Please check the examination details below before entering your candidate information

Candidate surname	Other names

Pearson Edexcel Level 3 GCE

Centre Number	Candidate Number

Time 2 hours 15 minutes

Paper reference **9GE0/01**

Geography

Advanced
PAPER 1

You must have:
Resource Booklet (enclosed)
Ruler, calculator

Total Marks

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.
- Answer **all** questions in Section **A**, and Section **C**.
- Answer **either** Question 2 **or** Question 3 in Section **B**.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- Calculators may be used.
- Any **calculations** must show **all** stages of **working out** and a **clear answer**.

Information

- The total mark for this paper is 105.
- The marks for **each** question are shown in brackets
  – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.
- Good luck with your examination.

Turn over ▶

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SECTION A

Tectonic Processes and Hazards

Answer ALL questions. Write your answers in the spaces provided.

1 Study Figure 1a and Figure 1b which show the magnitude and duration of eight selected earthquakes.

Earthquake	Earthquake magnitude Moment Magnitude Scale (MMS)	Duration in seconds
A	6.9	120
B	5.4	1
C	9.0	.....
D	6.8	6.8
E	6.9	280
F	7.3	24
G	6.4	5.9
H	7.0	7.8

Figure 1a

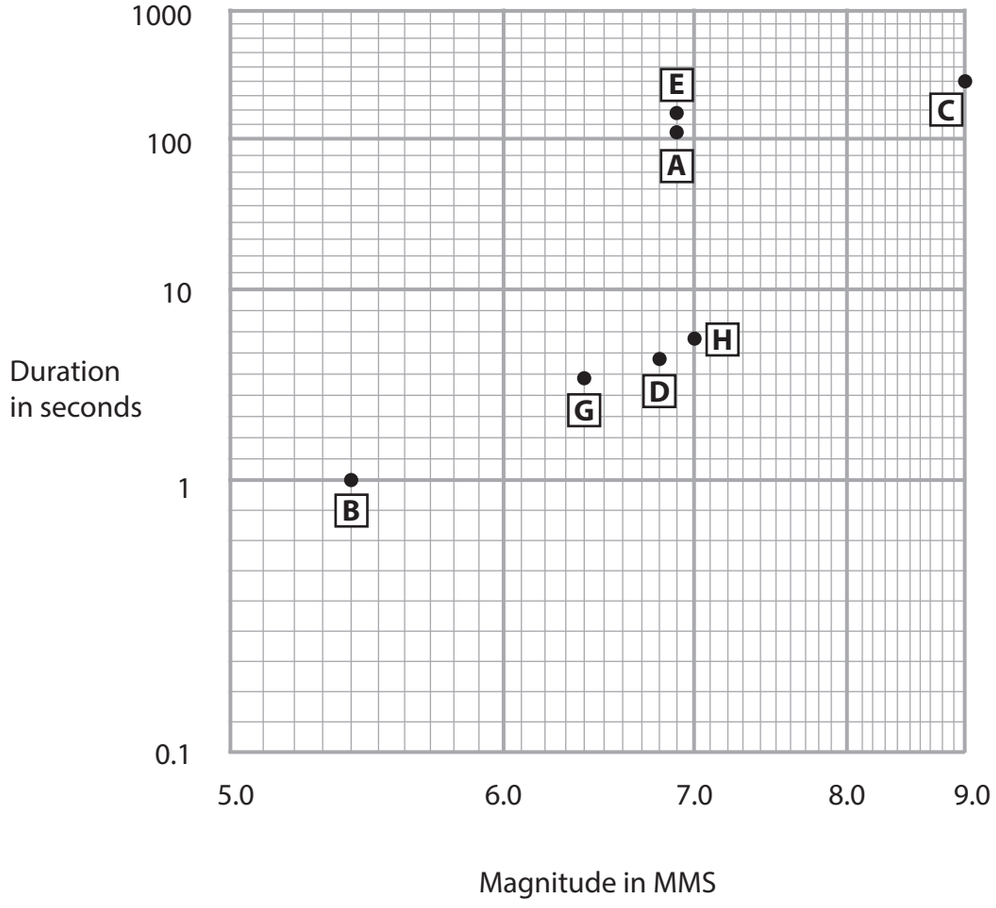

Figure 1b

(a) (i) Using Figure 1b complete Figure 1a by stating the duration of earthquake C.

(1)

(ii) Complete Figure 1b by plotting earthquake F using the data from Figure 1a.

(2)

(iii) Draw a regression (best-fit) line on Figure 1b to show the relationship between earthquake magnitude and duration.

(1)

(b) Assess the view that the social and economic impacts of earthquakes are mainly the result of their magnitude.

(12)

(Total for Question 1 = 16 marks)

TOTAL FOR SECTION A = 16 MARKS

SECTION B

Landscape Systems, Processes and Change

Answer ONE question – EITHER Question 2 OR Question 3.

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 2 put a cross in the box ☒ .

Glaciated Landscapes and Change

You must use the Resource Booklet provided.

2 Study Figure 2a in the Resource Booklet.

(a) Explain how changes in the mass balance of the glacier will affect the hydrological cycle.

(6)

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Study Figure 2b in the Resource Booklet.

(b) Explain the differences in the characteristics of the deposits at locations A and B.

(6)

(c) Explain the importance of ice temperature in understanding the rate of glacial movement.

(8)

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(d) Evaluate the view that glaciated and periglaciated landscapes have a greater value globally than locally.

(20)

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(Total for Question 2 = 40 marks)

Do not answer Question 3 if you have answered Question 2.

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

Coastal Landscapes and Change

You must use the Resource Booklet provided.

3 Study Figure 3a in the Resource Booklet.

(a) Explain how changes in sea level have produced different coastlines.

(6)

Study Figure 3b in the Resource Booklet.

(b) Explain the differences in the characteristics of beaches over time, such as between summer and winter.

(6)

(c) Explain the importance of vegetation in stabilising coastal landscapes.

(8)

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(d) Evaluate the view that coastal management policies are mainly based on economic judgements.

(20)

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(Total for Question 3 = 40 marks)

TOTAL FOR SECTION B = 40 MARKS

SECTION C

Physical Systems and Sustainability

Answer ALL questions. Write your answers in the spaces provided.

You must use the Resource Booklet provided.

4 (a) Study Figure 4a in the Resource Booklet.

Explain **one** possible consequence of the changes in unconventional oil production.

(3)

(b) Explain the geological processes that influence the levels of carbon in the atmosphere.

(6)

(c) Explain why changes in ocean health may threaten people's well-being.

(8)

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(d) Assess the impacts of climate change on the flows (processes) in the hydrological cycle.

(12)

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(e) Evaluate the view that most trans-boundary water conflicts are impossible to solve.

(20)

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(Total for Question 4 = 49 marks)

TOTAL FOR SECTION C = 49 MARKS
TOTAL FOR PAPER = 105 MARKS

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Pearson Edexcel Level 3 GCE

Time 2 hours 15 minutes

Paper reference **9GE0/01**

Geography

Advanced
PAPER 1

Resource Booklet

Do not return this Booklet with the question paper.

Turn over ▶

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SECTION B

The following resources relate to Question 2.

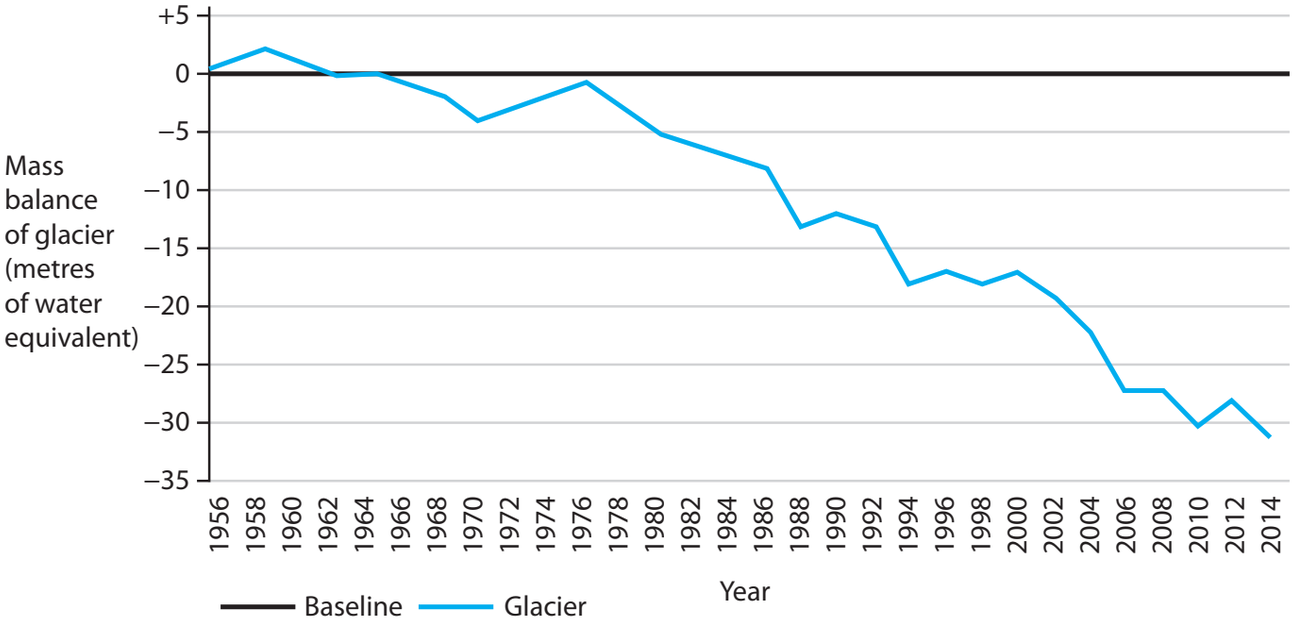
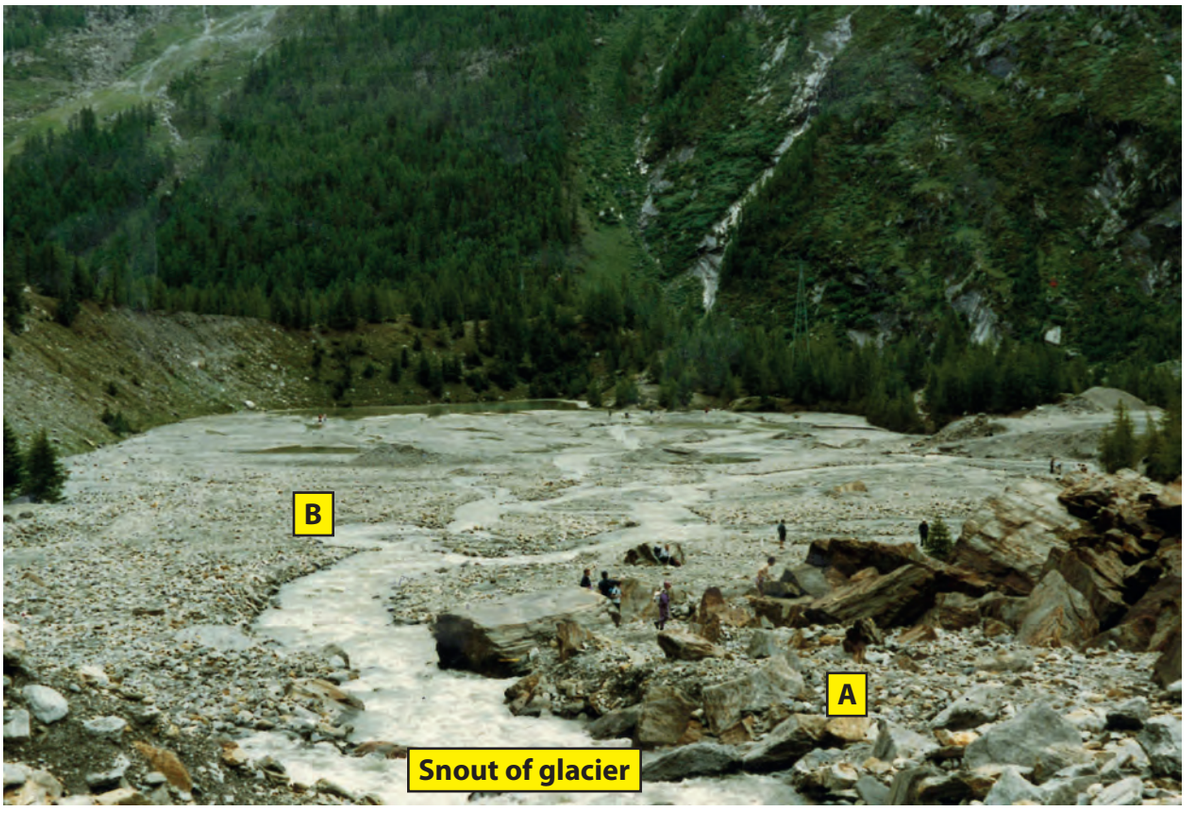


Figure 2a

Changing mass balance of the glacier (in metres of water equivalent) of the South Cascade Glacier in North America since 1956



Key: Snout = the end of/terminal position of the glacier

Sediment characteristics	Interquartile range of the longest axis	Average roundness index
Location A	26–350 cm	Mostly angular
Location B	4–39 cm	Mostly rounded

Figure 2b

Pro-glacial deposits at the snout of the Spielboden Glacier

The following resources relate to Question 3.

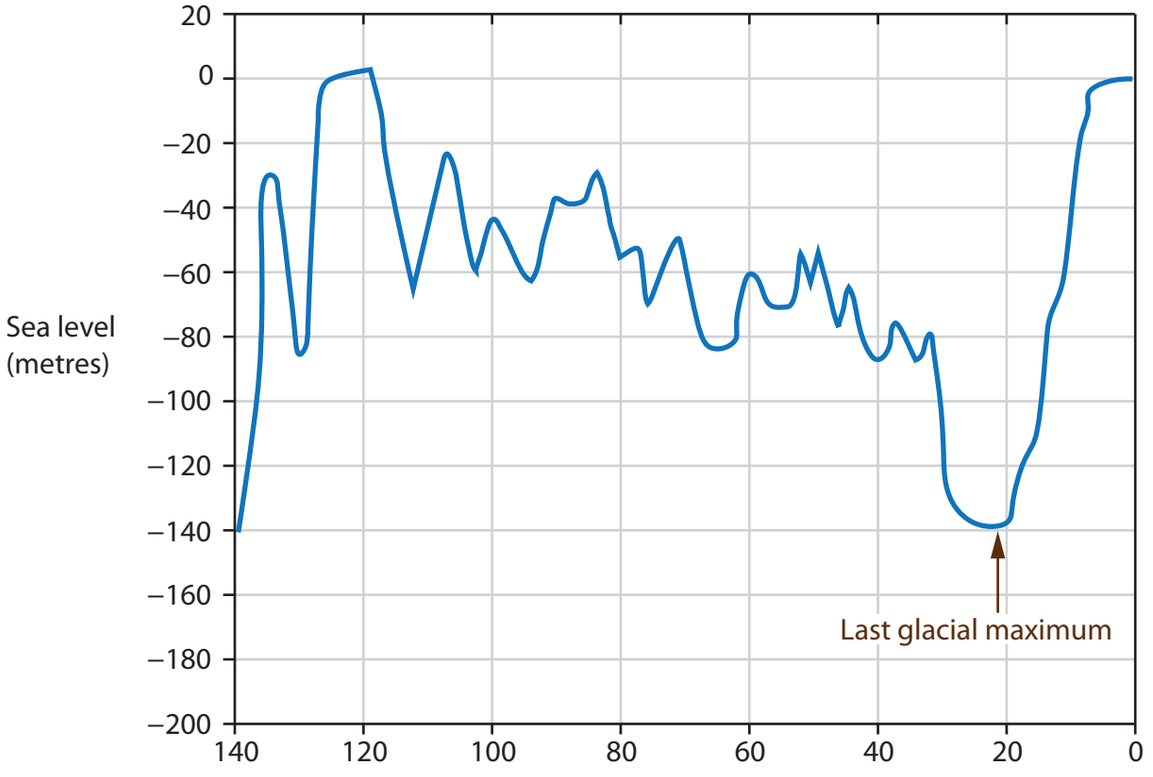
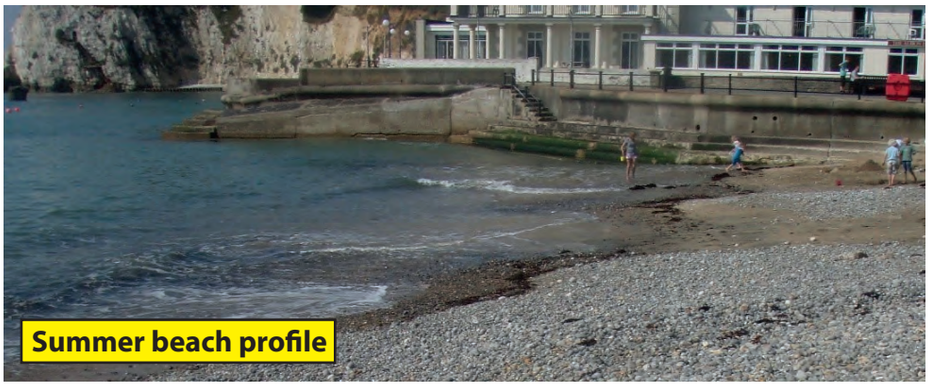


Figure 3a

An estimate of change in sea level over the last 140,000 years



Beach morphology and sediment characteristics	Mean angle of beach profile (in degrees)	Interquartile range of the longest axis (in mm)
Summer	4	0.1 to 2
Winter	8	1 to 22

Figure 3b

A beach photographed in summer and winter

SECTION C

The following resources relates to Question 4.

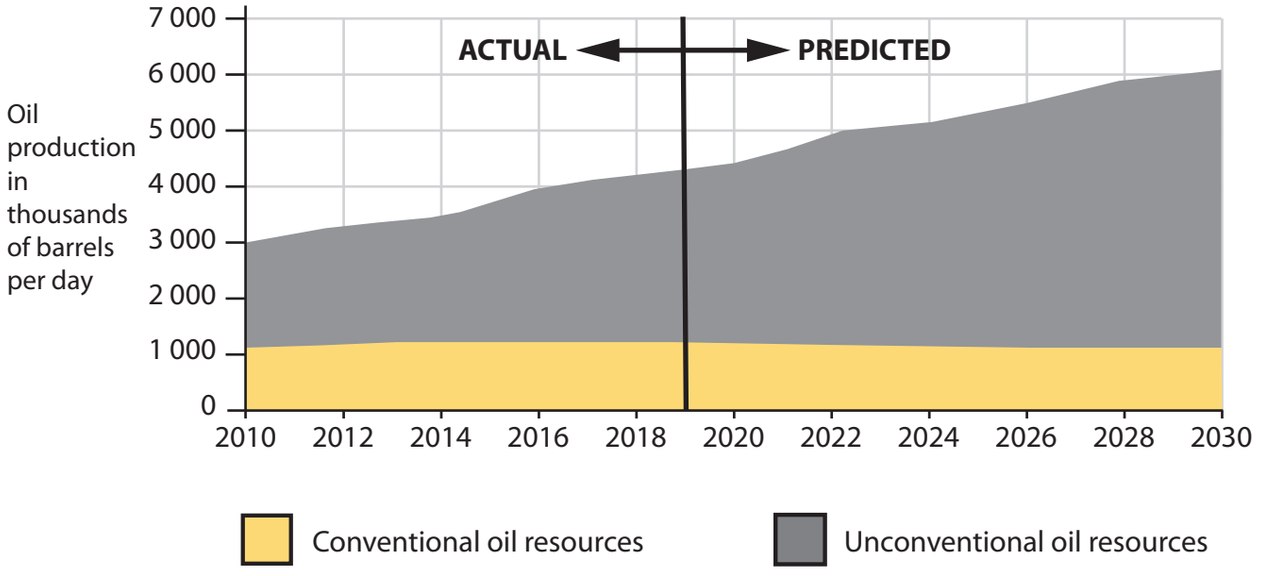


Figure 4a

Actual and forecast changes in oil production in Canada from 2010 to 2030

Unconventional oil reserves include tar sands, oil shale and deep water oil.

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Acknowledgments

Pearson Education Ltd. gratefully acknowledges all following sources used in the preparation of this paper:

Figure 1a: © U.S. Geological Survey

Figure 2a: https://www.epa.gov/sites/production/files/styles/large/public/2016-07/glaciers-download2-2016.png

Figure 3a: http://people.rses.anu.edu.au/lambeck_k/pdf/239.pdf

Figure 4a: http://crudeoilpeak.info/wp-content/uploads/2011/09/Canada_CAPP_crude_oil_tar_sands_2030.jpg