INSTRUCTIONS AND INFORMATION TO CANDIDATES

• Write your answers and working on the separate answer book/paper provided.
• Write your Centre Number, Candidate Number and Name on all the work you hand in.
• Write in dark blue or black pen.
• You may use a soft pencil for any diagrams or graphs.
• Do not use highlighters or correction fluid.

• Answer four questions, choosing one from each section.
• Sketch map and diagrams should be drawn whenever they serve to illustrate an answer.

• At the end of the examination, fasten all your work securely together.
• The number of marks is given in brackets [ ] at the end of each question or part question.
• All working must be clearly shown.
SECTION A: THE PHYSICAL WORLD

Answer ONE question from Section A.

1. (a) Study Figures 1A, 1B and 1C which shows plate boundaries and related features.

(i) What is a tectonic plate? [1]
(iii) Name the type of plate boundary at X on Fig. 1A. [1]
(iv) Name the landforms that are commonly found along plate boundaries such as X. [3]
(v) Account for the formation of these landforms along boundary X. [6]
(vi) Use information from Figures 1A, 1B and 1C to:
explain the formation of the Rift Valley and describe how it influenced drainage in East Africa. [7]
The Great Rift Valley of East Africa

Fig. 1C
(b) Study Fig.2 below which shows a cross-section of a slope in a high mountainous region.

(i) Name the weathering process that plays a dominant role in the shaping of the landscape below. [1]

(ii) Describe and explain how this process in (b)(i) changes the physical appearance of the slope. [5] [25]
2 (a) Fig. 3 below shows surface and ground water in the North of Namibia.

(i) Explain each of the following terms:
   I  *aquifer*,
   II  *infiltration*,
   III  *percolation*.  

(ii) Use the information in Fig. 3 and from any other studies you have made to explain how physical and human factors may cause changes to the groundwater supply.
(b) Fig. 4 below shows summer air circulation (Map A) and winter air circulation (Map B) over Southern Africa.

(i) Identify the air pressure systems marked X and Y respectively. [2]

(ii) Describe and explain the circulation of air in the air pressure system marked X. [4]

(iii) Use the information in both maps to account for the seasonal nature of rainfall over Namibia. [8] [25]
3 Photograph A and Figure 5 refer to a farming system in a developing country.

Photograph A

A paddy field in India

(a) (i) Identify the farming system shown in Photograph A. [1]

(ii) List the physical and human inputs visible in the photograph. [3]
(b) Study the flow diagram in Fig. 5 which shows how human inputs can lead to increased food production.

Fig. 5

(i) Identify three other human inputs that would lead to increased food production. [3]

(ii) With reference to any named examples you have studied, explain how two of the human inputs have increased agriculture production. [6]

(iii) Explain how an increase in food production can lead to economic and social development in a developing country. [6]

(iv) Explain how attempts to increase food production can have a negative impact on the environment. [6] [25]
4 (a) The graphs in Fig. 6 below show the sources of energy supply worldwide and annual energy consumption by region.

**Sources of energy supply worldwide**

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>1973</th>
<th>1999</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil</td>
<td>35%</td>
<td>45%</td>
</tr>
<tr>
<td>Coal</td>
<td>24.9%</td>
<td>23.6%</td>
</tr>
<tr>
<td>Natural gas</td>
<td>16.3%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Renewables, waste</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>Hydroelectric</td>
<td>1.8%</td>
<td>2.4%</td>
</tr>
<tr>
<td>Nuclear</td>
<td>0.9%</td>
<td>6.8%</td>
</tr>
<tr>
<td>Other (Includes geothermal solar and wind)</td>
<td>0.1%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

**Annual energy consumption by region**

in 2000, in quadrillions of BTUs

- North America
- Central, South America
- Western Europe
- Eastern Europe, former Soviet Union
- Middle East
- Africa
- Asia and Oceania

**Fig. 6**

(i) Name **two** examples of fossil fuels. [1]

(ii) Which energy source showed the

I greatest increase in supply,

II greatest decrease in supply. [1]

(iii) What is the percentage of increase for natural gas from 1973 to 1999? [1]

(iv) Give reasons why North America and Western Europe consumed most of the world's energy. [4]
(b) (i) Identify the environmental problem associated with burning fossil fuels as shown in Fig. 7. [1]

![Global annual average temperature and projections to 2100](image)

*Fig. 7*

(ii) With reference to Fig. 7 and other studies you have made, discuss the environmental consequences of using fossil fuels as a major energy source. [9]

(c) What benefits and problems are associated with the development of alternative renewable energy resources? [8] [25]
SECTION C: THE POPULATION AND SETTLEMENT STUDIES
Answer ONE question from Section C.

5 (a) Study the map in Fig. 8 on the following page showing world population distribution and density.

(i) Distinguish between the terms population distribution and density. [2]
(ii) Describe the general distribution of areas with high population densities in the world. [2]
(iii) Account for the difference in population density between areas A and B on the map. [6]

(b) Study the map Fig. 9 (opposite) which shows the world distribution of GNP per person.

(i) What is the meaning of the term Gross National Product per person per annum? [1]
(ii) Name one of the countries with the highest GNP in the southern hemisphere. [1]
(iii) State the significance of the North-South Divide. [2]
(iv) Explain why GNP might not always be a good indicator for the standard of living in a country. [3]

(c) Explain how GNP and any other two indicators of development may show differences in the quality of life for people. [8]
World population distribution and density

Fig. 8

GNP (Gross National Product) per person

Fig. 9
6. Fig. 10 shows changing world urbanisation patterns.
(a) Describe different patterns of urbanisation shown by Fig. 10 for MEDCs and LEDCs since 1950 to 2010 as shown in the pie graphs.

(b) Describe how the distribution of the world's largest cities has changed from 1970 - 2000.

(c) Account for the change in the distribution of the world's largest cities.

(d) A: Describe and explain the problems that may arise from the rapid growth of cities and

   B: suggest possible solutions to any two of these problems.
SECTION D: THE INTERPRETATION OF TOPOGRAPHICAL MAPS

Answer ONE question from Section D.

Study the map extract of Mbalabala (Zimbabwe) and answer the following questions. The scale of the map is 1:50 000.

(a) Suggest two reasons for the location of the trigonometrical station (2435). [2]

(b) State the bearing from grid North of the trigonometrical station at Mbalani (2243) from the trigonometrical station at Gcabayi (2435). [1]

(c) Calculate the average gradient of a section of the Umzingwani river from the confluence with the Insema river in grid 1343 (height 1040 m) to the end of the rapids in grid square 1842 (height 1020 m). The map distance along the linear scale of this section is 10 cm. [3]

(d) The following questions refer to the section of the map between eastings 09 and 18, and northings 32 and 38, as shown on Fig. 11.

(i) Describe the relief and surface drainage of the area shaded in Fig. 11. [6]
(ii) Fig. 12 is a cross-section along northing 34 shown in Fig. 11 from easting 09 to easting 18.

I Indicate and label the major transport routes on the map.

II Name the man-made features at X and Y.

III Give the six-figure grid reference of the place where feature X intersects northing 34.

Fig. 12

(e) From map evidence, give reasons for the site and growth of the settlement Mbalabala.

(f) Using map evidence, comment on the type of primary economic activities east of easting 21 and south of northing 38.