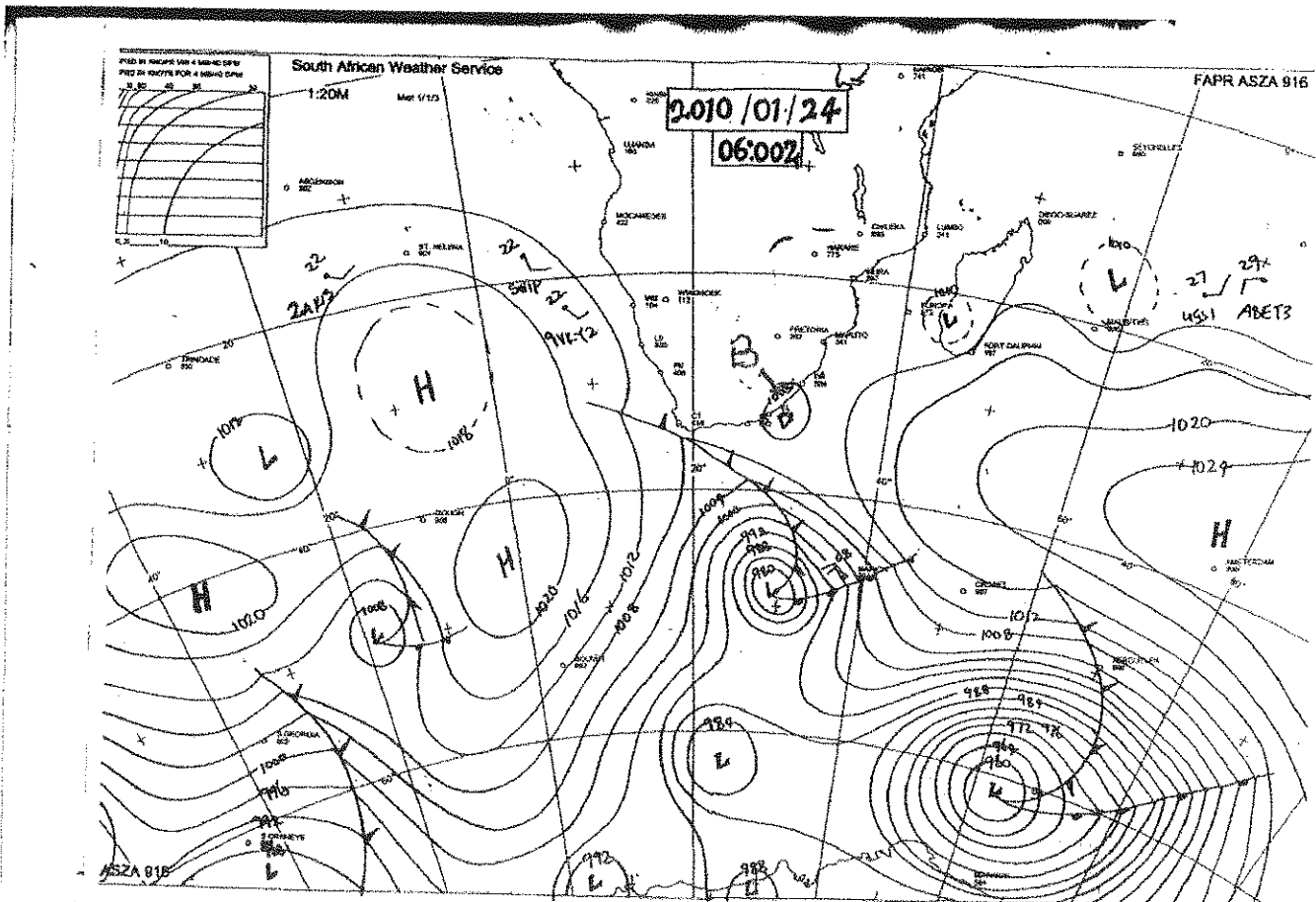
"On Friday the system will be approaching the far northwest of the state but is then expected to weaken," the Bureau's Tropical Cyclone warning said..

Meanwhile, Perth is expecting a cloudy day with a top of 26C for Wednesday with just a five per cent chance of rain, before showers develop on Thursday and possibly Friday.

- 1.1 Why is this system called a tropical cyclone? Give two reasons. 4
 - 1.2 State and account for its general direction of movement. 4
 - 1.3 Explain one condition that could have caused this system to weaken before it reached the coast. 2
 - 1.4 If this system had not weakened outline three conditions that Australian residents would have had to prepare for. 6
 - 1.5 Draw a labelled cross section of this system in your answer books showing the main cloud types and structure of this cyclone and area of strongest wind speed. 5
 - 1.6 Suggest why tropical cyclones would be unlikely to occur after the date displayed on the map. 4
- [25]

Question Two

Study the synoptic map below showing summer conditions.



- 2.1 Give the atmospheric pressure at the centre of the South Indian High pressure cell. 2
- 2.2 Describe the pressure gradient between the south Indian high and the cyclone to the south of it. 2
- 2.3 A family of mid latitude cyclones is visible on this map. Why will these most likely not influence the weather much over the coast of South Africa? 4
- 2.4 Describe three changes in the weather that normally take place as these systems pass over a land area like Cape Town. 6
- 2.4 Outline with reasons, three measures that city authorities should take during the winter months in Cape Town and its surrounding areas to better prepare for the effects of these winter storm systems. 9
- 2.5 Name the type of low pressure cell at B. 2
- [25]

Question Three Urban climate and valley climates

Give the name for each of the following phenomena

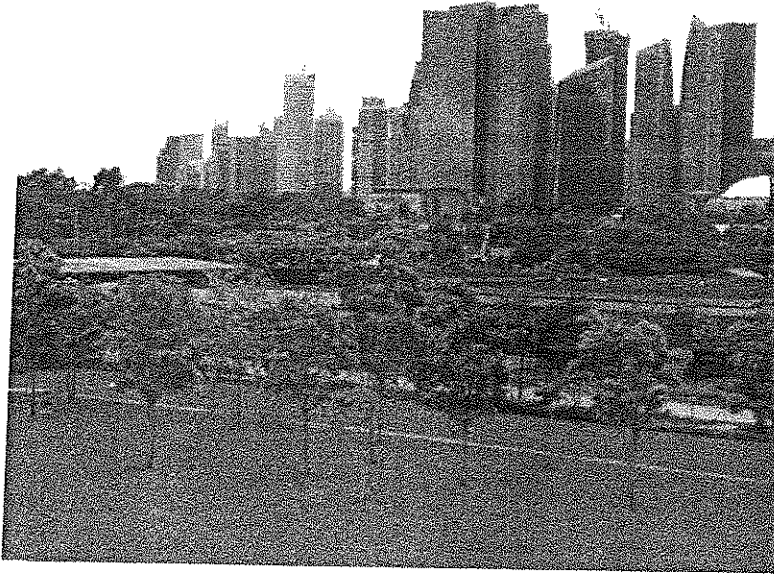
Choose your answer from the block below. Write only the number and your answer.

- 3.1 The lines that plot equal temperature on a map
- 3.2 The effect that the direction of the sun's rays has on temperature in a valley
- 3.3 Upslope movement of air that occurs in valleys
- 3.4 The area in a valley where temperatures are normally lowest
- 3.5 The effect that subsiding air has on temperatures in a valley
- 3.6 A pool of warmer air over a city
- 3.7 Down slope movement of air that occurs in valleys
- 3.8 The air that blows in towards urban areas from rural areas
- 3.9 Area where dust and smoke is concentrated over cities
- 3.10 The use of vegetation to improve the climate and appearance of cities. [10]

Katabatic flow; Temperature inversion Country breeze, Urban heat island, Pollution Dome; Anabatic flow; Greening; Aspect. Isotherm; Frost pocket.

Question Four

City planners in Singapore have tried to create a green city as seen in the image below:



- 4.1 State two strategies that can be used to create a "green city" 2
- 4.2 Explain two ways in which the trees and vegetation counteract the effect of the high temperatures that exist in many cities today. 4
- 4.3 Describe two other strategies that can be used to reduce the effect of urban heat islands in cities. 4

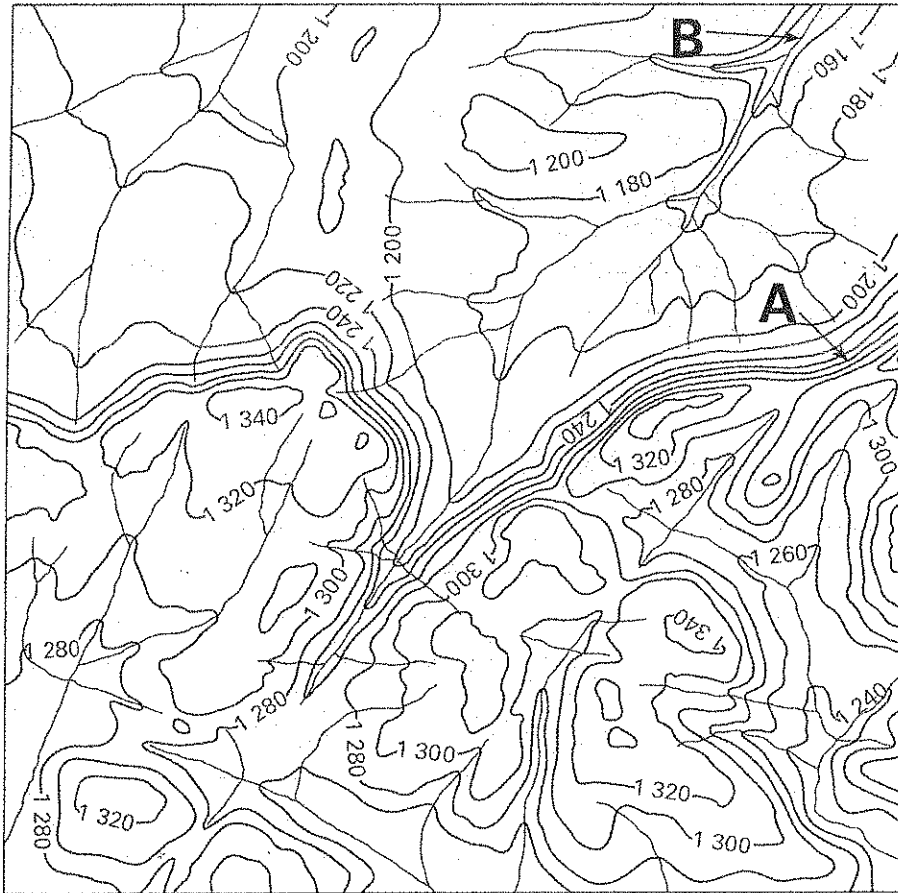
Question Five River landscapes and process

Study the image below showing drainage basins (see page 5)

- 5.1 Give the correct term for the land area A that separates river system B from the other river systems. 2
- 5.2 Identify and explain the formation of the main drainage pattern displayed in river system B. 4
- 5.3 State two factors that affect the drainage density within basins like this one. 2
- 5.4 Explain the effect that deforestation and overgrazing in these drainage areas will have on the run-off and general health of the river systems. 6
- 5.5 Assume that river capture occurs between two streams on either side of A in this catchment area.
- a. Describe one condition that needs to exist for river capture to occur here. 2

- b. Explain the process of abstraction that takes place in drainage basins. You may use a sketch to aid in your explanation.

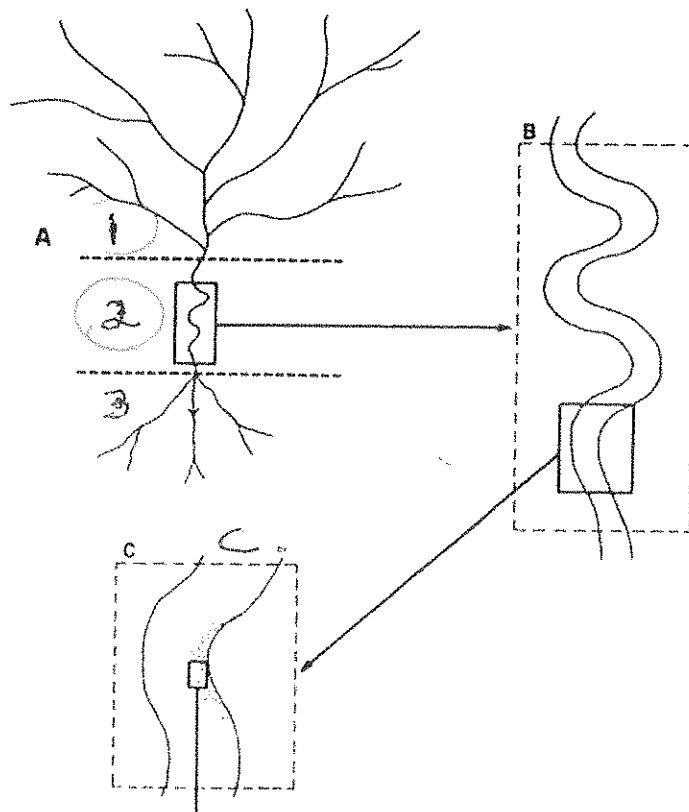
4



[30]

Question Six

Study the following diagram of a section of a river system



- 6.1 Name the dominant river feature occurring at 2 in the rivers course. 2
- 6.2 Draw a labelled cross section of the river channel as seen at C. 4
- 6.3 Highlight two important differences between the different parts of a rivers course as shown at 1 and 2 in the sketch. 4
- [10]

Total Section A: 100

Section B

Settlement

Question One

Type and structure of settlements

Complete the following statements about settlements by filling in the missing facts. Just write the number of the statement and the information you have chosen to fill in.

- 1.1 Settlements that are built to avoid flooding are termed _____.
- 1.2 A settlement built along a river or transport route tends to have a _____ shape.
- 1.3 A nucleated settlement refers to a settlement in which individual dwellings are _____ a _____ while a dispersed pattern occurs where dwellings are _____ b _____
- 1.4 _____ a _____ refers to the exact geographical position of the settlement while _____ b _____ refers to the position of a town or village in relation to its surroundings.
- 1.5 _____ is responsible for the fact that Gauteng will soon become the twelfth largest mega-city in the world.
- 1.6 Break of bulk refers to goods of freight changing from one type of _____ to another.
- 1.7 Johannesburg and its surroundings now make up a continuously built up area called a _____.
- 1.8 Functional _____ within a city causes similar activities and business to locate near one another. [20]

Question Two

Rural Settlement

The following questions refer to the extract from the newspaper attached below.

Projects launched to transform rural landscape

President Jacob Zuma on Saturday launched rural infrastructure projects which are expected to change the lives of many residents and further catalyse development, job creation and investment in uMzinga, in KwaZulu-Natal.

The R70 million worth of rural infrastructure projects form part of government's Comprehensive Rural Development Programme (CRDP) which aims to tackle issues such as underdevelopment, food security, unemployment, poverty, lack of basic services and other social ills which have become synonymous with rural areas.



Picture Source: DoC

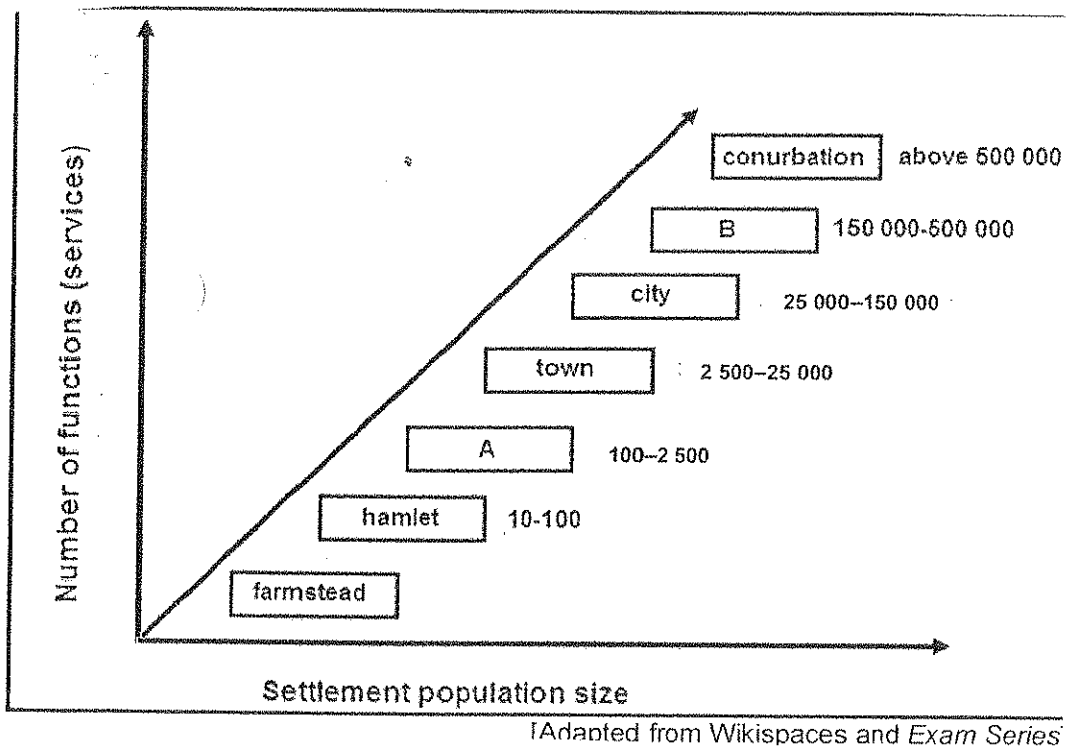
The President, accompanied by Rural Development and Land Reform Minister Gugile Nkwinti and KwaZulu-Natal Premier Senzo Mchunu, visited the Tugela Ferry Irrigation Scheme, an initiative which aims to assist smallholder farmers and create job opportunities for the community.

- 2.1 State two reasons why rural areas in South Africa are often underdeveloped. 4
- 2.2 Why is this program called the "Comprehensive Rural development Plan"? 2
- 2.3 Explain two ways in which this scheme will reduce the problem of rural depopulation from areas like the one described in the article extract. 4
- 2.4 Identify three problems that rural depopulation brings about for the surrounding towns and cities. 6

- 2.5 How will the Tugela ferry scheme visited by the President improve food security? 2
- 2.6 Suggest three other strategies to stimulate rural development in the country areas of South Africa. 6
- 2.7 Land reform is mentioned in the extract. State two aims of the land reform program 4
- 2.8 State one problem related to the land reform program in South Africa. 2

[30]

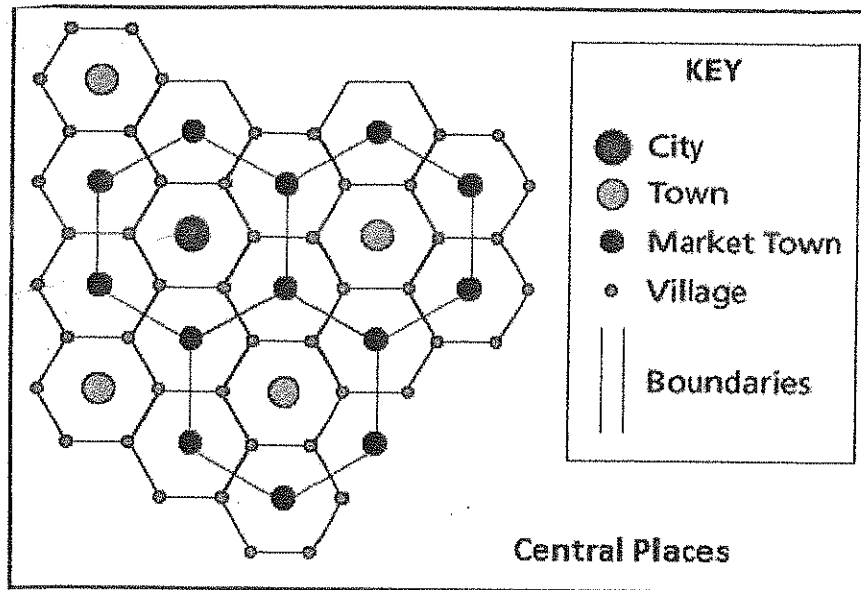
Question Three Refer to the diagram illustrating a hierarchy of urban settlements.



- 3.1 Name the settlements found at:
- A-
 - B-
- 3.2 What distinguishes rural from urban settlements? 1
- 3.3 Name the settlement larger than conurbation. 2
- 3.4 Which settlement, A or B will have a larger sphere of influence? Explain your answer. 4
- 3.5 Account for the relationship that exists between population size and number of functions in settlements. 4

Question Four

Study the diagram below showing the settlement landscape according to Christaller



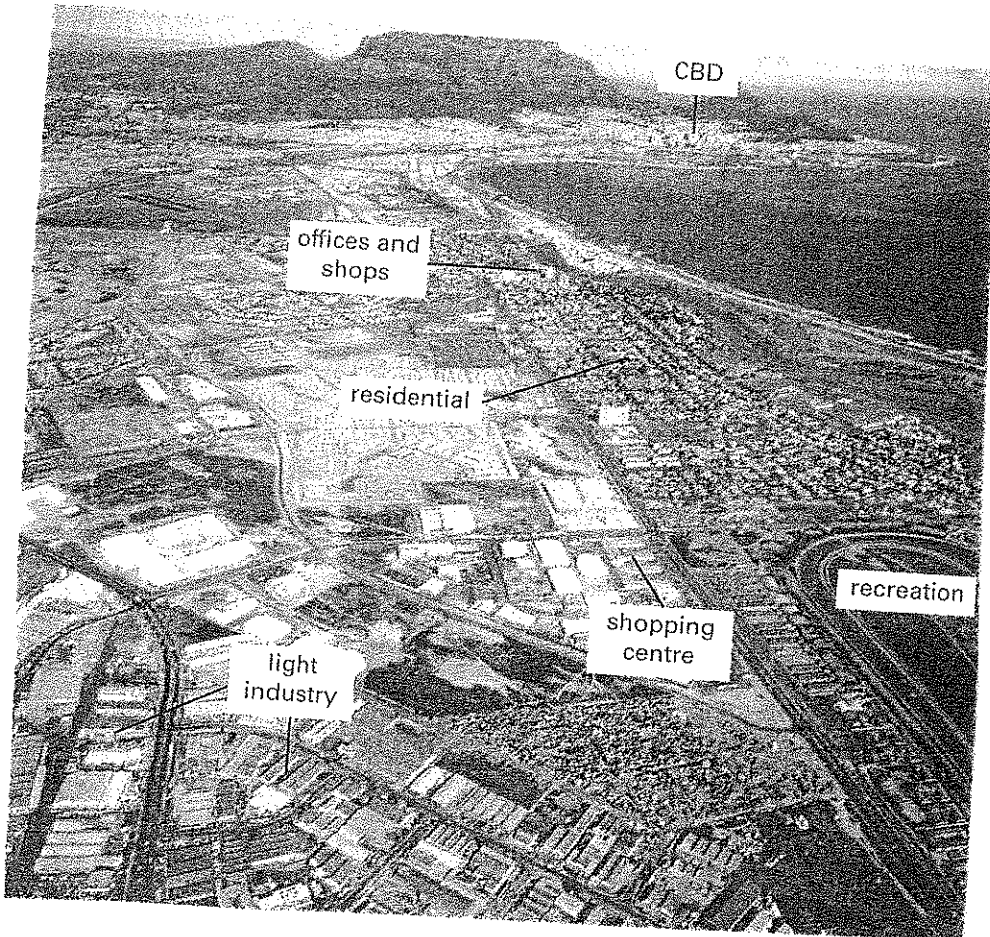
[Source: <http://www.watd.wuthering-heights.co.uk>]

- 4.1 What is a central place? 2
- 4.2 What is the relationship between the size and number of central places? 2
- 4.3 What was Christaller trying to demonstrate or answer with this study? 2
- 4.4 Explain how and why the order of services in a town might differ from those found in a city. 4
- [10]

Question Five

Urban structure and patterns

Consider the photograph below of Cape Town



- 5.1 Name a land use zone from the picture that is:
- mainly retail in nature
 - often the geographic centre of the city
- 5.2 Suggest three reasons why an investment bank or similar corporate would want to locate in the CBD. Refer to specific centripetal forces in your answer.
- 5.3 Which land use, not shown here, often develops on the fringe of the CBD and is a mixture of land uses?
- 5.4 What has led to the development of offices and shops in the location shown?
- 5.5 Comment on the location of light industry and residential areas in relation to one another.

[15]

5.6 Cape Town, if it is to become a sustainable city it will have to deal with some of the following problems:

- Urban decay
- Urban sprawl and degeneration of the surrounding mountainside and other natural areas
- Informal trade and settlements
- Choose one of the above problems. Explain why it has occurred, the problems it causes for the city authorities and inhabitants and outline strategies to combat the problem 3x4=(12)

TOTAL SECTION B = 100