INSTRUCTIONS AND INFORMATION

Read the following instructions carefully before answering the questions:

1. Write your answers in your answer book, which is provided in the exam.
2. Read the instructions carefully for each question and answer only what is required.
3. Begin with the question for which you think you'll get the best marks.
4. Number the answers correctly according to the numbering system used in this question paper.
5. Except where otherwise instructed, give your answers in full sentences.
6. The mark allocation of each question will determine the length of your answer. Give enough facts to earn the marks allocated. Don't waste time by giving more information than required.
7. Please write neatly – we cannot mark illegible handwriting.
8. Start the answer for each question on a NEW page, for example Question 1 – new page, Question 2 – new page.
9. Any student caught cheating will have his or her examination paper and notes confiscated. The College will take disciplinary measures to protect the integrity of these examinations.
10. If there is something wrong with or missing from your question paper or your answer book, please inform your invigilator immediately. If you do not inform your invigilator about a problem, the College will not be able to rectify it afterwards, and your marks cannot be adjusted to allow for the problem.
11. This question paper may be removed from the examination hall after the examination has taken place.

This question paper consists of TWO sections: Section A and Section B. Answer only THREE questions as follows:

- ONE from SECTION A
- ONE from SECTION B
- The THIRD question from either SECTION A or SECTION B.

NOTE: DO NOT ANSWER FOUR QUESTIONS!

<table>
<thead>
<tr>
<th>Question</th>
<th>Section</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>A: Importance of water masses and ecosystems</td>
<td>200</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>B: Development and sustainability; people and their needs</td>
<td>200</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL:</td>
<td></td>
<td>300 MARKS</td>
</tr>
</tbody>
</table>
SECTION A – IMPORTANCE OF WATER MASSES AND ECOSYSTEMS (200 MARKS)

QUESTION 1

1.1 Choose the correct option for each of the following. Write only the question number and your chosen answer. For instance, if you think that the correct answer for number 1.1.1 is A., then write it as 1.1.1 A.

1.1.1 The place where an organism lives is known as a . .

A. niche.
B. habitat.
C. biome.
D. location.

1.1.2 Which one of the following food chains is in the correct order?

A. producer – carnivore – herbivore
B. plants – secondary consumer – tertiary consumer
C. producer – herbivore – secondary consumer
D. plants – herbivore – primary consumer

1.1.3 Decomposers . . .

A. are secondary consumers.
B. produce their own organic food.
C. are not part of a food chain.
D. feed on dead organic material.

1.1.4 The _____ is the total weight of organisms in a given area or volume.

A. biotic component
B. biological component
C. biome
D. biomass

1.1.5 _____ refers to the size of soil particles.

A. Density
B. Texture
C. Colour
D. Structure (5 × 2 = 10)
1.2 Choose the correct term from within the brackets for each of the following. Write down only the question number and the correct term.

1.2.1 The study of water (ecology / hydrology)

1.2.2 Rocks and soil that allow water to seep through them (non-permeable / permeable)

1.2.3 Rivers that flow only in times of heavy rainfall (non-perennial / perennial)

1.2.4 The Nile River flows into it (Mediterranean Sea / Red Sea)

1.2.5 The Orange River flows into it (Indian Ocean / Atlantic Ocean)

1.2.6 An extensive body of land ice that moves downhill (permafrost / glacier)

1.2.7 The little boy who brings about major climatic change every six to eight years (La Niña / El Niño).

1.2.8 Can be caused by tropical cyclones over Mozambique and Northern KwaZulu-Natal (floods / droughts)

1.2.9 South Africa's largest dam (Gariep / Katse)

1.2.10 Electricity produced by releasing water from dams (hydro-electricity / tidal electricity) (10 x 1 = 10)
1.3 The following picture shows an ecosystem around a river. 
Answer the questions set on it.

1.3.1 What is the source of energy in this ecosystem? (1 × 2 = 2)

1.3.2 Identify ONE food chain that exists in this ecosystem, 
by naming THREE organisms in the food chain. (3 × 2 = 6)

1.3.3 Increased use of this river has led to a drop in the water 
table. Explain FIVE effects that this would have on the 
ecosystem. (5 × 2 = 10)

1.3.4 Discuss FOUR effects that settlement in the area would 
have on the quality of the water and therefore on the 
ecosystem. (4 × 2 = 8)
1.4 Study the following diagram on coastal landforms and answer the questions that follow.

1.4.1 What contributed to the formation of these marine landforms? (1 × 2 = 2)

1.4.2 Name the landforms at A, B, C and D. (4 × 2 = 8)

1.4.3 Describe how landform D originated. (3 × 2 = 6)

1.4.4 What is the purpose of beaches for humans and their development? (3 × 2 = 6)
1.5 Study the following picture and answer the questions that follow.

1.5.1 Define the term 'drought'.

1.5.2 Describe FIVE effects that droughts will have on the economy of a country.

1.5.3 Give FOUR suggestions on how man can reduce the impact of droughts.

1.6 'The Ramsar Convention On Wetlands came into effect in 1976. This is an intergovernmental treaty that provides the framework for national action and international co-operation for the conservation and wise use of wetlands and their resources.'

Give SIX reasons why wetlands are important.

**QUESTION 2**

2.1 Indicate whether the following statements are TRUE or FALSE. Write only TRUE or FALSE for your answer.

2.1.1 The biosphere is made up of all the biomes on planet Earth.

2.1.2 Consumers that eat producers are called autotrophic.

2.1.3 Fungi are examples of decomposers.

2.1.4 Omnivores eat plants and animals.
2.1.5 Trees use solar radiation and oxygen to make carbon dioxide.

2.1.6 A rabbit and an eagle form part of the same food chain.

2.1.7 In a soil horizon, the B-horizon is usually rich in humus.

2.1.8 Sulphur dioxide in smoke dissolves in rain to form acid rain.

2.1.9 The Cape’s fynbos is one of the world’s most diverse natural plant kingdoms.

2.1.10 South Africans never experience flooding. (10 × 1 = 10)

2.2 Study the diagram on the hydrological cycle and answer the questions that follow.

2.2.1 Explain why the hydrological cycle is considered to be a ‘closed cycle’. (1 × 2 = 2)

2.2.2 What percentage of earth is covered by water masses? (1 × 2 = 2)

2.2.3 Why, with all the water available, do we have very little fresh water in this cycle? (2 × 2 = 4)

2.2.4 With the aid of the above diagram explain fully how the hydrological cycle works. (5 × 2 = 10)
2.3 Study the figure on wave refraction and answer the questions that follow.

2.3.1 What is wave refraction? (1 × 2 = 2)

2.3.2 State, with a reason, the types of rock that would be found at the headland and the bay respectively. (2 × 2 = 4)

2.3.3 Name FOUR landforms that will be found as the headland is eroded. (4 × 2 = 8)

2.3.4 Differentiate between the following:
   A. oscillation and translation waves (2 × 2 = 4)
   B. swash and backwash (2 × 2 = 4)
2.4 Study the following diagram showing an environment in a national park in Mzantsi.

2.4.1 Name **TWO** biotic and **TWO** abiotic components in the ecosystem. (4 × 2 = 8)

2.4.2 Name **ONE** herbivore and **ONE** carnivore visible in the figure. (2 × 2 = 4)

2.4.3 Describe the habitat shown in the figure. (2 × 2 = 4)

2.4.4 Use the example of the zebras in the figure to explain what a food chain is. (3 × 2 = 6)

2.4.5 South Africa is world famous for it's national parks. Suggest **TWO** ways in which man could impact on the environment shown in the figure. (2 × 2 = 4)

2.4.6 What is ecotourism and how will it impact on an environment like the one in the diagram? (2 × 2 = 4)
2.5 Refer to the graph showing the corn yield in South Africa from 1983 to 2007 and answer the questions.

2.5.1 What was the tonnage yield per hectare for 2005? (1 × 2 = 2)

2.5.2 List the THREE years with the best corn yield per hectare. (3 × 1 = 3)

2.5.3 Explain how El Niño affects the amount of rainfall in South Africa when it is at its strongest. (3 × 2 = 6)

2.5.4 Explain the variation in corn yield in South Africa as the El Niño effect becomes stronger or weaker over the time period recorded. (2 × 2 = 4)

2.5.5 Which TWO years produced the lowest yields below the average trend? (2 × 1 = 2)

2.5.6 Give THREE likely consequences if the El Niño effect continues for a long period of time. (3 × 1 = 3) [100]

TOTAL SECTION A: 200
SECTION B: DEVELOPMENT AND SUSTAINABILITY; PEOPLE AND THEIR NEEDS
(200 MARKS)

QUESTION 3

3.1 Match the statements in Column B to the terms in Column A. Write down the answers only, for example 3.1.11 K.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1 human resource</td>
<td>A. areas set aside for conservation of fauna and flora</td>
</tr>
<tr>
<td>3.1.2 non-renewable resources</td>
<td>B. substances formed naturally in rocks</td>
</tr>
<tr>
<td>3.1.3 indigenous forests</td>
<td>C. commodities that cannot be replaced once used</td>
</tr>
<tr>
<td>3.1.4 minerals</td>
<td>D. crops, e.g. sugar, wheat used to produce energy source</td>
</tr>
<tr>
<td>3.1.5 geothermal</td>
<td>E. trees and plants growing naturally in a country</td>
</tr>
<tr>
<td>3.1.6 bio fuels</td>
<td>F. precipitation that destroys flora and corrodes buildings</td>
</tr>
<tr>
<td>3.1.7 greenhouse gases</td>
<td>G. natural heat of earth used as energy source</td>
</tr>
<tr>
<td>3.1.8 acid rain</td>
<td>H. types of pollution that contribute to global warming</td>
</tr>
<tr>
<td>3.1.9 global warming</td>
<td>I. people who perform tasks, like banking, fishing, teaching</td>
</tr>
<tr>
<td>3.1.10 national parks</td>
<td>J. gradual increase in temperatures on earth</td>
</tr>
</tbody>
</table>

3.2 Are the following statements TRUE or FALSE? Write only TRUE or FALSE next to the corresponding number.

3.2.1 Development in a country always brings about an improvement in the quality of life for that country’s entire population.

3.2.2 Sustainable development is a 'smart' development because it does not harm the environment.

3.2.3 Primary economic activities include fishing, farming, forestry and mining.

3.2.4 Countries with a low literacy rate generally have a high GDP per capita.
3.2.5 Countries like Norway, Sweden and Australia have a high HDI.

3.2.6 Less economically developed countries have many people working in the tertiary and quarternary economic sectors.

3.2.7 The ideas of 'modernisation' and 'westernisation' are embodied in Rostow's model of development.

3.2.8 Multilateral aid is granted from one government to another.

3.2.9 The Kyoto Protocol is an international agreement focusing on the reduction of nuclear power stations.

3.2.10 The South African Constitution makes it unconstitutional to discriminate against women. (10 × 2 = 20)

3.3 Study the development indicators for a selection of countries (2007) below, and answer the questions that follow.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>GDP/CAPITA US$</th>
<th>BIRTH RATE</th>
<th>DEATH RATE</th>
<th>LIFE EXPECTANCY</th>
<th>NATURAL INCREASE</th>
<th>INFANT MORTALITY RATE</th>
<th>% POP URBANISED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolivia</td>
<td>2 900</td>
<td>23,3</td>
<td>7,5</td>
<td>66</td>
<td>1,58</td>
<td>51,8</td>
<td>63</td>
</tr>
<tr>
<td>Canada</td>
<td>34 000</td>
<td>10,8</td>
<td>7,8</td>
<td>80</td>
<td>0,30</td>
<td>4,7</td>
<td>80</td>
</tr>
<tr>
<td>Sweden</td>
<td>29 800</td>
<td>10,3</td>
<td>10,3</td>
<td>81</td>
<td>0</td>
<td>2,8</td>
<td>83</td>
</tr>
<tr>
<td>Vietnam</td>
<td>2 800</td>
<td>16,9</td>
<td>6,2</td>
<td>71</td>
<td>1,06</td>
<td>25,1</td>
<td>26</td>
</tr>
<tr>
<td>Zambia</td>
<td>900</td>
<td>41,0</td>
<td>21,8</td>
<td>38</td>
<td>1,93</td>
<td>100,5</td>
<td>36</td>
</tr>
</tbody>
</table>

3.3.1 Define the following:

A. GDP per capita (2)

B. Infant mortality rate (2)

3.3.2 Give THREE reasons why both birth rates and death rates are high in Zambia. (3 × 2 = 6)

3.3.3 Give THREE reasons why life expectancy is the highest in Sweden. (3 × 2 = 6)

3.3.4 Give an advantage and disadvantage of Sweden's zero natural increase. (2 × 2 = 4)

3.3.5 'There is a strong link between a country's level of development and its urbanisation rate.'

Is this statement true or false? Give TWO reasons for your response. (3 × 2 = 6)
3.4 Study the cartoon and answer the questions that follow.

3.4.1 Does the man represent the developed North or the developing South? (1 × 2 = 2)
3.4.2 What pictorial clues indicate this? (2 × 2 = 4)
3.4.3 What three things does he really want for himself? (3 × 2 = 6)
3.4.4 What are cash crops? (1 × 2 = 2)
3.4.5 Explain how the cheap cash crops he wants will actually be paid for. (2 × 2 = 4)
3.4.6 He wants to go to work in his own car rather than by shared public transport. What action does he want his government to take so that he can continue to do so? (1 × 2 = 2)
3.5 Study the diagram and answer the following questions.

3.5.1 What is the development gap? (1 × 2 = 2)

3.5.2 Why are developing countries trying to close this gap? (3 × 2 = 6)

3.5.3 Who formulated the model of development in the figure? (1 × 2 = 2)

3.5.4 The model shows how countries can close the development gap. Write down the stages in correct sequence, then link the following descriptions to each one:

- The drive to maturity
- Take-off
- The traditional society
- The age of high mass consumption
- Pre-conditions for take-off (5 × 2 = 10)

3.5.5 Where would you place South Africa in this continuum? Give a reason. (2 × 2 = 4) [100]

**QUESTION 4**

4.1 Choose the correct word / term in brackets for each of the following descriptions. Write only the correct word / term next to the question number.

4.1.1 Making sure that a resource remains as it is and that it is not utilised (Conservation / Preservation)
4.1.2 Electricity that is generated by the force of falling water (Hydro-electric power / Thermal electric power)

4.1.3 An atmospheric layer that absorbs UV rays from the sun (Ozone layer / Biosphere)

4.1.4 Organic materials used as fuel, such as wood, hay and animal waste (Fossil fuel / Biomass fuel)

4.1.5 The process that is able to destroy progressively, usually through a chemical reaction (Erosion / Corrosion)

4.1.6 The total value of all goods and services produced by a country in a year (GNP / GDP)

4.1.7 Farming to produce crops for consumption rather than for sale (commercial farming / subsistence farming)

4.1.8 Tourism that benefits the local people and minimises damage to the environment (package tours / ecotourism)

4.1.9 Self-employed people trading goods and services on the street and in spaza shops (formal sector / informal sector)

4.1.10 Protecting a species or habitat for future use (Conservation / Preservation) (10 × 2 = 20)

4.2 Refer to the map and data and answer the questions that follow.
4.2.1 Differentiate between 'North' and 'South'. (2 × 2 = 4)

4.2.2 Name TWO continents lying to the north and ONE lying to the south of the Brandt line. (3 × 1 = 3)

4.2.3 Briefly discuss how the five indicators on the map show that Africa is the least well-off continent in the world. (5 × 2 = 10)

4.2.4 Suggest TWO indicators that could be used to measure living standards. (2 × 2 = 4)

4.3 Study the cartoon 'The Human Race...' and answer the questions that follow.

4.3.1 Explain the meanings of:
   A. 'fossil fuel dependence' on the car's rear window. (2)
   B. climate change. (2)

4.3.2 Does the cartoon suggest that 'resource exploitation' or 'resource conservation' should be imposed? Explain your answer. (4 × 2 = 8)

4.3.3 Give THREE reasons why there is an ever-increasing demand for energy worldwide. (3 × 2 = 6)

4.3.4 Discuss the meaning of the cartoon and the caption 'The Human Race...'. (5 × 2 = 10)
4.4 Study the cartoon below and answer the questions that follow.

4.4.1 How does the message in the voice bubble tell you that this is someone from a rich country speaking? (2 × 2 = 4)

4.4.2 Explain what has happened in the picture. (5 × 2 = 10)

4.4.3 What global phenomenon gave rise to this condition in the cartoon? (1 × 2 = 2)

4.4.4 List the **FIVE** things that the speaker says they used to have. (5 × 1 = 5)

4.4.5 Explain how the items identified in 4.4.4 above could have caused the condition in the picture. (5 × 2 = 10) [100]

**TOTAL SECTION B: 200**

**GRAND TOTAL: 300 MARKS**