Six questions should be attempted, namely:

all four questions in Section A (Questions 1, 2, 3 and 4);
don one question from Section B (Question 5 or Question 6);
don one question from Section C (Question 7 or Question 8).

Write the numbers of the six questions you have attempted in the marks grid on the back cover of

your answer booklet.

The value attached to each question is shown in the margin.

Credit will be given for appropriate maps and diagrams, and for reference to named examples.

Questions should be answered in sentences.

Note The reference maps and diagrams in this paper have been printed in black only: no other

colours have been used.
SECTION A: Answer ALL four questions from this section.

Question 1: Lithosphere

Study Diagram Q1 which shows a typical surface landscape and cave system in the Yorkshire Dales, an area with Carboniferous Limestone features.

(a) Select one surface and one underground feature from the lists below. Describe and explain the formation of both features. You may use an annotated diagram or diagrams in your answer.

<table>
<thead>
<tr>
<th>Surface Features</th>
<th>Underground Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limestone pavement</td>
<td>Stalactites and stalagmites</td>
</tr>
<tr>
<td>Swallow hole</td>
<td>Cave/Cavern</td>
</tr>
</tbody>
</table>

(b) Scree slopes are often found at the bottom of cliffs or scars typical of Carboniferous Limestone landscapes. Explain the processes involved in their formation.

Diagram Q1: A Typical Carboniferous Landscape
Question 2: Atmosphere

(a) Study Diagram Q2A and Q2B.

**Describe and explain** why the Earth’s surface absorbs only 50% of the solar energy received at the edge of the atmosphere. You should refer to both conditions in the Earth’s atmosphere and at the Earth’s surface.  

(b) There has been an increase in the average global temperature in the last 150 years. **Describe and explain** the human factors affecting global warming.

**Diagram Q2A: Earth/Atmosphere Energy Exchange**

![Diagram Q2A](image)

**Diagram Q2B: Proportion of solar energy absorbed/reflected**

<table>
<thead>
<tr>
<th>Absorbed by Earth’s surface</th>
<th>Reflected by atmosphere</th>
<th>Absorbed within atmosphere</th>
<th>RS</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>50</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

RS = Reflected from surface

[Turn over]
Question 3: Urban

(a) Study OS Map Extract number 2006/OL20: Plymouth (separate item), and Map Q3.

Using map evidence, describe the residential environments of Area A and Area B. Suggest reasons for the differences.

(b) Suggest the impact that an out of town shopping centre may have had on the traditional Central Business District (CBD) of Plymouth or any other named city you have studied in a developed country.
Question 4: Rural

Study Diagram Q4.

Choose one of these farming systems.
Referring to a named area where your chosen system is carried out:

(i) explain the ways in which the diagram reflects the main features of your chosen system; 8

(ii) describe the recent changes in farming practices that have taken place and discuss the impact of these changes on the people and their environment. 10

Diagram Q4: Farming systems

Intensive Peasant Farming  Commercial Arable Farming

[Diagram showing Intensive Peasant Farming and Commercial Arable Farming with Labour, Capital, Land, and Output per hectare]
Question 5: Hydrosphere

Study OS Map Extract number 2006/OL20: Plymouth (separate item).

(a) Using appropriate grid references, describe the physical characteristics of the River Plym and its valley from Bickleigh Bridge (GR 527618) to Laira Bridge (GR 501542).

(b) Explain, with the aid of an annotated diagram or diagrams, how a meander is formed.
Question 6: Biosphere

(a) Study Diagram Q6 which shows a coastal sand dune area.

Describe and give reasons for the plant types likely to be present at one of the locations A, B or C. Named plant species should be included.

(b) Draw and fully annotate a soil profile of a brown earth soil to show its main characteristics (including horizons, colour, texture, soil biota and drainage) and associated vegetation.

Diagram Q6: Transect across sand dune coastline
SECTION C: Answer ONE question from this section, i.e. either Question 7 or Question 8.

Question 7: Population

Study Diagram Q7A

(a) **Describe** and **explain** the population structure of Malawi in 2010.

Study Diagram Q7B.

(b) **Discuss** the possible consequences of the 2050 population structure for the future economy of Malawi and the welfare of its citizens.

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**Diagram Q7A: Population Pyramid for Malawi, 2010**

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**Diagram Q7B: Projected Population Pyramid for Malawi, 2050**
Question 8: Industrial Geography

Study photographs Q8A, Q8B and Q8C.

“New” industry is often located in industrial estates, business parks and science parks.

Referring to a named industrial concentration in the European Union that you have studied:

(i) describe and explain the main characteristics of a typical new industrial landscape; 7

(ii) describe ways in which the European Union and national governments have helped to attract new industries to your chosen area. 7

Photograph Q8A

Photograph Q8B

Photograph Q8C
Answer any two questions.

Write the numbers of the two questions you have attempted in the marks grid on the back cover of your answer booklet.

The value attached to each question is shown in the margin.

Credit will be given for appropriate maps and diagrams, and for reference to named examples.

Questions should be answered in sentences.

Note  The reference maps and diagrams in this paper have been printed in black only: no other colours have been used.
Question 1: Rural Land Resources

(a) Describe and explain, with the aid of annotated diagrams, the formation of the main features of glaciation in the Cairngorms National Park or any other glaciated upland area you have studied.

(b) Study Diagram Q1.

With reference to the Cairngorms National Park or any other upland area you have studied, explain the social and economic opportunities created by the landscape.

(c) Referring to named examples within the Cairngorms or any other upland or coastal area you have studied:

(i) describe and explain the environmental conflicts that have occurred;

(ii) describe the solutions to these environmental conflicts commenting on their effectiveness.

Diagram Q1: The Cairngorms Mountain Range
Question 2: Rural Land Degradation

(a) Study Diagram Q2.

Describe and explain the processes of soil erosion by wind.

Diagram Q2: Selected processes of wind erosion

(b) Describe and explain how human activities, including inappropriate farming techniques, have caused land degradation in North America.

(c) Referring to named locations in either Africa north of the Equator or the Amazon Basin, describe the impact of land degradation on the people, economy and the environment.

(d) For named areas in North America and Africa north of the Equator or the Amazon Basin:

(i) describe and explain soil conservation strategies that have reduced land degradation;

(ii) comment on the effectiveness of these strategies.

[Turn over]
Question 3: River Basin Management

(a) Study Maps Q3A, Q3B and Q3C.

For North America, Africa or Asia, describe and explain the general distribution of river basins.

(b) “The Mississippi river basin extends into 31 states of the USA as well as into southern Canada. It is the third largest river basin in the world”.

Study Maps Q3A, Q3D and Diagram Q3. Describe and explain why there is a need for water management within the Mississippi River Basin.

(c) For the Mississippi River Basin or any other river basin management project in North America or Africa or Asia, explain the political problems that may have resulted from the project.

(d) Describe and account for the economic, environmental and social benefits and adverse consequences of a named water control project in Africa, Asia or North America.
Question 3 – continued

Map Q3D: Mississippi River Basin

Diagram Q3: Climate Graphs

[Climate Graphs showing temperature and precipitation for Denver, Minneapolis, and Memphis]
Question 4: Urban Change and its Management

(a) Study Map Q4A.

Describe and account for the projected distribution of the world’s largest urban areas.  

(b) Study Map Q4B.

Referring to Tokyo or any other named city that you have studied in the Developed World:

(i) outline the problems caused by urban sprawl.

(ii) explain the ways in which the city has tried to resolve this problem and comment on their effectiveness.

(c) Study Diagram Q4.

With reference to a named city that you have studied in the Developing World:

(i) describe the social, economic and environmental problems found in shanty town areas;

(ii) describe the methods the residents and local authorities have used to tackle these problems.

Map Q4A: Twelve largest urban areas in the world 2015 (projection)
Map Q4B: Urban Growth of Tokyo 1945–2013

Diagram Q4: Shanty Town Population by Continent

<table>
<thead>
<tr>
<th>Continent</th>
<th>1945</th>
<th>1986</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>South America</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Africa</td>
<td>25</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Asia</td>
<td>15</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Question 5: European Regional Inequalities

(a) Study Table Q5A.

Turkey and FYR (Former Yugoslav Republic) Macedonia are among the countries which have applied to join the European Union. **Suggest reasons** why these countries may wish to become members of the European Union.  

(b) “The North-South divide refers to the economic and cultural differences between southern England and the rest of the United Kingdom.”

Study Map Q5 and Table Q5B.

To what extent does the data provide evidence of regional inequalities within the UK?

(c) **Describe** and **explain** the physical and human factors that have led to regional inequalities within the UK or any other country of the European Union which has marked differences in economic development between regions.

(d) For your chosen country in part (c), **discuss** the ways in which the National Government has tried to tackle problems in less prosperous regions and **comment** on the effectiveness of these strategies.

Table Q5A: Socio-economic indicators for selected current and prospective members of the European Union

<table>
<thead>
<tr>
<th>Country</th>
<th>Year of joining EU</th>
<th>GDP per capita 2010 (PPP*)</th>
<th>Industrial Sector (%) 2010</th>
<th>Unemployment (%) 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Primary</td>
<td>Secondary</td>
</tr>
<tr>
<td>Belgium</td>
<td>1957</td>
<td>37,800</td>
<td>2</td>
<td>25</td>
</tr>
<tr>
<td>UK</td>
<td>1973</td>
<td>34,800</td>
<td>2</td>
<td>18</td>
</tr>
<tr>
<td>Portugal</td>
<td>1986</td>
<td>23,200</td>
<td>12</td>
<td>20</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>2007</td>
<td>13,500</td>
<td>6</td>
<td>30</td>
</tr>
<tr>
<td>FYR Macedonia</td>
<td>–</td>
<td>9,700</td>
<td>20</td>
<td>22</td>
</tr>
<tr>
<td>Turkey</td>
<td>–</td>
<td>12,300</td>
<td>29</td>
<td>25</td>
</tr>
</tbody>
</table>

**PPP* = Purchasing Power Parity**
Map Q5: UK statistical regions

Table Q5B: Selected indicators of development for UK regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Gross disposable household income 2010 (UK average = 100)</th>
<th>Average house prices 2011 £1,000</th>
<th>Projected population change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scotland</td>
<td>94</td>
<td>146</td>
<td>0.4</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>85</td>
<td>144</td>
<td>3.1</td>
</tr>
<tr>
<td>Wales</td>
<td>87</td>
<td>146</td>
<td>2.1</td>
</tr>
<tr>
<td>NW England</td>
<td>91</td>
<td>151</td>
<td>2.3</td>
</tr>
<tr>
<td>NE England</td>
<td>85</td>
<td>143</td>
<td>1.1</td>
</tr>
<tr>
<td>West Midlands</td>
<td>92</td>
<td>167</td>
<td>2.5</td>
</tr>
<tr>
<td>Yorks &amp; Humber</td>
<td>91</td>
<td>150</td>
<td>4.5</td>
</tr>
<tr>
<td>East Midlands</td>
<td>94</td>
<td>156</td>
<td>4.8</td>
</tr>
<tr>
<td>East England</td>
<td>107</td>
<td>196</td>
<td>4.5</td>
</tr>
<tr>
<td>SE England</td>
<td>115</td>
<td>273</td>
<td>4.1</td>
</tr>
<tr>
<td>London</td>
<td>120</td>
<td>437</td>
<td>5.5</td>
</tr>
<tr>
<td>SW England</td>
<td>99</td>
<td>223</td>
<td>4.7</td>
</tr>
<tr>
<td><strong>UK average</strong></td>
<td><strong>100</strong></td>
<td><strong>233</strong></td>
<td><strong>3.6</strong></td>
</tr>
</tbody>
</table>
Question 6: Development and Health

(a) “Number of people per doctor” is an example of a social indicator of development. Name fully two other social indicators and two economic indicators which might identify different levels of development.

(b) Using named examples, suggest reasons for the wide variations in development which exist between Developing Countries.

(c) Study Map Q6.

Malaria, cholera and bilharzia/schistosomiasis are water related diseases which remain the biggest causes of death in Developing Countries. Select one of the diseases above.

(i) Describe the physical and human factors which put people at risk of contracting the disease.

(ii) Describe the measures that can be taken to combat the disease and explain the varying effectiveness of these measures.

(iii) Explain the benefits to a Developing Country of controlling the disease.

Map Q6: Countries affected by Malaria