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GRADE 11 EXAMINATION
NOVEMBER 2007

GEOGRAPHY PAPER I

Time: 3 hours | 300 marks

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This paper consists of 24 pages.

2. Read the questions carefully.

3. This question paper is divided into 3 sections.

   SECTION A: Geographical Issues
   SECTION B: Natural Environments
   SECTION C: Development and Sustainability and People and their Needs

4. Answer THREE questions as follows:

   Question 1 **which is COMPULSORY**
   EITHER Question 2 **OR** Question 3
   EITHER Question 4 **OR** Question 5.

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

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

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

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

9. There is a **glossary** of words on page 2 which will help you to understand exactly what the words printed in bold in the questions are asking you to do.

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GLOSSARY

WORD	MEANING
Account for	To answer for or explain the cause of, so as to explain **why**
Assess	To make a judgement about the nature or quality of …
Compare and contrast	Compare: To point out or show both similarities and differences Contrast: To stress the differences, dissimilarities or unlikeness of things
Comment	To give your opinion or to make a statement about something; to write generally about
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.]
Differentiate	To show that two things are not the same
Discuss	To examine or to investigate by argument the various aspects of a statement
Explain	To make clear or plain or to make sure that the reader understands what is being said
List	To present a list of names, facts, aspects or items
Name	To state something; to list; to give; to identify; to mention
Outline	To give the main features or general principles of a subject
State	To present information or details plainly, directly and simply, without discussion
Suggest	To propose an explanation or a solution by way of a plan or a suggestion

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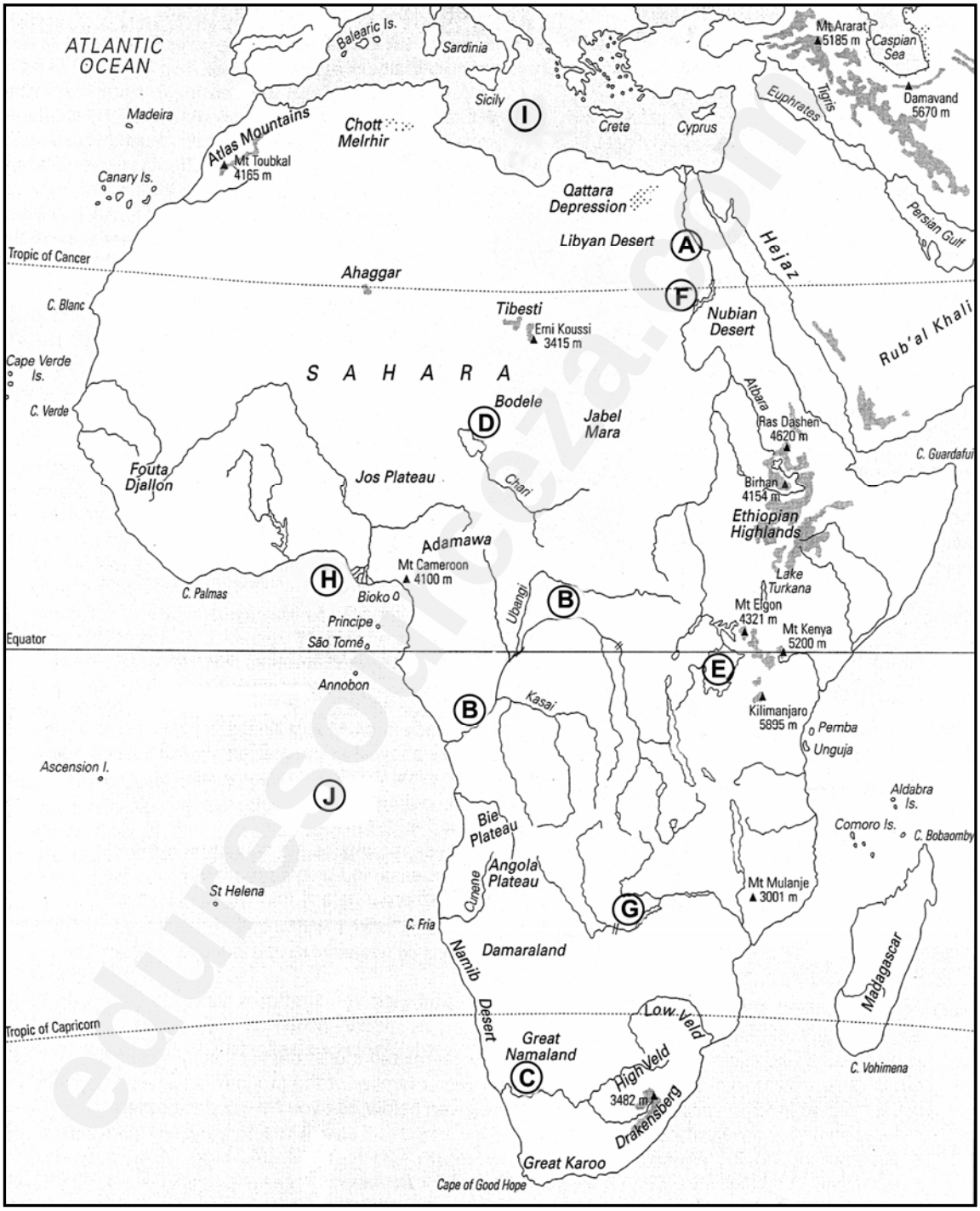
SECTION A GEOGRAPHICAL ISSUES

QUESTION 1 Integrated Topics: This question is COMPULSORY.

1.1 Water Masses in Africa

Study **Figure 1**, which shows the various water masses in Africa.



1.1.1 **Name** the rivers labelled A, B and C. (3)

1.1.2 **Name** the natural lakes labelled D and E. (2)

1.1.3 **Name** the dams labelled F and G. (2)

1.1.4 **Name** the delta labelled H. (1)

1.1.5 **Name** the sea labelled I. (1)

1.1.6 **Name** the ocean labelled J. (1)

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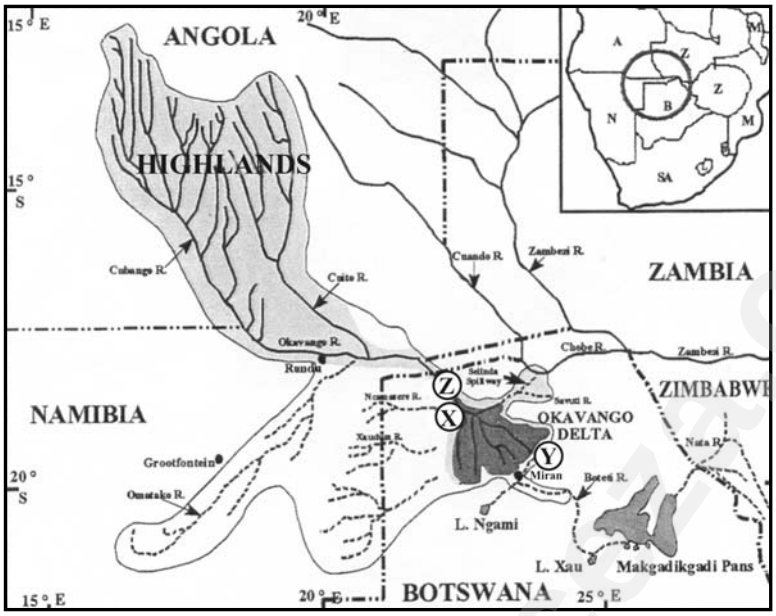
1.2 The Okavango Delta Wetland

Study Figure 2, which shows the Okavango River catchment area and the Okavango Delta in southern Africa.

Figure 2 Okavango River Catchment



[Source: Internet]

Fact File

- The Okavango Delta wetland is a protected Ramsaar site
- Okavango river catchment area 325 000 sq km
- Delta area 22 000 sq km (permanent wetland 4 700 sq km)
- Annual flood adds 11 000 sq km to 18 000 sq km, depending on the rains which fall in the Angolan Highlands (800 mm to 1 100 mm)
- Flood takes 6 to 9 months to cover the delta because of the very gentle gradient between X and Y. Distance from X to Y = 250 km. Drop in altitude between X and Y = 60 m
- Delta is situated in a Semi-Desert Biome (The Kalahari Desert)
- Four main ecosystems:
  1. The distributaries of the permanent wetland
  2. The backswamps; adjacent to the permanent waterways
  3. The seasonal swamps; wet only during the flood
  4. The island communities between the waterways
- Vegetation: A wide variety of grasses (papyrus, hippo grass, sedges) Trees on the islands
- Abundant wildlife and birdlife

1.2.1 **Calculate** the approximate gradient of the Okavango Delta between X and Y. (5)

1.2.2 **Explain** the difference between a river basin and a river's catchment area. (5)

1.2.3 **List** FOUR types of information which could be obtained from satellite photographs of the Okavango Delta. (8)

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1.2.4 The Okavango Delta Ecosystems

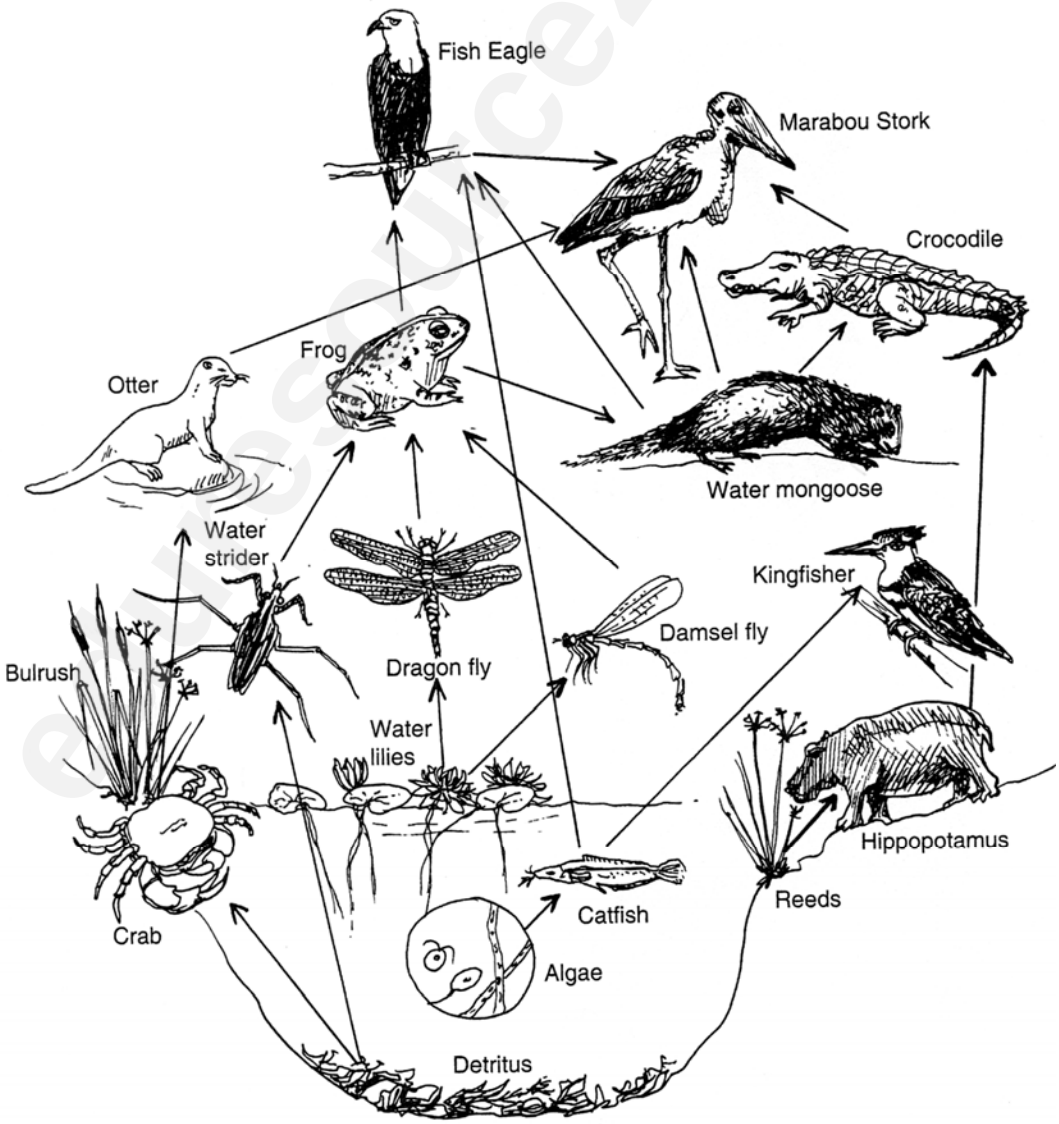
Study Figure 3, which shows a Food Web that exists in the seasonal swamplands of the Delta.

(a) **With reference to Figure 3, explain** what a Food Web is. (7)

(b) Assume that the annual floods fail because of an ENSO (El Niño Southern Oscillation) induced drought over the Angolan Highlands.

1. Briefly **explain** how an ENSO could cause a drought over the Angolan Highlands. (5)
2. **Describe** the effect that the failure of the annual floods would have on the equilibrium of the food web shown in Figure 3. (5)
3. **Speculate** on how this food web (shown in Figure 3), would use self-regulation to try to restore the equilibrium of the system. (5)

Figure 3



[Source: Shuter's Geography]

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1.2.5 **Development and Sustainability**

Fact File
- 90 000 people live in the Okavango Delta area
- 50% are small-scale, subsistence farmers who herd cattle and goats and who also grow maize, millet, sorghum and vegetables along the Okavango River. No water is taken from the river and the farmers rely entirely on the annual flood to provide fertile soils and moisture for their animals and crops.
- 50% of the population work in the town of Maun, which is the gateway to the Okavango Delta. Thousands of tourists from all over the world visit the Delta each year and this tourism earns Botswana valuable foreign exchange.
- Many of the tribal groups, who live in the Delta, earn millions of Rands each year by selling concessions (the right to operate a game-lodge) to the operators of the numerous luxury game-lodges in the Delta.

As an advisor to the Botswana Government, write a report in which you:

- **Discuss** the sustainability of the small-scale subsistence farming in the Delta area. (5)
- **Discuss** the advantages and disadvantages of tourism for the economic and natural environment of the Delta. (10)
- **Suggest** a strategy which could be used to raise the standard of living of the subsistence farmers by using the money they earn from their concessions each year. (15)

1.2.6 **People and their needs**

Botswana imports 90% of its power needs from South Africa because it is very short of fossil fuel deposits. Assume that the Botswana Power Corporation proposes to build a dam at Z on the Okavango River (see Figure 2), where the discharge is sufficient to generate enough Hydro-electric power for the whole country. The dam would also regulate the flow of the Okavango River and would supply water to the Delta throughout the year.

(a) **Describe** TWO advantages that the generation of hydro-electric power has when compared with the generation of thermal power by burning fossil fuels. (6)

(b) **Assess** the positive and negative effects that the construction of the dam would have on the economic and natural environments of the Delta region. (14)

100 marks

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SECTION B NATURAL ENVIRONMENTS

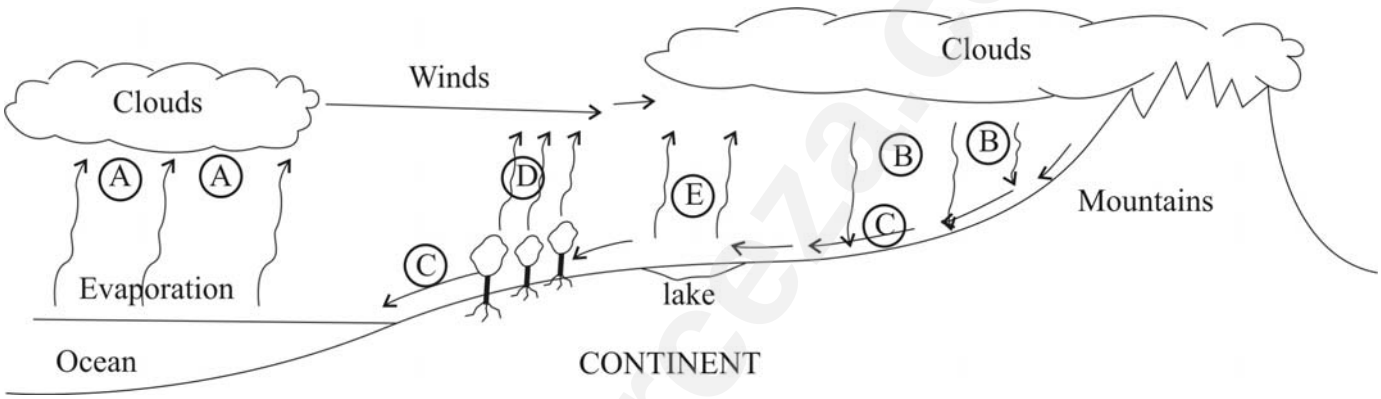
The significance of water masses and ecosystems

Answer ONE question from this section, **EITHER** Question 2 **OR** Question 3.

QUESTION 2 The hydrological cycle, climate change, managing hydrological systems, ecosystems and soils

2.1 **The Hydrological Cycle**

Study the figure below which shows the Hydrological Cycle.



2.1.1 **Name** the processes labelled A, B, C, D and E. (5)

2.1.2 **With reference to the above figure, describe** the hydrological cycle. (4)

2.1.3 **Explain** how the hydrological cycle can be negatively affected by human activities, such as the pollution of water by industrial activities. (6)

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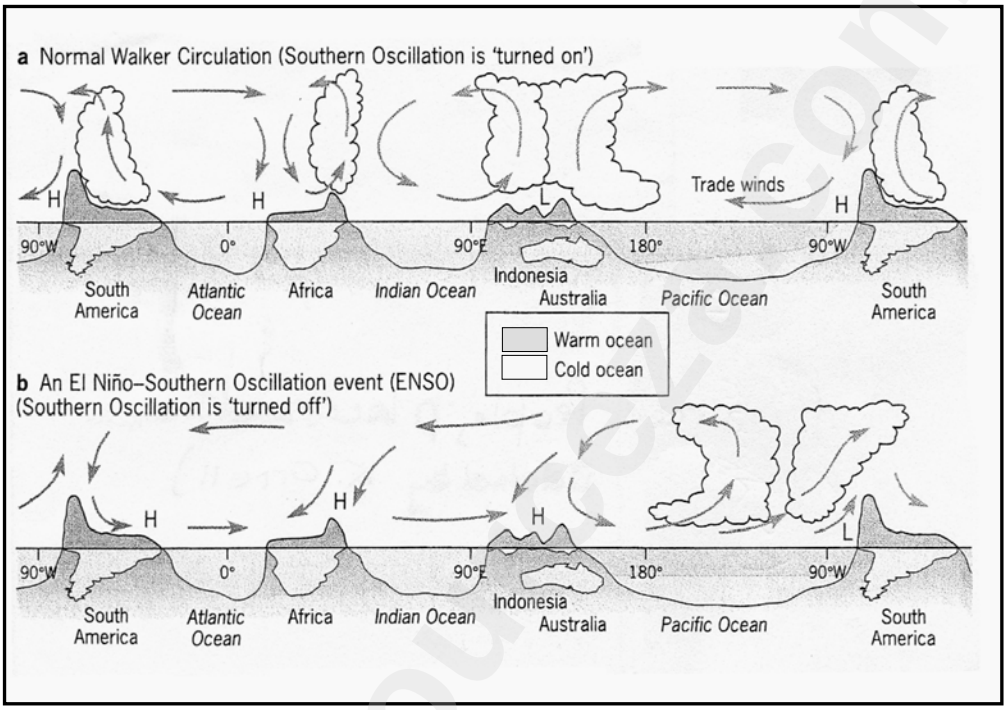
2.2 Climate change

Study Figure 4, which shows:

(a) the normal Walker Circulation in the southern Hemisphere and,
(b) an El Niño Southern Oscillation (ENSO) event, also in the southern Hemisphere.

Figure 4



[Source: *People, places and themes*, Edited by K Orrell]

2.2.1 How does the Walker Circulation differ from the circulation associated with the Planetary Wind circulation? (4)

2.2.2 **With reference to Figure 4, explain** the effect that El Niño can have on the climate of Africa. (6)

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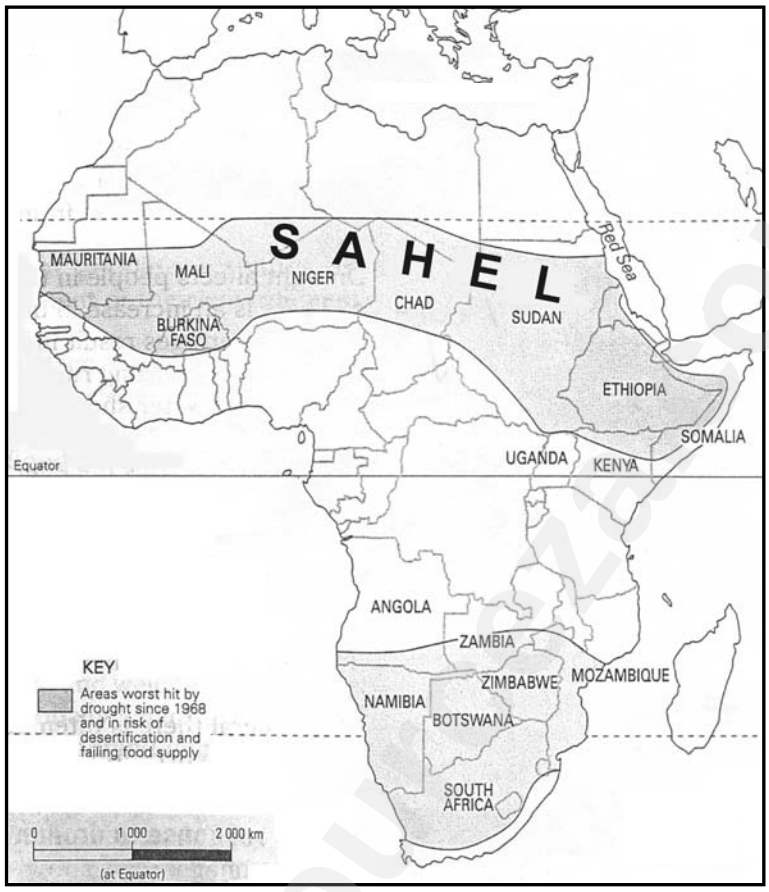
2.2.3 Figure 5 shows the Sahel region and other drought-prone areas of Africa.

Figure 5



[Source: Focus on Geography for Grade 11]

You are an environmental adviser to the Agriculture Committee of the African Union and you have just read a warning given by the World Meteorological Organisation that an ENSO will begin in the latter half of next year and reach its peak in December 2008. This is likely to cause severe drought conditions in the Sahel which could then spread to southern Africa.
Write a report to the Agricultural Committee in which you:

- **Describe** what an ENSO is. (4)
- **Explain** an ENSO's possible effects on the Sahel and on southern Africa. (6)
- **List** the possible consequences for these areas. (4)
- **Describe** what steps the committee should take to prepare the inhabitants of the Sahel and southern Africa for this event. (6)

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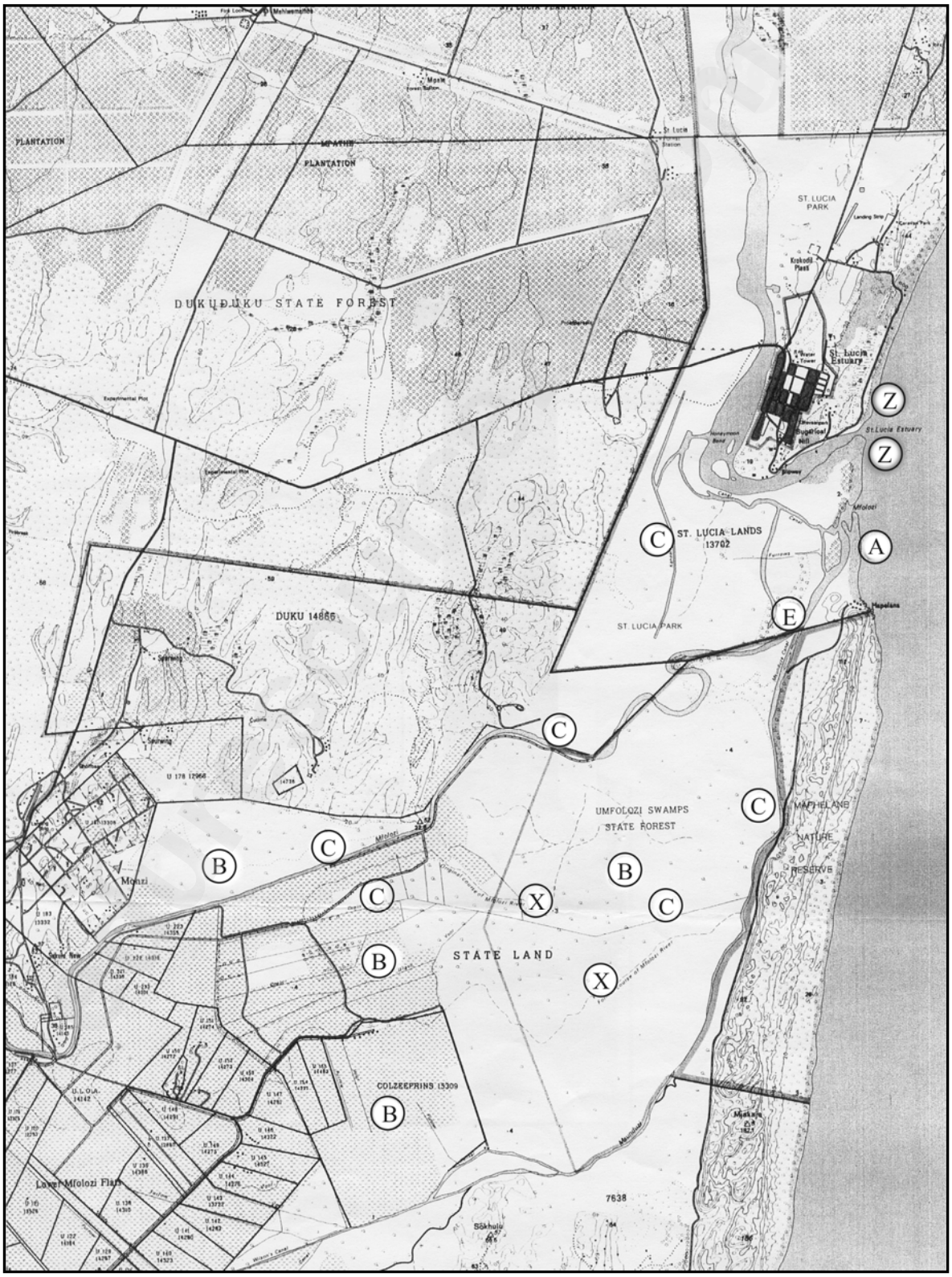
2.3 Managing hydrological systems: wetlands, coastal environments and ecosystems

Study Figure 6, taken from the 1:50 000 topographical map of Lake St. Lucia in northern Kwa-Zulu Natal.

Figure 6



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2.3.1 Using a neat diagram, **describe** the process of longshore drift occurring along this coastline. (5)

2.3.2 Give TWO pieces of evidence (from the map) which prove that the longshore drift is from south to north along this section of the coastline. (4)

2.3.3 (a) **Name** the coastal feature labelled A. (1)

(b) Using a neat sketch, **describe** the formation of coastal feature A. (5)

2.3.4 The areas marked B are the Umfolozi Flats (swamps), a wetland just inland of the mouth of the Umfolozi River.

(a) **Explain** what a wetland is. (5)

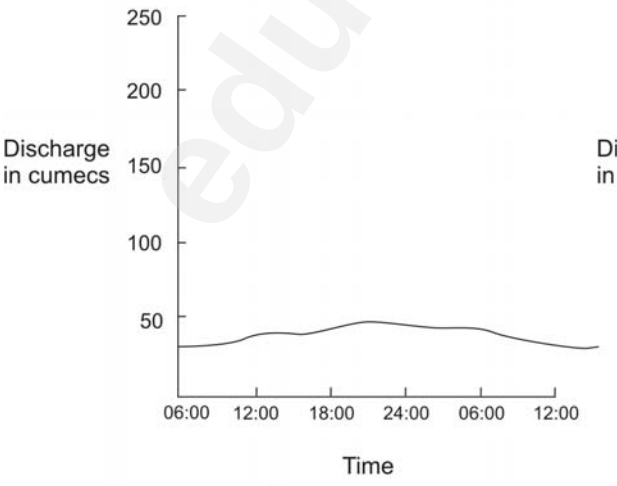
(b) **Describe** the role that a wetland normally plays in the management of a hydrological system such as the Umfolozi River Catchment area. (5)

2.3.5 The Umfolozi Flats (swamps) have been radically altered by human activities. The rivers have been canalised along the sections labelled C and the wetlands have been drained and planted with sugar cane and forests. The former courses of the Umfolozi River are marked X.

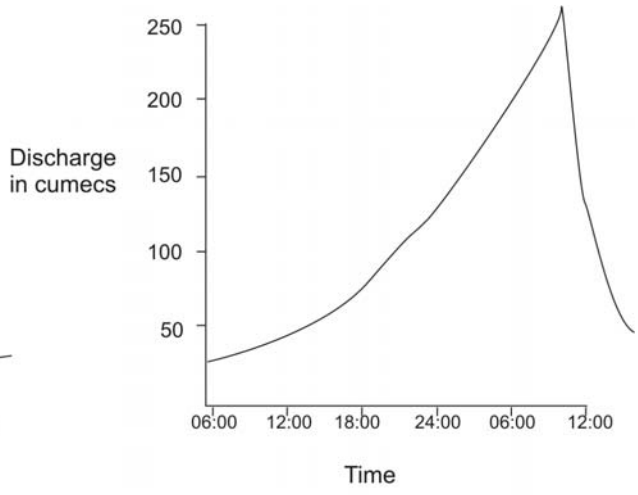
(a) **Explain** why the rivers were canalised. (5)

(b) Why would the Umfolozi Flats be considered a prime site for sugar cane growing? (5)

(c) In 1984 Tropical Cyclone Demoina passed over the Umfolozi River catchment area and approximately 800 mm of rain fell over the area in 48 hours. Below are TWO hydrographs which show the discharge of the Umfolozi River at point E (Figure 6), one graph shows the discharge before the wetlands were drained, and another shows the discharge when Cyclone Demoina struck the area.



Hydrograph X



Hydrograph Y

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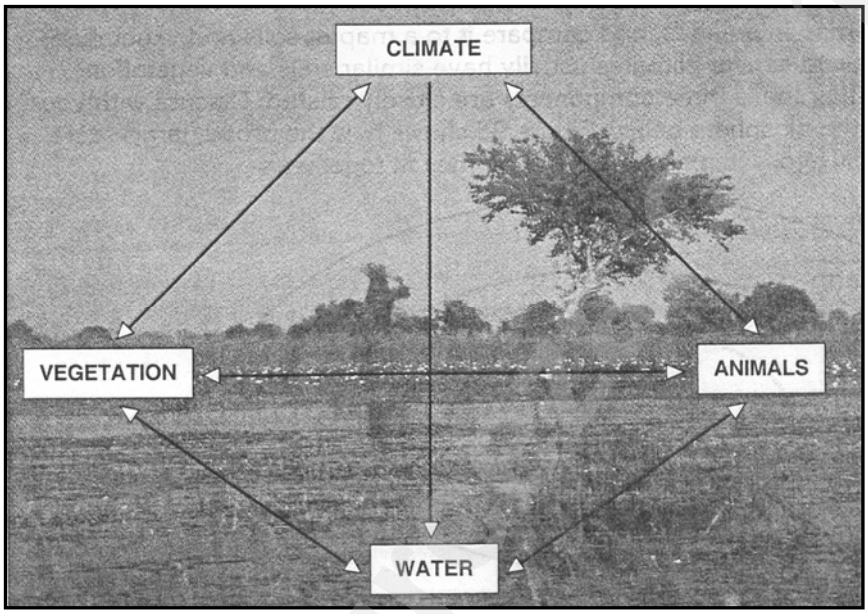
(i) **Select** which hydrograph shows the discharge of the Umfolozi River **before** the wetlands were drained and **after** Cyclone Demoina struck the area. (2)
(ii) **Explain** your choice. (8)

2.3.6 Figure 7 is photograph of the wetland ecosystem which existed in the Umfolozi wetland before it was drained and cultivated.

Figure 7



[Source: *Shuters Geography for Grade 11*]

(a) **Name** the Biotic components of this ecosystem. (2)
(b) **Name** the Abiotic components of this ecosystem. (2)
(c) **Describe** the impact that the draining and the cultivation of the Umfolozi Flats wetland would have had on this ecosystem. (6)

100 marks

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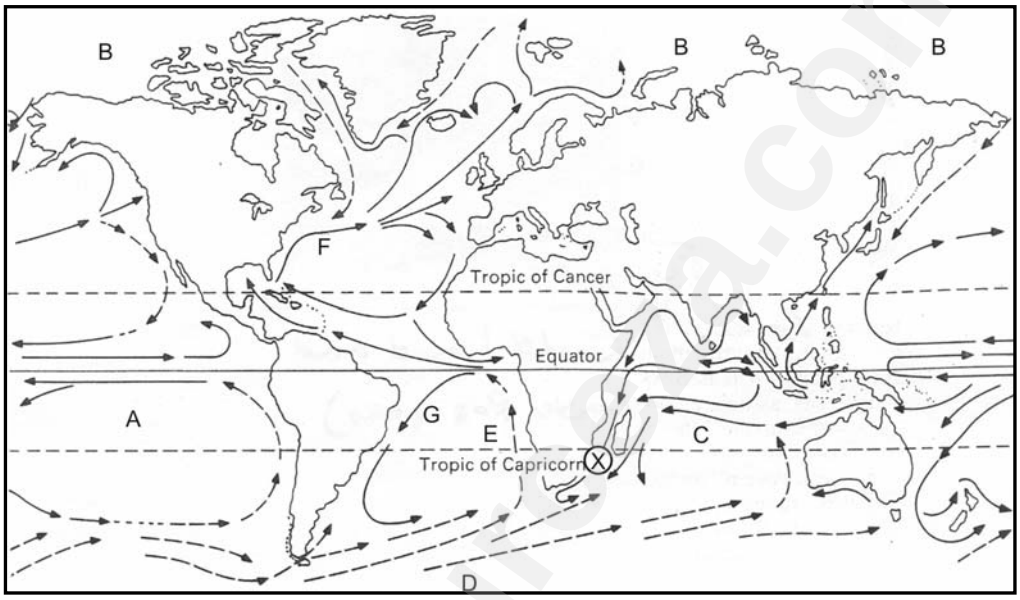
QUESTION 3 The oceans, the role of the oceans, their influence on climate and as a source of food, environmental relationships

3.1 The oceans

Study Figure 8, which shows the oceans and the ocean currents of the world.

Figure 8



3.1.1 **Name** the oceans labelled A, B, C and D. (4)

3.1.2 **Name** the ocean currents labelled E, F and G and, for each current, say whether it is warm or cold. (6)

3.1.3 Study Figure 9, which shows major oil spills across the world since 1960.

Figure 9

[Source: The Internet]

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(a) **Describe** the location of the major oil spills. (2)

(b) **Suggest** reasons for the location of the major oil spills described in (a) above. (3)

(c) As an environmental consultant to Ezemvelo Kwa-Zulu Natal Wildlife, draw up an emergency plan which could be used to deal with a major oil-spill on the coast of the Greater St. Lucia Wetland World Heritage Site (marked Z on Figure 6, Question 2).

Your plan must be in the form of a flow diagram and it must include:

- The possible effects of the oil-spill on the marine and estuary eco-systems (5)
- The effects on the fishing and the tourist industry in the area (5)
- Measures which need to be taken to control the oil slick, break it down and to keep it from the beaches and from entering the estuary (10)

3.1.4 **The role of the oceans, their influence on climate and as a source of food.**

(a) (i) **Describe** the effect that the warm Agulhas Current (marked X on Figure 8) has on the climate of southern Africa. (4)

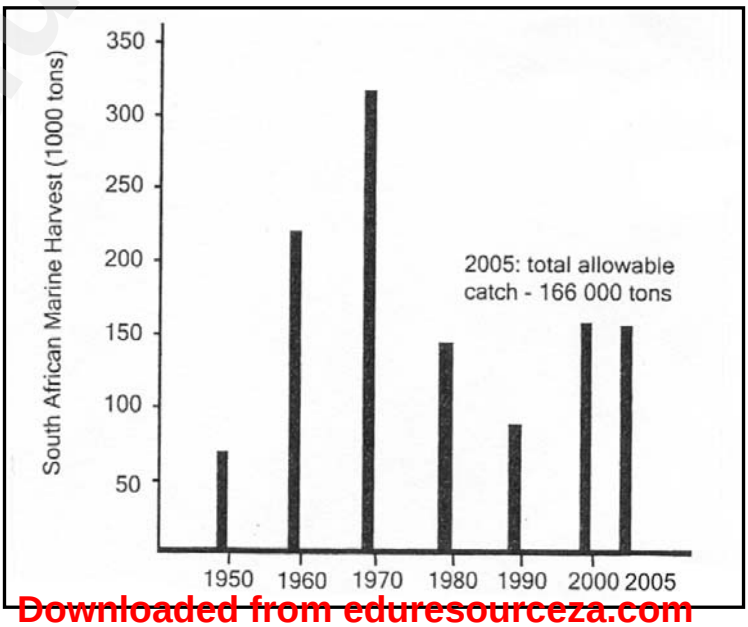
(ii) **Compare** this effect with the effect that current E (on Figure 8) has on the climate of southern Africa. (4)

(b) (i) **Describe** the role that phytoplankton plays as a source of oxygen for Earth's atmosphere. (4)

(ii) **Describe** how this vital source of oxygen is being threatened by the depletion of ozone in the atmosphere. (4)

(iii) **Explain** what effect this threat to the phytoplankton could have on global warming. (4)

(c) The graph below shows the South African fish harvest from 1950 until 2005.



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(i) What was the tonnage of fish harvested in (1) 1970? (1)
(2) 1990? (1)

(ii) What trend is evident in the tonnage of fish harvested from 1970 until 1990? (1)

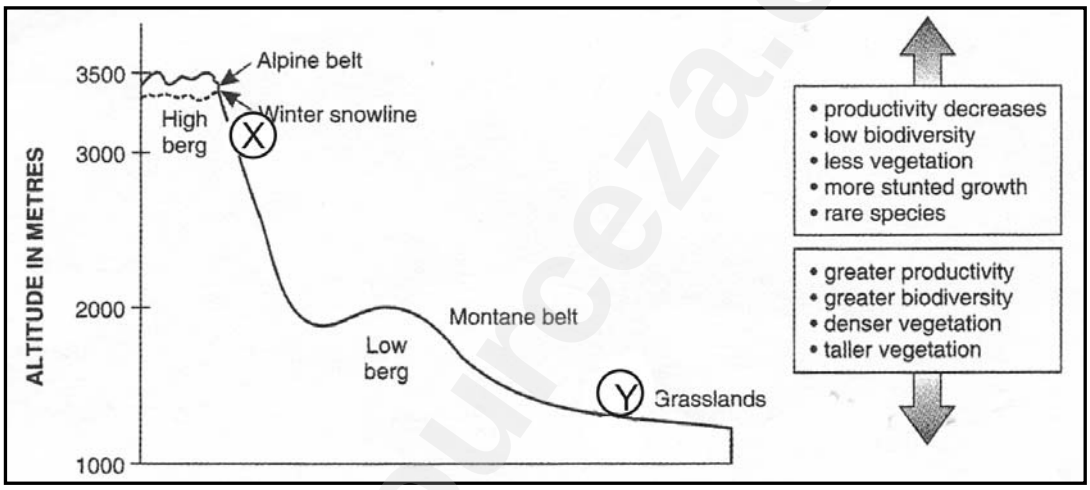
(iii) Give a reason for this trend between 1970 and 1990. (3)

(iv) **Explain** why it was necessary for the South African Government to impose a limit of 166 000 tonnes of fish that could be harvested from 2005 onwards. (4)

3.2 Environmental relationships

Study Figure 10, which shows the influence of altitude on vegetation in the Drakensberg Mountains of Kwa-Zulu Natal.

Figure 10



3.2.1 **Describe** the climate which is experienced at the top of the Drakensberg Mountains. (5)

3.2.2 **Describe** and **explain** the adaptations of the plants which grow at the top of the Drakensberg Mountains. (10)

3.2.3

(a) Draw TWO soil profiles, one which is situated at X and the other which is situated at Y, on Figure 10. Label your profiles accordingly. (10)

(b) **Explain** the differences in the soil profiles you have drawn in (a) above. (10)

100 marks

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SECTION C DEVELOPMENT AND SUSTAINABILITY AND PEOPLE AND THEIR NEEDS

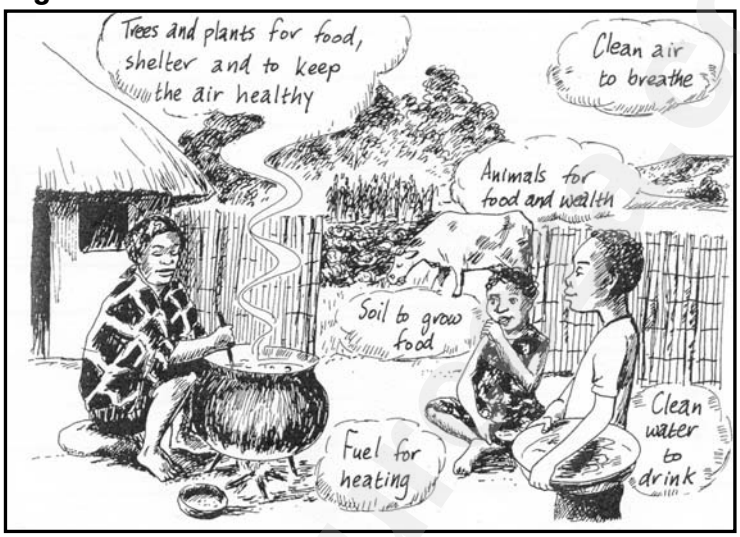
Answer **ONE** question from this section, **EITHER** Question 4 **OR** Question 5.

QUESTION 4

4.1 Resources and Development

4.1.1 Study Figure 11 which depicts a typical rural scene in Africa. Draw up two columns in which you **state** which of the resources illustrated are renewable or non-renewable. (6)

Figure 11

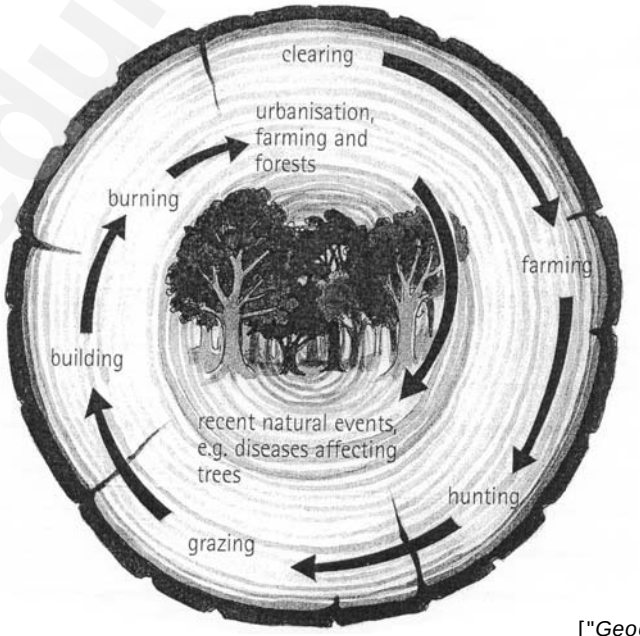


[Source: *Integrated Studies, Level 5*]

4.1.2 **Explain** your choice of ONE non-renewable resource. (2)

4.1.3 Much of Africa's forest ecosystems have been destroyed. Study Figure 12 and **explain** how people have contributed to this destruction. (10)

Figure 12



["*Geography for all*" (11)]

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4.1.4 Game Reserves, National Parks and Transfrontier Conservation Areas (TFCAs) have been established in Africa to ensure the sustainability of wilderness areas and their associated resources.

(a) **Name** THREE TFCAs in southern Africa. (3)

(b) **Outline** THREE aims that these TFCAs would have. (6)

(c) Many conflicts have arisen with the declaration of conservation area boundaries and their subsequent impact on the local people. **Debate,** using examples that you have studied, whether the local people's lives are being uplifted by the establishment of such conservation areas. (10)

(d) One of the Millennium Development Goals formulated by the United Nations in 2001 was to "implement national strategies for sustainable development by 2005 to ensure that the current loss of environmental resources is reversed globally and nationally by 2015".

(i) **Define** sustainable development. (3)

(ii) You have looked at case-studies of development in rural areas:
Discuss a development project in a rural area and **state** how this project impacted positively and negatively on the local people and the environment. (10)

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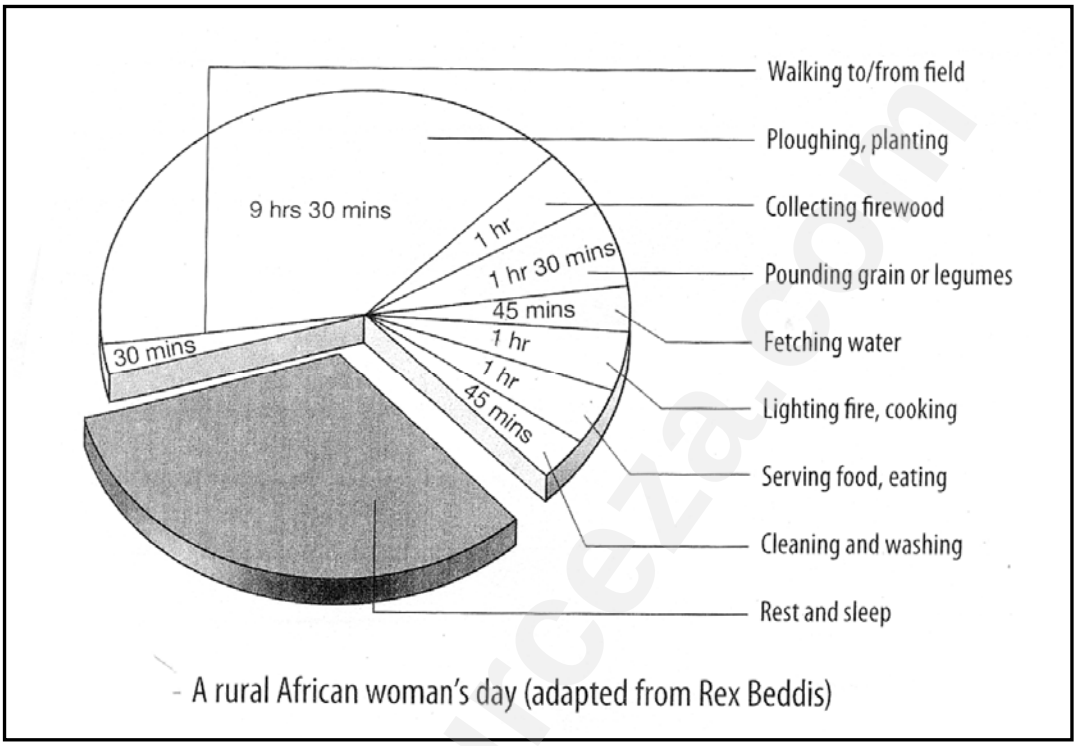
4.2 Gender issues related to development

Study the graph in Figure 13 which shows a graphic of the working day of a rural Zambian woman.

Figure 13



[X-Kit 11 (Geography]

4.2.1 **State** how much time is spent on:

(a) Fetching water. (1)
(b) Collecting firewood. (1)

4.2.2 **Describe** a possible method that would be used to collect water in rural Zambia. (2)

4.2.3 **Suggest** how water delivery in rural areas could be improved. (3)

4.2.4 **Outline,** in the form of a mind map (or flowchart) how the cutting down of trees for firewood would impact on the environment. (5)

4.2.5 **Suggest** and **describe** an alternative form of 'fuel' that African rural women could use. (5)

4.2.6 **State** your ideas on how a rural African woman could use her time more effectively and perhaps contribute some form of income to uplift her family's lifestyle. (8)

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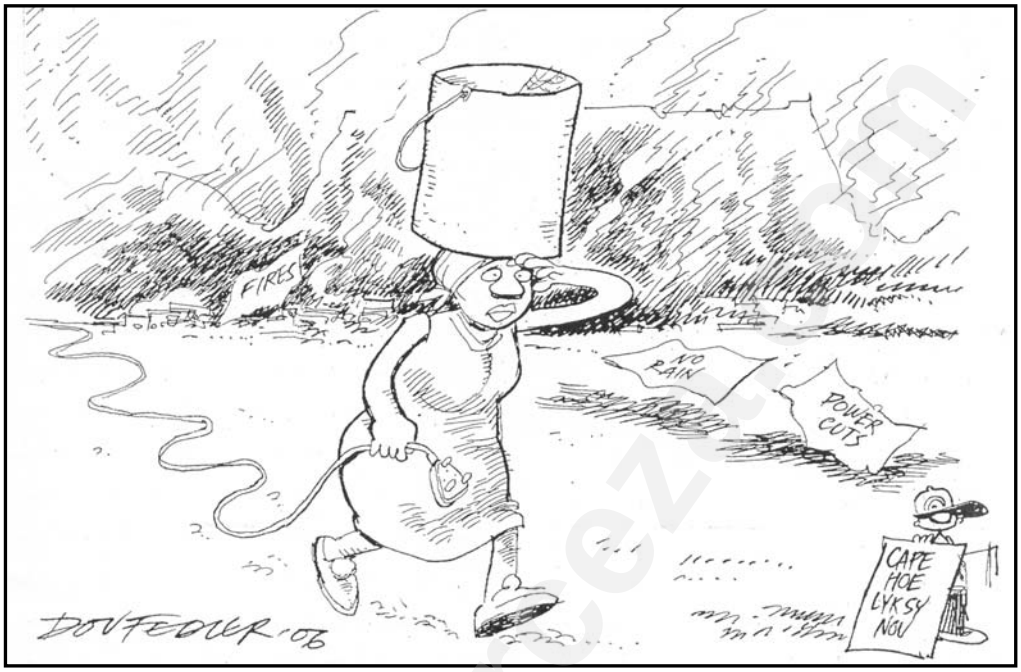
4.3 **Changing patterns, development problems and solution strategies.**

Study the cartoon in Figure 14.

Figure 14



[*The Star* 06/02/2006]

4.3.1 Create a mind map in which you **list** and **explain** the problems associated with the impact of a rapid rate of urbanisation on the cities of Africa. (7)

4.3.2 Presume the woman depicted in the cartoon lives in an informal settlement outside a large city. **Describe** her typical living conditions. (5)

4.3.3 **Outline** any alternative power supply which is safe and environmentally friendly. (4)

4.4 **Globalisation**

It has been said that 'Globalisation has encouraged the liberalisation of trade. It is easier for countries to trade and exchange goods. This has however harmed the textile and clothing industry in South Africa. Imported items are cheaper than locally manufactured stock.'

4.4.1 What do you understand by "Globalisation"? (2)

4.4.2 **List** FOUR multinational corporations that operate globally. (4)

4.4.3 **Explain** why South Africa's textile industry has been harmed in recent years. (3)

100 marks

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QUESTION 5

5.1 Extraction of raw materials, opportunities and conflicts

Read the extract below.

> Fifty years ago the Niger Delta around Port Harcourt in Nigeria was covered with mangrove swamps and lush equatorial forests. Today the wetlands have been destroyed by leaking oil pipelines (over 5 000 spills), the locals are being threatened by "creek warlords" and the "black gold" has gone to the global oil companies like Shell, Exxon Mobil, Total and Chevron. Dense, garbage-heaped slums stretch around the oil harbour and there are few schools, no subway, no intercity rail and the national airline went bust in 2003. Despite its ranking as the world's sixth largest oil exporter and Africa's top producer, Nigerians live on less than a dollar a day in a state of pollution and poverty.

[Extract from National Geographic – Feb 2007]

5.1.1 **Suggest** how the mangrove swamps and equatorial forests were used to sustain the local Nigerians living in the delta area. (6)

5.1.2 **Explain** how the oil spills have affected the ecosystems of the delta. (4)

5.1.3 **Differentiate** between the possible opportunities the mining of oil could have provided and the conflicts and hardships that the local people have had to endure. Use a table similar to the one below to formulate your answer. (10)

Mining of Oil

Possible opportunities	Conflicts and hardships

5.2 Concepts of Development

The concept of development could be interpreted differently by a rural person in a Third World country, as opposed to an urban dweller in a First World country. Draw a mind map showing what development would mean to a person in a Third World country. (4)

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5.3 Indicators of development

Generally, 20% of the world's population lives in developed countries. Indicators used to assess development could include:

Economic	Social	Environment
• GDP per capita • % labour in agriculture • Value of exports • Unemployment • Urbanisation • Level of industrialisation	• Literacy levels • Human Development Index • Status of women • Population growth • Life expectancy • Infant mortality rate	• Consumption of energy • Number of dams • % of country set aside for conservation • Number of national parks

5.3.1 **Explain** these indicators of development:

(a) GDP per capita (2)

(b) Urbanisation (2)

(c) Infant mortality rate (2)

5.3.2 **Suggest** why it is important that a certain % of a country should be set aside for conservation. (3)

5.3.3 **Study** the table below showing selected indicators for a developed and a developing country.

Indicator	The Netherlands (Holland)	Mozambique
% of labour in agriculture	2 %	81 %
GDP per capita	$29 500	$1200
Literacy rate	99 %	48 %
Life expectancy	79 years	40 years
Population Growth rate	0,25 %	1.48 %

Comment on and **explain** the differences in:

(a) % of labour in agriculture (4)

(b) Life expectancy (4)

(c) Population growth rate (4)

5.3.4 African countries like Mozambique could receive aid from multinational companies in the Netherlands. We have to decide if this aid is appropriate or not. Use a table similar to the one below (using as much space as you need) to **differentiate** how aid benefits or does not benefit the country which is receiving it.

AID

Advantages	Disadvantages

(8)

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5.4 Models of development

5.4.1 **Describe** South Africa's economy during Rostow's "take-off" stage. (2)

5.4.2 **Explain** what you understand by Friedman's "Post-industrial economy". (2)

5.4.3 **State** a "core area" in South Africa and justify your answer. (2)

5.5 Gender issues related to development

Read the extract below, emphasising that rural women in Africa have been oppressed and undervalued despite the critical role they play in the rural economy, home and community.

- Rural women face oppression from many sides – because they are women, because they are poor and because they live in rural areas.
- Rural women spend 5 hours each week collecting firewood.
- A rural woman of 60 years will have spent 15 years of her life fetching water.
- 67% of households in rural areas are headed by women because of 'selective outward migration'.

[*S.A. Geographical Journal Vol. 83 No. 3*, 2001 Lydia Kompe]

5.5.1 **Suggest** what is meant by 'selective outward migration'. (2)

5.5.2 Write a short essay of between one and two pages in which you **explore** and **explain**:
- The physical and social problems rural women face in Africa.
- Suggest some realistic solutions you could give to some of the problems you identified. (10)

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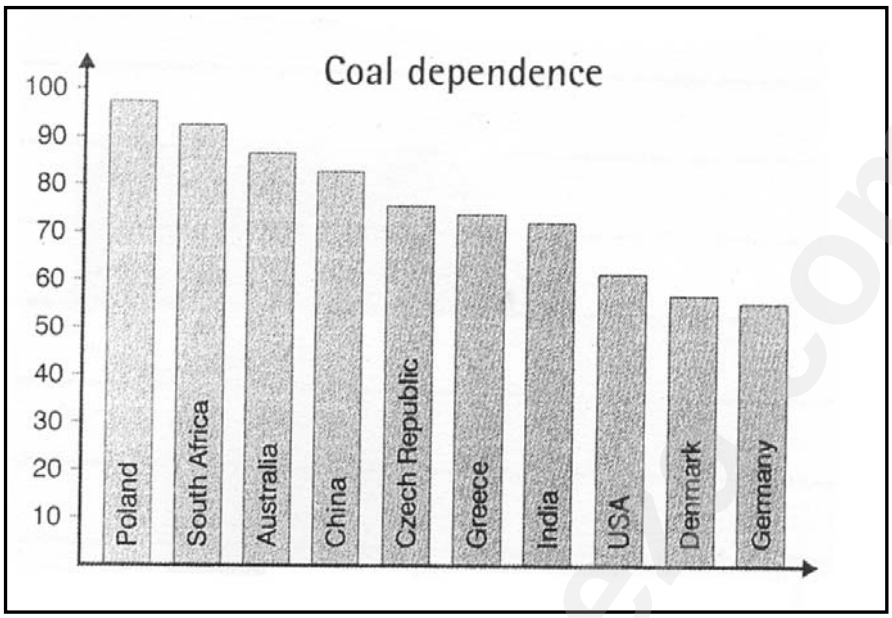
5.6 Energy use and management.

Study the graph on coal dependence worldwide in Figure 15.

Figure 15



[*Geography for all* (11)]

5.6.1 **Compare** the dependency on coal in South Africa and the USA. (2)

5.6.2 **Explain** why South Africa's dependence on coal is so high. (4)

5.6.3 **Suggest** why countries like Denmark and Germany are less dependent on coal. (2)

5.6.4 (a) **Explain** how the burning of coal has contributed to global warming. (3)

(b) **Describe** ONE impact of global warming on the environment. (4)

5.7 Terminology

What do you understand by:

5.7.1 NEPAD? (2)

5.7.2 Spatial Development Initiatives? (2)

5.7.3 "carrying capacity of the environment"? (2)

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5.8 Urban development – success and failure

Read the fact file below on Soweto, a township outside Johannesburg.

- This township was established in the 1930s.
- 3 million people live here.
- R400 million is being spent on urban renewal projects which include
  - Upgrading of rail line to the stadium for 2010 Soccer World Cup.
  - Upgrading of Baragwanath taxi rank and Kliptown Square.
  - The building of Zola Centre, Orlando Ekhaya centre, a waterfront and Maponya shopping centre.
- These mixed-use developments will encourage people to invest in Soweto and restaurants like 'Wandie's Place' will thrive as more tourists arrive.

5.8.1 **Explain** why 'townships' still exist in post-apartheid South Africa. (2)

5.8.2 **Suggest** why the planned developments and tourist attractions will benefit the local people – and thus be considered an urban success story. (6)

100 marks

Total: 300 marks

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