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. Consider the time allocation when answering the questions.
3. Read the instructions carefully for each question and answer only what is required.
4. Begin with the question for which you think you'll get the best marks.
5. Number the answers correctly according to the numbering system used in this question paper.
6. Except where other instructions are given, answers must be in full sentences.
7. 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.
8. Please write neatly – we cannot mark illegible handwriting.
9. A non-programmable calculator and appropriate mathematical instruments may be used.
10. Start the answer for each question on a NEW page, for example Question 1 – new page, Question 2, new page.
11. Any student caught cheating will have his or her question paper and notes confiscated. The College will take disciplinary measures to protect the integrity of these examinations.
12. 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: CHOOSE ONE QUESTION FROM Section A and ONE from Section B, and a third from either Section A or B. You must have answered 3 questions.

<table>
<thead>
<tr>
<th>Question</th>
<th>Section</th>
<th>Marks</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 and 2</td>
<td>Climatology and Geomorphology</td>
<td>150</td>
</tr>
<tr>
<td>3 and 4</td>
<td>Development and Resources and Sustainability</td>
<td>150</td>
</tr>
<tr>
<td>TOTAL MARKS:</td>
<td></td>
<td>225</td>
</tr>
</tbody>
</table>
SECTION A – CLIMATOLOGY AND GEOMORPHOLOGY

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 Lines on a weather map connecting places of equal air pressure are called:

A. isovectors.
B. isobars.
C. isotherms.
D. contours.

1.1.2 The force that generates wind is called the:

A. Coriolis force.
B. gravity force.
C. geostrophic force.
D. pressure gradient force.

1.1.3 Fast-moving currents of air found near the top of the troposphere are called:

A. desertification.
B. chinooks.
C. jet streams.
D. El Niño.

1.1.4 A steep pressure gradient:

A. would be depicted by widely spaced isobars.
B. produces strong winds.
C. is only possible in the tropics.
D. produces light winds.

1.1.5 The Coriolis effect influences:

A. wind speed only.
B. wind direction only.
C. both wind speed and wind direction.
D. neither wind speed nor wind direction. (5 × 2 = 10)
1.2 Choose the correct term from the terms in brackets for each of the following. Write down only the question number and the correct term.

1.2.1 The slopes of hilly landscapes in hot and humid regions are (gentle and rounded / rugged and steep).

1.2.2 (Canyons / Granite domes) develop where horizontal layers erode at different rates.

1.2.3 Scarp retreat is caused by (downward / lateral) erosion and weathering.

1.2.4 The (dip slope / scarp slope) is steeper.

1.2.5 A (laccolith / lopolith) is a saucer-shaped intrusion. (5 \times 1 = 5)

1.3 Study the following figure and answer the questions that follow:

An isobar map of pressure systems in the Southern Hemisphere

Source: Solutions for all – Geography, Gr. 11

1.3.1 Identify systems A and B as low pressure (LP) or high pressure (HP) areas. (2 \times 2 = 4)

1.3.2 Identify areas C and D as areas that experience strong or gentle winds. Explain the reasons for the strength of the winds in both cases. (4 \times 2 = 8)

1.3.3 Describe the movement of air around systems A and B respectively. (2 \times 2 = 4)

1.3.4 Will air rise or sink in system A? (1 \times 2 = 2)

1.3.5 Will system B be represented on a satellite photograph as having clouds or not? Fully explain your answer. (3 \times 2 = 6)

1.3.6 Briefly explain the formation of a geostrophic wind. (3 \times 2 = 6)
1.4 Study the figures on structural landforms and answer the questions that follow:

Source: *Via Afrika Geography*

1.4.1 Which of the landforms A, B or C are associated with horizontal layered rocks? (1 × 2 = 2)

1.4.2 Identify the landforms at A, B, C or D as a cuesta, homoclinal ridge or hogback ridge. (3 × 2 = 6)

1.4.3 Compare the characteristics of cuestas, homoclinal ridges and hogback ridges, using the information in the diagrams to support your answer. (3 × 2 = 6)

1.4.4 Explain how the landscape illustrated can be useful for humans. (3 × 2 = 6)

1.4.5 Define the following terms:

A. 'tor' (1 × 2 = 2)

B. 'intrusive igneous activity' (1 × 2 = 2)

C. 'massive rocks' (1 × 2 = 2)

D. 'core stones' (1 × 2 = 2)

E. 'granite dome' (1 × 2 = 2) [75]
QUESTION 2

2.1 Match the descriptions in Column B to the terms in Column A. Write down the answers only, for example 2.1.1 A.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1 lopolith</td>
<td>A. horizontal igneous intrusion</td>
</tr>
<tr>
<td>2.1.2 cuesta</td>
<td>B. winds blowing parallel to the isobars</td>
</tr>
<tr>
<td>2.1.3 convex slope</td>
<td>C. a change in the gradient from one slope to another</td>
</tr>
<tr>
<td>2.1.4 desertification</td>
<td>D. contour lines close together at the base of a hill, far at the top</td>
</tr>
<tr>
<td>2.1.5 sill</td>
<td>E. force causing the deflection of moving air</td>
</tr>
<tr>
<td>2.1.6 geostrophic flow</td>
<td>F. a gentle slope found on one side of a homoclinal ridge</td>
</tr>
<tr>
<td>2.1.7 Coriolis force</td>
<td>G. an example of a landform formed by inclined strata</td>
</tr>
<tr>
<td>2.1.8 dip slope</td>
<td>H. when arable land is not useable due to change in soil condition</td>
</tr>
<tr>
<td>2.1.9 knickpoint</td>
<td>I. saucer-shaped igneous intrusion</td>
</tr>
</tbody>
</table>

(9 x 1 = 9)

2.2 State whether the following statements are true or false. Write only TRUE or FALSE for your answer.

2.2.1 Air moves anticlockwise around a high pressure in the Southern Hemisphere.

2.2.2 The pressure gradient force causes air to be deflected left, in South Africa.

2.2.3 Air sinks at 30ºS of the equator causing a low pressure area.

2.2.4 Unstable conditions exist at the Poles due to sinking air.

2.2.5 The Coriolis force does not occur at the equator.

2.2.6 Trade winds blow in the tropical areas towards the equator. (6 x 1 = 6)
2.3 Study the following diagram on structural landforms and answer the questions that follow.

Source: Solutions for all Geography, Gr. 11

2.3.1 Name the landform features at A, B, C and D  

2.3.2 Name the four slope elements labelled 1 – 4 at landform A.  

2.3.3 Name the landform feature at E and describe how it is formed.  

2.3.4 Describe how the rock structure differs between areas labelled P and Q, and the areas labelled R and P.  

2.3.5 Give a reason for the formation of the rock structure between P and Q.  

2.3.6 Draw a sketch of landform D and label the dip slope and scarp slope.  

2.3.7 Describe how landforms A and C affect human activities.  

2.3.8 Write a short paragraph on the following topics:

A. Canyons and gorges have both a positive and negative impact on the people living in the area.  

B. Mass movements cause both economic and environmental problems for people living in the area.
2.4 Study the figure below, which shows the positions of various pressure systems at a certain time of the year and answer the questions that follow.

Source: Excellent Geography Gr. 11

2.4.1 Does the map show conditions for January or July? Give TWO reasons from the map to support your answer. (3 × 1 = 3)

2.4.2 Identify the feature at 1 and explain how it is formed. (3 × 1 = 3)

2.4.3 Identify the types of pressure systems at 2 and explain their formation. (4 × 1 = 4)

2.4.4 Explain why the pressure systems at 2 occur in cells rather than forming a continuous belt of pressure stretching around the world. (2 × 2 = 4)

2.4.5 Identify the wind belts at 5, 6 and 7. (3 × 1 = 3)

2.4.6 Explain how the winds at 6 and 7 lead to the formation of the front at 3. (3 × 1 = 3)

2.4.7 Name the pressure system at 4 and explain why it exists there. (3 × 1 = 3)

2.4.8 Describe the weather that develops over Asia as a result of a combination of cell X and the system at 1. (5 × 1 = 5)

2.4.9 Why does this system reverse about six months later? (2 × 1 = 2) [75]

TOTAL SECTION A: 150
### SECTION B – DEVELOPMENT, RESOURCES AND SUSTAINABILITY (150 MARKS)

#### QUESTION 3

3.1 Match the descriptions in Column B with the terms in Column A. Write down the answers only, for example 3.1.1 A.

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1.1 'north-south' divide</td>
<td>A. International Monetary Fund</td>
</tr>
<tr>
<td>3.1.2 infrastructure</td>
<td>B. a political / economic system in which industry and trade are owned and controlled by the state</td>
</tr>
<tr>
<td>3.1.3 capitalism</td>
<td>C. the relationship between a country's exports and imports</td>
</tr>
<tr>
<td>3.1.4 foreign exchange</td>
<td>D. an economic system centred around private ownership based on making profit</td>
</tr>
<tr>
<td>3.1.5 secondary activities</td>
<td>E. economic activities associated with the manufacturing industry</td>
</tr>
<tr>
<td>3.1.6 balance of trade</td>
<td>F. the average number of years a person can expect to live in a particular country</td>
</tr>
<tr>
<td>3.1.7 demography</td>
<td>G. the statistical study of the population, e.g. birth rates, death rates, etc.</td>
</tr>
<tr>
<td>3.1.8 life expectancy</td>
<td>H. road, rail and air links, utilities and services e.g. water, electricity, communications, etc.</td>
</tr>
<tr>
<td>3.1.9 IMF</td>
<td>I. Brandt line</td>
</tr>
<tr>
<td>3.1.10 socialism</td>
<td>J. the number of infants that die in the first 12 months of their lives</td>
</tr>
<tr>
<td></td>
<td>K. International Migration Forum</td>
</tr>
<tr>
<td></td>
<td>L. money earned by a country from trade with other countries</td>
</tr>
</tbody>
</table>

3.2 Choose the correct term for each of the following definitions from the terms in brackets:

3.2.1 Land that can be used for farming. (pasture / arable)

3.2.2 Programmes for the development of economic activities and infrastructure in underdeveloped corridors in South Africa. (SDIs / HDI)
3.2.3 Economic activities linked with training, IT, data acquisition and research. (tertiary activities / quaternary activities)

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

3.2.5 Tourism that benefits local people and minimises damage to the environment. (package tours / ecotourism) (5)

3.3 Study the table of data below showing the world's top 10 countries according to their 'carbon footprint' and answer the questions that follow.

<table>
<thead>
<tr>
<th>Country</th>
<th>Emission of CO₂ and other greenhouse gases (millions of tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. USA</td>
<td>303 034</td>
</tr>
<tr>
<td>2. Russian Federation</td>
<td>86 281</td>
</tr>
<tr>
<td>3. China</td>
<td>80 804</td>
</tr>
<tr>
<td>4. Germany</td>
<td>71 792</td>
</tr>
<tr>
<td>5. UK</td>
<td>54 141</td>
</tr>
<tr>
<td>6. Japan</td>
<td>43 662</td>
</tr>
<tr>
<td>7. France</td>
<td>27 678</td>
</tr>
<tr>
<td>8. India</td>
<td>23 083</td>
</tr>
<tr>
<td>9. Ukraine</td>
<td>23 053</td>
</tr>
<tr>
<td>10. Canada</td>
<td>22 572</td>
</tr>
</tbody>
</table>

3.3.1 Define the following terms:
A. 'carbon footprint' (2)
B. 'greenhouse gases' (2)

3.3.2 Explain why the USA has the world's largest carbon footprint. (3 $\times$ 2 = 6)

3.3.3 'Countries north of Brandt's north-south divide contribute the greatest emissions to the Earth's atmosphere.'

Is this statement true or false? Provide a reason for your answer. (2 $\times$ 2 = 4)

3.3.4 South Africa ranks 13th in the world with regard to emissions, contributing 12 388 million tons. Suggest how South Africa's carbon footprint could be reduced. (3 $\times$ 2 = 6)

3.4 3.4.1 Define the term 'development'. (2 $\times$ 2 = 4)

3.4.2 Differentiate between 'sustainable development' and
'unsustainable development'. \( (2 \times 2 = 4) \)

3.4.3 List **TWO** social indicators of development. \( (2 \times 2 = 4) \)

3.4.4 List **TWO** economic indicators of development. \( (2 \times 2 = 4) \)

3.4.5 Using a labelled diagram, illustrate the core-periphery (diffusionist) model of development. \( (2 \times 2 = 4) \)

3.5 Study the following cartoon about globalisation and answer the questions that follow.

![Cartoon about globalisation](image)

**Source:** *Focus Geography Revision*

3.5.1 Define the term 'globalisation'. \( (2 \times 2 = 4) \)

3.5.2 From a development point of view, what do parts of Asia, South America and Africa have in common? \( (2 \times 2 = 4) \)

3.5.3 Copy and complete the table below.

<table>
<thead>
<tr>
<th>Advantages of globalisation for developing countries</th>
<th>Disadvantages of globalisation for developing countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>1.</td>
</tr>
<tr>
<td>2.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>3.</td>
</tr>
</tbody>
</table>

\( (6 \times 2 = 12) \) [75]
QUESTION 4

4.1 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 4.1.1 is A., then write it as 4.1.1 A.

4.1.1 Coal, natural gas and oil are examples of:
A. human resources.
B. financial resources.
C. non-renewable natural resources.
D. renewable natural resources.

4.1.2 Trans-frontier National Parks occur:
A. within South Africa's national borders.
B. across South Africa's national borders.
C. across South Africa's provincial borders.
D. only outside of South Africa's borders.

4.1.3 Hydroelectric power is an example of a:
A. renewable energy source.
B. geothermal energy source.
C. non-renewable energy source.
D. tidal energy source.

4.1.4 Acid rain can be described as:
A. rain with a pH of above 7.
B. rain that is highly alkaline.
C. rain made acidic by nuclear power stations.
D. rain with a pH of below 5.6.

4.1.5 Global warming is likely to cause:
A. an opening of the Arctic sea passage.
B. increased loss of long-wave (terrestrial) radiation.
C. glaciers to expand in length and depth.
D. an increase in permafrost in tundra regions. \(5 \times 2 = 10\)

4.2 State whether the following statements are true or false. Write only TRUE or FALSE for your answer.

4.2.1 Sustainable development is development which combines meeting today's needs for progress as well as conservation for the future.

4.2.2 Quaternary activities include manufacturing industries.

4.2.3 The Reconstruction and Development Programme was implemented in 1994 to remove the effect of apartheid.
4.2.4 There are eight regions in South Africa that were identified as Spatial Development Initiatives.

4.2.5 A cash crop is grown to sell for export and is not used by the farmer. (5)

4.3 Refer to the diagram and pie graphs below showing the greenhouse effect and answer the questions that follow.

Source: Focus Geography Revision

4.3.1 What, according to pie graph A, is the greatest contributor to global warming? (1 × 2 = 2)

4.3.2 Refer to pie graph B to determine the TWO biggest contributors to the production of your answer in 4.3.1. (2 × 2 = 4)

4.3.3 Using the main diagram, explain how the greenhouse effect results in continued higher global temperatures. (3 × 2 = 6)

4.3.4 Briefly explain TWO effects of global warming on the natural environment. (2 × 2 = 4)
4.3.5 Give TWO solutions humans can implement in order to reduce global warming. \((2 \times 2 = 4)\)

4.4 Study the table of development indicators below and answer the questions that follow.

<table>
<thead>
<tr>
<th>Country</th>
<th>Total population (millions)</th>
<th>Population density per sq km</th>
<th>Birth rate per 1000</th>
<th>Death rate per 1000</th>
<th>Infant mortality per 1000</th>
<th>Life expectancy in years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazil</td>
<td>135</td>
<td>16</td>
<td>31</td>
<td>8</td>
<td>84</td>
<td>63</td>
</tr>
<tr>
<td>Egypt</td>
<td>47</td>
<td>47</td>
<td>38</td>
<td>13</td>
<td>113</td>
<td>57</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>36</td>
<td>30</td>
<td>49</td>
<td>22</td>
<td>143</td>
<td>43</td>
</tr>
<tr>
<td>India</td>
<td>761</td>
<td>232</td>
<td>33</td>
<td>13</td>
<td>118</td>
<td>53</td>
</tr>
<tr>
<td>Italy</td>
<td>57</td>
<td>189</td>
<td>13</td>
<td>10</td>
<td>14</td>
<td>74</td>
</tr>
<tr>
<td>Japan</td>
<td>120</td>
<td>323</td>
<td>12</td>
<td>7</td>
<td>50</td>
<td>77</td>
</tr>
<tr>
<td>Philippines</td>
<td>55</td>
<td>182</td>
<td>32</td>
<td>7</td>
<td>50</td>
<td>65</td>
</tr>
<tr>
<td>UK</td>
<td>56</td>
<td>227</td>
<td>13</td>
<td>12</td>
<td>12</td>
<td>74</td>
</tr>
</tbody>
</table>

4.4.1 Which country has the largest population? \((1 \times 2 = 2)\)

4.4.2 Which country has the greatest population density? \((1 \times 2 = 2)\)

4.4.3 The rate of natural increase in population is calculated by subtracting the birth rate from the death rate. Identify the TWO countries with the highest rate of natural increase. \((2 \times 2 = 4)\)

4.4.4 Explain why Italy, Japan and the UK have a much higher life expectancy than the other countries listed in the table. \((2 \times 2 = 4)\)

4.4.5 Name FOUR countries from the table that have all of the following features:

A. high birth rate
B. moderate death rate
C. high infant mortality
D. low life expectancy \((4 \times 1 = 4)\)

4.4.6 Give TWO ways in which countries such as the ones you named in Question 4.4.5 may try to increase the life expectancy of their population. \((2 \times 2 = 4)\)
4.5 Use the article on wind energy below and your own knowledge to answer the questions that follow.

**Green electricity by July**

Darling Wind has placed its order for the four wind turbines of phase one of the green electricity project, which means the first delivery of power should take place in July 2007.

Recently, the World Bank's former chief economist, Nicholas Stern, highlighted the seriousness of the environmental catastrophe that looms as a result of the unfettered emission of greenhouse gases. (The consumption of every unit, or 1kWh, of conventional electricity causes about 1kg of carbon dioxide gas to be released into the atmosphere.)

Sharing this future, South African companies are facing increasing demands to demonstrate socially responsible behaviour through programmes that tackle the 'triple bottom lines' of environmental, economic and social sustainability.

Buying green electricity, therefore, is a good way for an entity or business to reduce its carbon footprint without it having to invest in new infrastructure. It is also an opportunity to improve the SRI score for a body's environmental sustainability practices.

Green electricity will be sold at a premium of 25c per kWh (on top of the usual electricity charge) and purchasers will be provided with certificates confirming that green electricity has been consumed.

*Enviroworks, City of Cape Town, February 2007, abridged*

4.5.1 Where in South Africa will you find these wind turbines? \(1 \times 2 = 2\)

4.5.2 Explain how wind energy can be a sustainable and renewable source of power. \(2 \times 2 = 4\)

4.5.3 Why is it so important to investigate new forms of energy? \(2 \times 2 = 4\)

4.5.4 Explain how companies stand to benefit from changing to the new 'green electricity'. \(2 \times 2 = 4\)

4.5.5 How much more expensive will this form of electricity be? \(1 \times 2 = 2\)

4.5.6 Give **TWO** disadvantages of this type of energy. \(2 \times 2 = 4\) [75]

**TOTAL SECTION B: 150**

**GRAND TOTAL: 225 MARKS**