Centre No.						Paper Reference	Surname	Initial(s)
Candidate No.						6 4 6 1 / 0 1	Signature	

Paper Reference(s)

6461/01

Edexcel GCE

Geography A

Advanced Subsidiary

Unit 1: Physical Environments

Monday 14 January 2008 – Morning

Time: 1 hour 15 minutes

Examiner's use only

Team Leader's use only

Question Number	Leave Blank
1	
2	
3	
4	
5	
6	
Total	

Materials required for examination	Items included with question papers
Calculator Ruler	Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer **THREE** questions, choosing **ONE** from **each of sections** A, B and C.
Write your answers in the spaces provided in this question paper.
Do not use pencil. Use blue or black ink.
For each section, indicate which question you are answering by marking the box (☒).
If you change your mind, put a line through the box (☒) and then indicate your new question with a cross (☒).

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 6 questions in this question paper. All questions carry 20 marks.
The total mark for this paper is 60.
There are 24 pages in this question paper. Any blank pages are indicated.

Advice to Candidates

You will be assessed on your ability to organise and present information, ideas, descriptions and arguments clearly and logically, taking into account your use of grammar, punctuation and spelling.
In all parts, credit will be given for the use of diagrams and sketch maps where they are appropriate.

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SECTION A

Answer **EITHER** Question 1 **OR** Question 2.

If you answer Question 1 put a cross in this box ☒.

1. (a) Study Figure 1 which is a classification of tectonic landforms based on the type of plate margin where they typically occur.

CONSTRUCTIVE MARGIN	DESTRUCTIVE MARGIN
rift valley	ocean trench
mid-oceanic ridge	fold mountains
fissure volcano	acid cone volcano
shield volcano	island arc

Figure 1

(i) Use Figure 1 to name the following landforms:

1. an area of high relief formed by buckling of continental crust;

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(1)

2. a linear fracture in the ground through which molten magma escapes, with a long gently sloping surface either side;

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(1)

3. a broad, long trough bounded by parallel faults.

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(1)

(ii) Describe the appearance of an island arc.

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(2)

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(iii) Explain how island arcs are formed.

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(4)

(b) (i) Describe the appearance of scree.

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(2)

(ii) Explain how scree is formed.

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(3)

Leave blank

(c) With reference to a located example, describe and explain the distinctive features produced by the weathering of a **granite landscape**.

You may use a diagram to help your answer.

Located example .....

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(6)

(Total 20 marks)

Q1

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If you answer Question 2 put a cross in this box ☒ .

2. (a) Study Figure 2 which shows rates of limestone weathering at selected locations.

LOCATION	RATE OF WEATHERING (mm/year)
Malham, Yorkshire	0.013
Portland, Dorset	0.05
Burren, Ireland	0.046
Madagascar, Africa	0.1
Coolman Plain, Australia	0.017

Figure 2

(i) Calculate the range of values shown.

Answer .....

(1)

(ii) Which location has a rate of weathering approximately four times faster than that at Malham?

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(1)

(iii) Name the main process by which limestone is chemically weathered.

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(1)

(iv) Explain how this process weathers limestone.

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(4)

Leave blank

(b) Suggest how the following factors may encourage **physical** weathering:

1. vegetation;

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(3)

2. temperature.

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(4)

Leave blank

(c) With reference to a located example, describe and explain the impact of **intrusive igneous landforms** on the landscape.

You may use a diagram to help your answer.

Located example ....

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(6) **Q2**

(Total 20 marks)

TOTAL FOR SECTION A: 20 MARKS

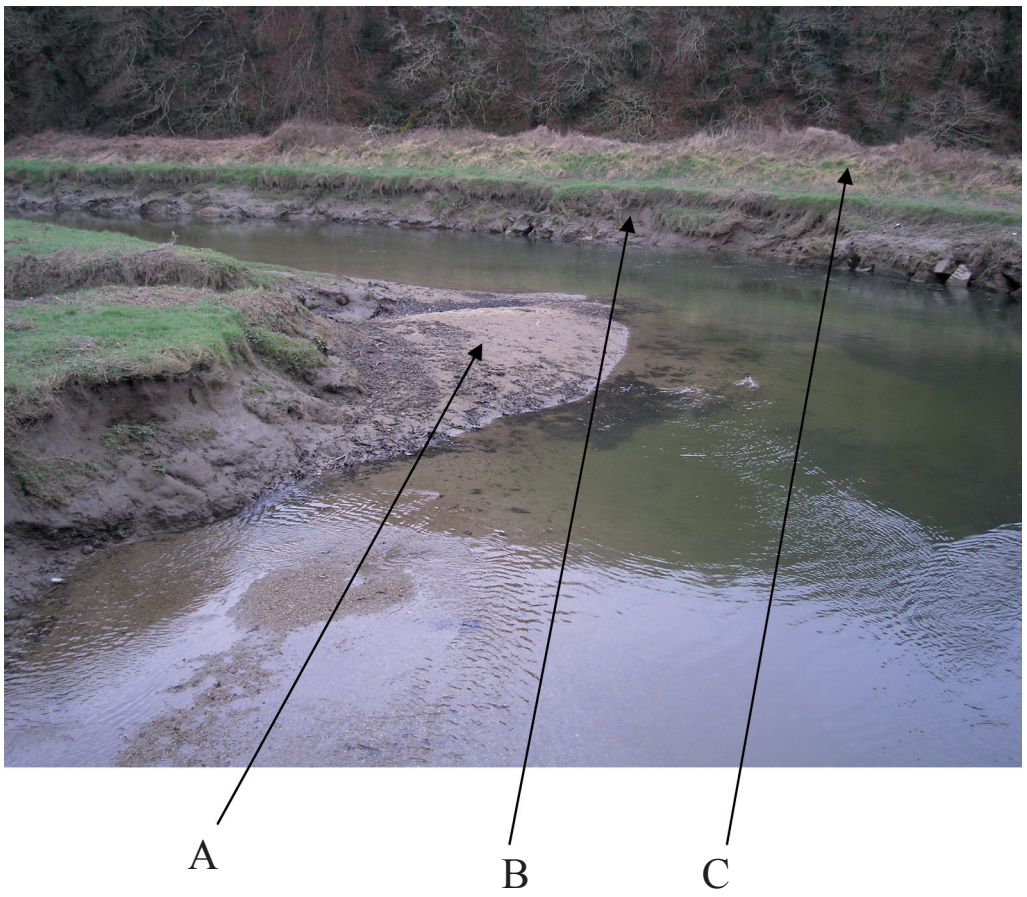
Leave blank

SECTION B

Answer **EITHER** Question 3 **OR** Question 4.

If you answer Question 3 put a cross in this box ☒.

3. (a) Study Figure 3 which shows a meander on a tributary of the River Camel, Cornwall.



(Source: Photograph courtesy of Andy Palmer)

Figure 3

(i) Identify landforms:

A .....

(1)

B .....

(1)

Leave blank

(ii) Explain how landform A was formed.

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(4)

(iii) Name the raised bank (landform C) and suggest why these are sometimes man-made.

Name .....

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(2)

Leave blank

(b) Describe and explain the typical downstream changes in the shape of river **valleys**.

You may draw a diagram or diagrams to help your answer.

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(6)

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(c) (i) Define the term **precipitation**.

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(2)

(ii) Explain how **convectional** processes lead to cloud formation.

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(4)

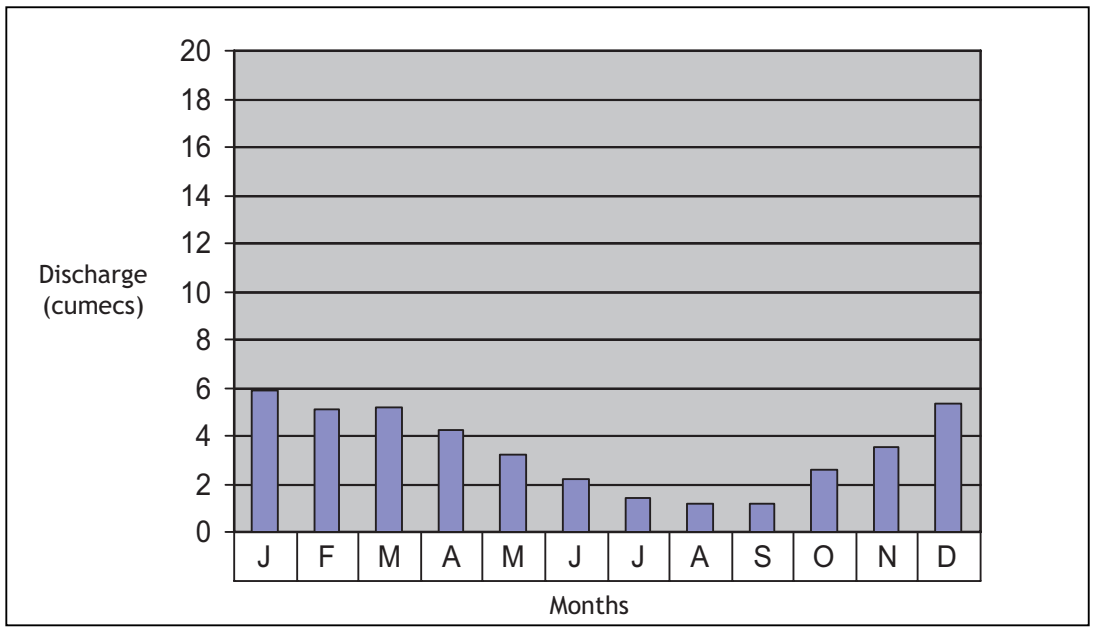
Q3

(Total 20 marks)

Leave blank

If you answer Question 4 put a cross in this box ☒.

4. (a) Study Figure 4 which shows mean monthly discharge at Langham on the River Stour, Suffolk.



(Source: Oak Ridge National Laboratory, U.S. Government)

Figure 4

(i) What name is given to a river's annual pattern of discharge?

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(1)

(ii) What was the mean discharge in November?

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(1)

(iii) Estimate the mean annual discharge.

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(1)

Leave blank

(iv) Describe the pattern of mean monthly discharge.

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(3)

(v) Suggest how this pattern of mean monthly discharge may be influenced by:

1. vegetation;

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(3)

2. antecedent conditions.

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(3)

(b) (i) State the equation used to calculate **hydraulic radius** (channel efficiency).

(2)

Leave blank

(ii) With reference to a located example, describe and explain the downstream changes in hydraulic radius (channel efficiency) of a river.

You may use a graph, map or diagram to help your answer.

Located example .....

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(6) **Q4**

(Total 20 marks)

TOTAL FOR SECTION B: 20 MARKS

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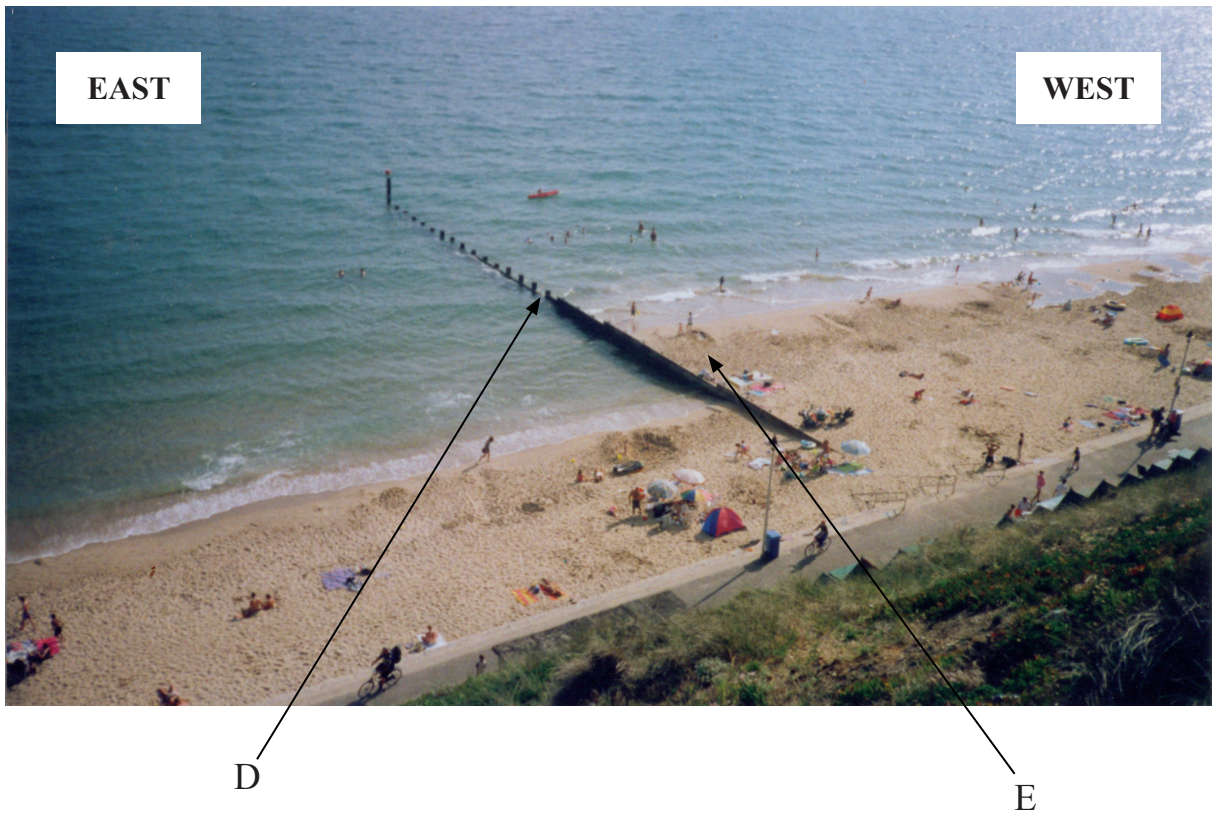
SECTION C

Answer **EITHER** Question 5 **OR** Question 6.

If you answer Question 5 put a cross in this box ☒.

5. (a) Study Figure 5 which shows a beach at Bournemouth, Dorset where longshore drift is occurring.



(Source: Photograph courtesy of Andy Palmer)

Figure 5

(i) In which direction is longshore drift occurring in the photograph?

..... to .....

(1)

(ii) State ONE piece of evidence in the photograph that supports your answer to (a)(i).

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(1)

Leave blank

(iii) Describe the process of longshore drift and explain why it is occurring in this direction.

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(4)

(iv) Suggest reasons why the groyne (D) has been constructed.

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(3)

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(b) (i) Explain how **eustatic** change can cause a long-term **rise** in sea level.

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(3)

(ii) Explain ONE way in which long-term sea level rise can have a **positive** impact on human use of the coastline.

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(2)

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(c) Describe the appearance and explain the formation of an **on-shore** bar.

You may use a diagram to help your answer.

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(6)

Q5

(Total 20 marks)

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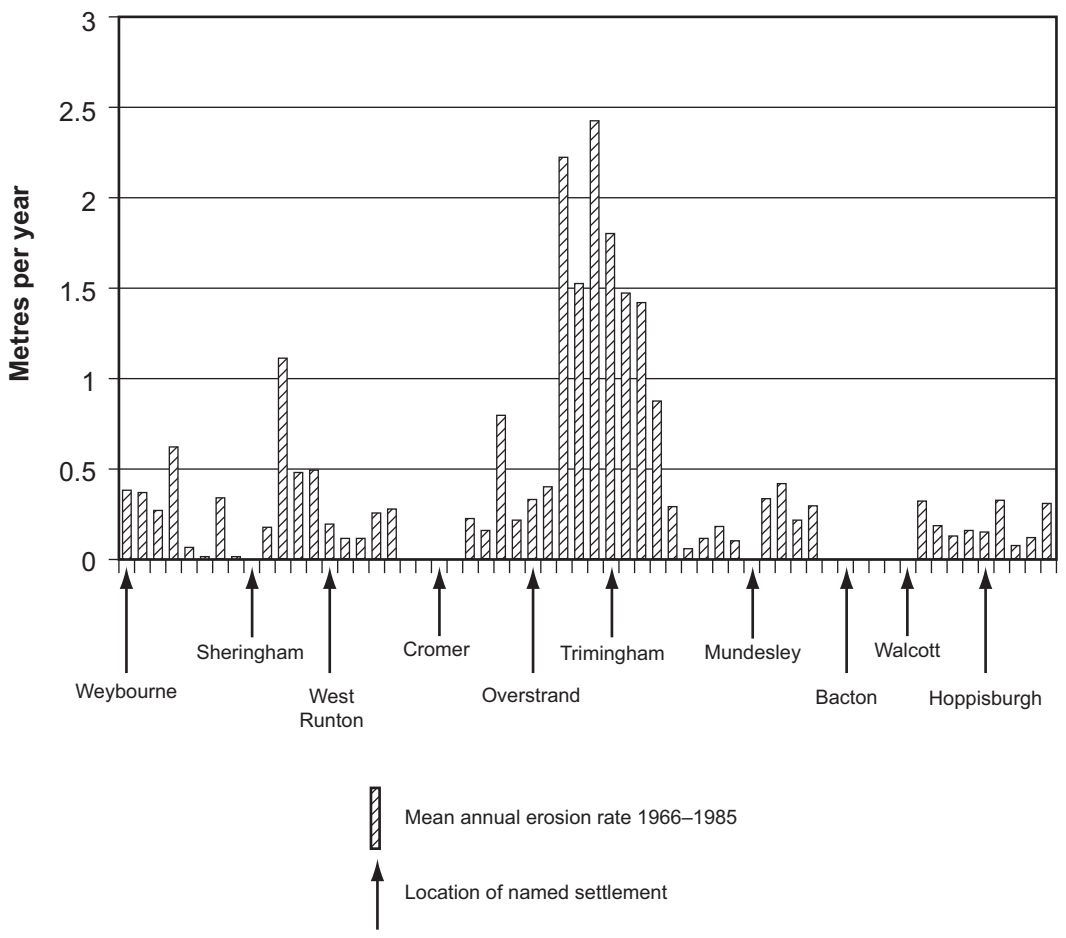
If you answer Question 6 put a cross in this box ☒.

6. (a) Study Figure 6 which shows mean annual erosion rates at and between named settlements along the Norfolk coast between 1966 and 1985.



(Source: Courtesy of Keith Clayton)

Figure 6

(i) Identify:

1. the named settlement with the highest mean annual erosion rate;

.....

(1)

2. the mean annual erosion rate at West Runton;

.....

(1)

3. the total amount of erosion during the period at Weybourne.

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(1)

Leave blank

(ii) Name and outline ONE process of marine erosion.

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(2)

(iii) Briefly suggest how the **high** rates of erosion at some locations on this coastline could be influenced by:

1. rock type;

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(2)

2. wave type.

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(2)

Leave blank

(b) (i) What is **wave refraction**?

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(2)

(ii) Explain how wave refraction affects rates of erosion along a coastline of headlands and bays.

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(3)

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(c) With reference to a located example, describe and explain the plant succession in a **salt marsh** (halosere).

You may use a diagram or map to help your answer.

Located example .....

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(6) **Q6**

(Total 20 marks)

TOTAL FOR SECTION C: 20 MARKS

TOTAL FOR PAPER: 60 MARKS

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