

**Paper Reference 4GE1/01**  
**Pearson Edexcel**  
**International GCSE (9–1)**

**Total Marks**

**Geography**  
**Paper 1: Physical Geography**

**Tuesday 21 May 2019 – Afternoon**

**Time: 1 hour 10 minutes plus your additional time allowance.**

**In the boxes below, write your name, centre number and candidate number.**

<b>Surname</b>					
<b>Other names</b>					
<b>Centre Number</b>					
<b>Candidate Number</b>					

**X59839A**

**YOU MUST HAVE**

**Calculator**

**YOU WILL BE GIVEN**

**Resource Book**

**Diagram Book**

**INSTRUCTIONS**

**In Section A, answer TWO questions from Questions 1, 2 AND 3**

**In Section B, answer ONE question from Questions 4, 5 AND 6**

**Answer the questions in the spaces provided in this Question Paper or on the separate diagrams – there may be more space than you need.**

**Calculators may be used.**

**Where asked you must show all your working out with your answer clearly identified at the end of your solution.**

**Turn over**

**INFORMATION**

**The total mark for this paper is 70**

**The marks for EACH question are shown in brackets  
– use this as a guide as to how much time to spend on  
each question.**

**There may be spare copies of some diagrams.**

**ADVICE**

**Read each question carefully before you start to  
answer it.**

**Check your answers if you have time at the end.**

---

**SECTION A**

**Answer TWO questions from this section.**

**Some questions are multiple choice. Write the letter(s) of your chosen answer(s) in the box(es) provided.**

**Indicate which question you are answering by marking a cross in the box. If you change your mind, put a line through the box and then indicate your new question with a cross.**

**If you answer Question 1 put a cross in this box**

☐

**1. River Environments.**

**(a) Identify the statement below that best describes the channel in the lower course of a river.**

- A small and fast river channel**
- B wide and deep river channel**
- C narrow and fast river channel**
- D small and narrow river channel**

**Answer**

**(1 mark)**

**(continued on the next page)**

1. continued.

(b) (i) Identify ONE process of river erosion.

**A** levees

**B** abrasion

**C** overland flow

**D** discharge

Answer

(1 mark)

(ii) State ONE process of river transportation.

(1 mark)

---

---

(continued on the next page)

Turn over

1. (b) continued.

(iii) Explain ONE way water is stored in the hydrological cycle.

(2 marks)

---

---

---

---

---

---

(continued on the next page)

1. continued.

(c) Study Figure 1a in the Resource Book.

Suggest TWO ways people manage water supply.

(4 marks)

1 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

(continued on the next page)

Turn over

1. continued.

(d) Explain ONE way vegetation can affect river discharge.

(3 marks)

---

---

---

---

---

---

---

---

---

---

(e) Study Figure 1b in the Resource Book.

Identify the river landform.

(1 mark)

---

---

(continued on the next page)

Turn over

1. continued.

(f) Explain the formation of a river meander.

(4 marks)

---

---

---

---

---

---

---

---

---

---

---

---

(continued on the next page)

**1. continued.**

**(g) Study Figure 1c and Figure 1d in the Resource Book.**

## Analyse the reasons for variations in water quality.

**(8 marks)**

**Answer lines continue on the next two pages.**

[illegible]

**1. (g) continued.**

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**1. (g) continued.**

[illegible]

**(Total for Question 1 = 25 marks)**

\_\_\_\_\_

**If you answer Question 2 put a cross in this box**

☐

**2. Coastal Environments.**

**(a) Identify the statement below that best describes the characteristics of a destructive wave.**

- A long wavelength and weak backwash**
- B short wavelength and strong backwash**
- C long wavelength and strong backwash**
- D short wavelength and weak backwash**

**Answer**

**(1 mark)**

**(continued on the next page)**

2. continued.

(b) (i) Identify ONE erosional landform.

**A** spit

**B** cave

**C** bar

**D** beach

Answer

(1 mark)

(ii) State ONE type of mass movement that affects coastal landscapes.

(1 mark)

---

---

(continued on the next page)

2. (b) continued.

(iii) Explain ONE type of mechanical weathering that occurs at the coast.

(2 marks)

---

---

---

---

---

---

(continued on the next page)

2. continued.

(c) Study Figure 2a in the Resource Book.

**Suggest TWO ways changes in sea level have created coastal landforms.**

**(4 marks)**

1 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2 \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**(continued on the next page)**

**Turn over**

**2. continued.**

**(d) Explain ONE physical factor that influences the distribution of mangrove ecosystems.**

**(3 marks)**

---

---

---

---

---

---

---

---

---

---

**(e) Study Figure 2b in the Resource Book.**

**Identify the coastal landform at X**

**(1 mark)**

---

---

**(continued on the next page)**

**Turn over**

**2. continued.**

**(f) Explain the formation of a headland.**

**(4 marks)**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**(continued on the next page)**

**2. continued.**

**(g) Study Figure 2c and Figure 2d in the Resource Book.**

**Analyse the reasons for the choice of different soft engineering strategies shown.**

**(8 marks)**

**Answer lines continue on the next two pages.**

[illegible]

**2. (g) continued.**

[illegible]

**Turn over**

**2. (g) continued.**

[illegible]

**(Total for Question 2 = 25 marks)**

\_\_\_\_\_

**If you answer Question 3 put a cross in this box**

☐

**3. Hazardous Environments.**

**(a) Identify the statement below that best describes the epicentre of an earthquake.**

- A** the area around the earthquake on the surface
- B** the point on the Earth's surface directly above the focus
- C** the area around the earthquake underground
- D** the location underground where the earthquake occurs

**Answer**

**(1 mark)**

**(b) (i) State ONE measure of earthquake intensity.**  
**(1 mark)**

---

---

**(continued on the next page)**

**Turn over**

3. (b) continued.

(ii) State ONE characteristic of a volcanic eruption.

(1 mark)

---

---

(iii) Explain ONE cause of an earthquake event.

(2 marks)

---

---

---

---

---

---

(continued on the next page)

**3. continued.**

**(c) Study Figure 3a in the Resource Book.**

**Suggest a factor that influences the cause and another factor that influences the direction of tropical cyclones.**

**(4 marks)**

**Answer lines continue on the next page.**

**Cause:**

---

---

---

---

---

---

**Direction:**

---

---

---

**Turn over**

**3. (c) continued.**

---

---

---

**(d) Explain ONE way earthquakes can form tsunamis.**

**(3 marks)**

---

---

---

---

---

---

---

---

---

---

**(continued on the next page)**

**3. continued.**

**(e) Study Figure 3b in the Resource Book.**

**Identify ONE feature of this building that makes it more tsunami resistant.**

**(1 mark)**

---

---

**(f) Explain why some countries are more vulnerable than others to the impacts of natural hazards.**

**(4 marks)**

**Answer lines continue on the next page.**

---

---

---

---

---

---

---

**3. continued.**

---

---

---

---

---

**(continued on the next page)**

### 3. continued.

**(g) Study Figure 3c and Figure 3d in the Resource Book.**

## Analyse the use of hazard, vulnerability and risk mapping in reducing the impact of earthquakes.

**(8 marks)**

**Answer lines continue on the next two pages.**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**3. (g) continued.**

[illegible]

**Turn over**

**3. (g) continued.**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

**(Total for Question 3 = 25 marks)**

**TOTAL FOR SECTION A = 50 MARKS**

**SECTION B****GEOGRAPHICAL ENQUIRY**

**Answer ONE question from this section.**

**Some questions are multiple choice. Write the letter(s) of your chosen answer(s) in the box(es) provided.**

**Indicate which question you are answering by marking a cross in the box. If you change your mind, put a line through the box and then indicate your new question with a cross.**

**If you answer Question 4 put a cross in this box**

☐

#### 4. Investigating River Environments.

A group of students have undertaken a study exploring changes in a river channel every **100 metres**.

(a) (i) Identify the type of sampling method used.

**A** systematic

**B** random

**C** stratified

**D** opportunistic

Answer

(1 mark)

(continued on the next page)

4. (a) continued.

(ii) State ONE disadvantage of using one of the sampling methods in the previous question, a(i)

(1 mark)

Sampling method \_\_\_\_\_

---

---

---

(continued on the next page)

**4. (a) continued.**

**Study Figure 4a in the Resource Book. It shows sample data on velocity from one site on a river. A cork float was used to measure the time taken to travel between two points, A and B**

- (iii) Calculate the mean time taken for the cork float to travel between points A and B**

**Give your answer to ONE decimal place.**

**You must show all your workings in the space below and on the next page.**

**(2 marks)**

**4. (a) (iii) continued.**

\_\_\_\_\_ seconds

**(iv) Study Figure 4b in the Diagram Book.  
Using the data in Figure 4a (in the  
Resource Book), complete Figure 4b for  
measurements 1 and 4  
(2 marks)**

**(v) State the number of the sample which  
represents the float with the anomalous  
result.  
(1 mark)**

---

**(continued on the next page)**

4. (a) continued.

(vi) Suggest ONE explanation for this anomaly.  
(2 marks)

---

---

---

---

---

---

(continued on the next page)

4. continued.

(b) To extend the river study, students were asked to use **ONE** other primary data method.

**Explain ONE other primary data method they might have used.**

**(3 marks)**

---

---

---

---

---

---

---

---

---

---

**(continued on the next page)**

**4. continued.**

**You have studied river environments for your geographical enquiry.**

**(c) Evaluate how successful your chosen data analysis methods were in answering your geographical enquiry question.**

**(8 marks)**

**Answer lines continue on the next two pages.**

**Enquiry question**

---

---

---

---

---

---

---

---

---

---

**4. (c) continued.**

[illegible]

**Turn over**

**4. (c) continued.**

[illegible]

**(Total for Question 4 = 20 marks)**

**Turn over**

**If you answer Question 5 put a cross in this box**

☐

## 5. Investigating Coastal Environments.

A group of students have investigated changes in sediment size along a stretch of coast every 100 metres.

(a) (i) Identify the type of sampling method used.

**A** systematic

**B** random

**C** stratified

**D** opportunistic

Answer

(1 mark)

(continued on the next page)

5. (a) continued.

- (ii) State ONE disadvantage of using one of the sampling methods in the previous question, a(i)  
(1 mark)

Sampling method \_\_\_\_\_

---

---

---

(continued on the next page)

**5. (a) continued.**

**Study Figure 5a in the Resource Book. It shows sample data on shingle size collected at five sites along a stretch of coastline.**

**(iii) Calculate the mean shingle size for the five sites.**

**Give your answer to ONE decimal place.**

**You must show all your workings in the space below and on the next page.**

**(2 marks)**

**5. (a) (iii) continued.**

\_\_\_\_\_ mm

**(iv) Study Figure 5b in the Diagram Book.  
Using the data in Figure 5a (in the  
Resource Book), complete Figure 5b for  
sites 1 and 4  
(2 marks)**

**(v) State the number of the sample which  
represents the site with the anomalous  
result.  
(1 mark)**

---

**(continued on the next page)**

**5. (a) continued.**

**(vi) Suggest ONE possible explanation for this anomaly.**

**(2 marks)**

---

---

---

---

---

---

**(continued on the next page)**

5. continued.

(b) To extend the coastal study, students were asked to use **ONE** other primary data method.

Explain **ONE** other primary data method they might have used.

(3 marks)

---

---

---

---

---

---

---

---

---

---

(continued on the next page)

**5. continued.**

**You have studied coastal environments for your geographical enquiry.**

**(c) Evaluate how successful your chosen data analysis methods were in answering your geographical enquiry question.**

**(8 marks)**

**Answer lines continue on the next two pages.**

**Enquiry question**

---

---

---

---

---

---

---

---

---

---

**5. (c) continued.**

[illegible]

**Turn over**

**5. (c) continued.**

[illegible]

**(Total for Question 5 = 20 marks)**

**Turn over**

If you answer Question 6 put a cross in this box

☐

## 6. Investigating Hazardous Environments.

A group of students have investigated the physical processes involved in an extreme weather event, by recording a weather diary.

The students used an anemometer to record wind speed every hour.

(a) (i) Identify the type of sampling method used.

**A** systematic

**B** random

**C** stratified

**D** opportunistic

Answer

(1 mark)

(continued on the next page)

Turn over

6. (a) continued.

- (ii) State ONE disadvantage of using one of the sampling methods in the previous question, a(i)  
(1 mark)

Sampling method \_\_\_\_\_

---

---

---

(continued on the next page)

**6. (a) continued.**

**Study Figure 6a in the Resource Book. It shows sample data about wind speed.**

**(iii) Calculate the mean wind speed for the five samples.**

**Give your answer to ONE decimal place.**

**You must show all your workings in the space below.**

**(2 marks)**

\_\_\_\_\_ **mph**

**(continued on the next page)**

**Turn over**

**6. (a) continued.**

**(iv) Study Figure 6b in the Diagram Book.**

**Using the data in Figure 6a (in the  
Resource Book), complete Figure 6b for  
measurements 1 and 4**

**(2 marks)**

**(v) State the number of the sample with the  
anomalous result.**

**(1 mark)**

---

**(vi) Suggest ONE possible explanation for this  
anomaly.**

**(2 marks)**

---

**(continued on the next page)**

**Turn over**

6. continued.

(b) To extend the weather study, students were asked to use **ONE** other primary data method.

**Explain ONE other primary data method.**

**(3 marks)**

---

---

---

---

---

---

---

---

---

---

**(continued on the next page)**

**6. continued.**

**You have studied hazardous environments for your geographical enquiry.**

**(c) Evaluate how successful your chosen data analysis methods were in answering your geographical enquiry question.**

**(8 marks)**

**Answer lines continue on the next two pages.**

**Enquiry question**

---

---

---

---

---

---

---

---

---

---

**Turn over**

**6. (c) continued.**

[illegible]

**Turn over**

**6. (c) continued.**

[illegible]

**(Total for Question 6 = 20 marks)**

**Turn over**

---

**TOTAL FOR SECTION B = 20 MARKS**

**TOTAL FOR PAPER = 70 MARKS**

**END OF PAPER**

---