Instructions

- Use black ink or ball-point pen.
- Fill in the boxes at the top of this page with your name, centre number and candidate number.
- In Section A answer all questions.
- In Section B answer either question 4 or 5.
- Answer the questions in the spaces provided – there may be more space than you need.

Information

- The total mark for this paper is 69.
- The marks for each question are shown in brackets – use this as a guide as to how much time to spend on each question.
- Questions labelled with an asterisk (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.
- The marks available for spelling, punctuation and grammar are clearly indicated.

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.
SECTION A – THE PHYSICAL WORLD

Answer ALL questions in this Section.

Some questions must be answered with a cross in a box ☒. If you change your mind about an answer, put a line through the box ☒ and then mark your new answer with a cross ☒.

Topic 1: Coastal Landscapes

1. Study Figure 1a.

![Figure 1a](image)

The past and projected coastline at Newtok, Alaska, 2002
(a) (i) Complete the following sentences that describe the changes in the position of the coastline and the impacts of this at Newtok, Alaska.

Use some of the words, dates and numbers in the box below.

<table>
<thead>
<tr>
<th>2012</th>
<th>more</th>
<th>45</th>
<th>school</th>
<th>2002</th>
</tr>
</thead>
<tbody>
<tr>
<td>less</td>
<td>63</td>
<td>water source</td>
<td>1996</td>
<td>ocean</td>
</tr>
</tbody>
</table>

Figure 1a shows changes in the position of the coastline over a ................................................................. year period.

By ................................................................. the boat dock had been destroyed by the sea.

By 2017 Newtok will lose its ..................................................................

It is likely that these coastal changes may cause ................................................................. people to move away from this area.

(ii) What is the distance between points A and B?

- A Less than 150 metres.
- B 150–200 metres.
- C 200–250 metres.
- D 250–300 metres.

(iii) Which one of the following is a possible reason for the changes to this coastline?

- A A fall in sea level.
- B Additional sea defences.
- C A rise in sea level.
- D Cliff regrading.
(b) Which one of the following best describes the impact of a long fetch on a coastline?

- A  There will be less erosion.
- B  There will be more erosion.
- C  There will be no erosion.
- D  There will be more weathering.

(c) Outline the following coastal processes:

Weathering

Mass movement
(d) Using located examples, describe how the effects of coastal flooding are reduced through forecasting. (4)

(Total for Question 1 = 15 marks)
Topic 2: River Landscapes

2. (a) (i) Which one of the following terms describes the place where two rivers join?

- A mouth
- B confluence
- C source
- D tributary

(ii) Which one of the following is a definition of the term watershed?

- A The main channel in a drainage basin.
- B A shape of a drainage basin.
- C The boundary of the drainage basin.
- D The size of the drainage basin.

(b) Study Figure 2a.

![Figure 2a](https://example.com/figure2a.jpg)

Figure 2a

A photograph of river landforms in Iceland
(i) Which one of the following landforms is shown in Figure 2a?

☐ A gorge
☐ B meander
☐ C floodplain
☐ D interlocking spurs

(ii) Complete the following sentences that describe the formation of the landforms shown in Figure 2a.

Use some of the words in the box below.

water  horizontal  rock  gradual  precipitation
steep  hydraulic action  solution  vertical  attrition

An important process in the formation of waterfalls is .......................................................... erosion.

The main type of erosion in the plunge pool is ................................................................. .

This erosion is caused by the force of the ................................................................. hitting the rock.

As the waterfall cuts back it leaves

a .......................................................... sided valley.
(c) Study Figure 2b.

Figure 2b
Flood warnings around south west London, February 2014

Using Figure 2b, suggest two impacts of the possible flooding on people. (4)

1. ..........................................................................................................................
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2. ..........................................................................................................................
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(d) Explain the advantages of using hard engineering to manage rivers in the UK. (4)

(Total for Question 2 = 15 marks)
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QUESTION 3 BEGINS ON THE NEXT PAGE.
Topic 3: Tectonic Landscapes

3 (a) (i) Which one of the following is the name of the descriptive scale used to measure earthquake impact or damage?

- A Mercalli
- B Seismic
- C Saffir-Simpson
- D Richter

(ii) Which one of the following is the best definition of an earthquake?

- A Lava erupting onto the surface.
- B A build up of pressure leading to the crust breaking.
- C Shaking and movements of the surface.
- D Pressure build up in the crust.

(iii) Where are high magnitude earthquakes most likely to occur?

- A On divergent plate boundaries.
- B On hotspots.
- C On the sea floor.
- D On convergent plate boundaries.
In 1585, explosive eruptions and lava flows added land to the west coast of La Palma.

In 1677, the eruption created 16 small cones and destroyed the village of Fuencaliente.

In 1949, the eruption created a lava lake near the summit.

In 1971, an eruption of the Teneguia volcano killed one elderly man.

Figure 3a
Map showing some of the historic eruptions on the island of La Palma, Canary Islands
Complete the following sentences to describe the volcanic activity on La Palma.
Use some of the words in the box below.

<table>
<thead>
<tr>
<th>1677</th>
<th>ocean</th>
<th>Cumbre Vieja</th>
<th>Duraznero</th>
<th>1971</th>
</tr>
</thead>
<tbody>
<tr>
<td>lava</td>
<td>Teneguia</td>
<td>1585</td>
<td>Fuencaliente</td>
<td>fresh water</td>
</tr>
</tbody>
</table>

The date of the earliest eruption was ..........................................................
Active volcanoes are found in the ............................................................ zone.
The most recent eruption was the ............................................................... volcano and caused the death of one man.
The 1949 eruption created a ................................................................. lake.

(c) Using located examples, describe the economic reasons why people continue to live in areas affected by earthquakes.

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(d) Use an annotated diagram(s) to explain the formation of a hotspot (volcanic island).
4 Study Figure 4a.

Electricity produced from wind power in Megawatts (MW)

- 0–80MW
- 81–160MW
- 160+MW
- no data

(Source: © Copyright Guardian News & Media Ltd 2012)

Figure 4a
Electricity (MW) produced from wind energy in selected Irish counties, 2012
(a) (i) Using Figure 4a, complete the table below.

<table>
<thead>
<tr>
<th>County</th>
<th>Energy produced from wind (megawatts – MW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kildare</td>
<td>0–80 MW</td>
</tr>
<tr>
<td>Mayo</td>
<td>81–160 MW</td>
</tr>
<tr>
<td>Kerry</td>
<td></td>
</tr>
<tr>
<td>Limerick</td>
<td></td>
</tr>
</tbody>
</table>

(ii) Which one of the following is used to generate wind energy?

- □ A solar panels
- □ B biomass
- □ C rotating turbines
- □ D anemometer

(iii) Which one of the following best describes the pattern of electricity produced from wind power shown on Figure 4a?

- □ A The highest values are in the east.
- □ B Most of the lowest values are in the west.
- □ C The lowest values are in the north east.
- □ D Most of the highest values are in the south west.

(iv) Suggest one reason why there is a variation in electricity generated from wind power in Ireland.

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(b) Study Figure 4b.

Figure 4b

The process of glass recycling on a local scale

(i) Identify Stages 3 and 8 using the list below.

A  Sort glass at home.
B  Filled jars are taken to the shops.
C  New jars are filled.
D  Glass collected and transported to a recycling centre.
E  Put glass in a recycling bin.
F  Glass is crushed for melting.
G  Glass is melted into new shapes
H  Products from glass jars used at home

(2)

Stage 3 """"""

Stage 8 """"""
(ii) Outline one advantage of recycling.

..........................................................................................................................
..........................................................................................................................
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(c) Describe how a named High Income Country (HIC) disposes of its solid waste.

Named HIC .............................................................................................
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(d) Explain why the carbon footprint varies for countries at different levels of development.
Topic 5: A Watery World

Spelling, punctuation and grammar will be assessed in 5*(e).

If you answer Question 5 put a cross in the box ☐.

5 Study Figure 5a.

Figure 5a

Water leaked per day (millions of litres) in the UK, 1998–2010

(a) (i) Complete the table below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Water leaked per day (millions of litres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>3550</td>
</tr>
<tr>
<td>2003</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>3400</td>
</tr>
</tbody>
</table>
(ii) Which **one** of the following best describes changes in the amount of water leaked shown in Figure 5a?

- **A** The amount of water leaked increases between 1998 and 2010.
- **B** The amount of water leaked peaks at 3750.
- **C** From 2001 to 2003 the amount of water leaked decreases.
- **D** The amount of water leaked decreased between 2003 and 2009.

(iii) Which **one** of the following best describes a reason for water leakages, such as those shown on Figure 5a?

- **A** Broken main water pipes.
- **B** People taking too much water from rivers.
- **C** Heavy rainfall.
- **D** Broken radiators.

(b) Suggest **one** reason why a lack of rainfall can cause water supply problems.
Figure 5b

Water supply and use in a large city and the surrounding area

(i) Identify water supply or use 2 and 7 using the list below.

A groundwater
B snow melt
C precipitation
D glacial melt
E irrigation of crops
F households
G leisure
H cattle farming

Supply/Use 2

Supply/Use 7
(ii) Outline one way water use is managed in an urban area. (2)

..........................................................................................................................
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(d) Using examples, explain the different methods used to obtain water on a local scale. (4)

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*(e) Explain why HICs are facing an increasing demand for water. (6)*

(Total for spelling, punctuation and grammar = 4 marks)
(Total for Question 5 = 24 marks)

TOTAL FOR SECTION B = 24 MARKS
TOTAL FOR PAPER = 69 MARKS
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