Write your name here

Surname	Other names

Pearson Edexcel Level 3 GCE

Centre Number	Candidate Number

Geography

Advanced
Paper 1

Specimen papers for first teaching
September 2016
Time: 2 hours 15 minutes

Paper Reference
9GE0/01

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.

Turn over ▶

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SECTION A: TECTONIC PROCESSES AND HAZARDS

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

You must use the Resource Booklet provided.

1 (a) (i) The table below shows the deaths and the tsunami wave height resulting from the 2011 Tohoku tsunami in 10 coastal districts in Japan.

Coastal districts in Japan	Deaths	Rank	Tsunami wave height (m)	Rank	d	d^2
Ishinomaki	3735	1	7.6	4	3	9
Rikuzentakata	1846	2	8	3	1	1
Kesennuma	1356	3	7.2	6	3	9
Otsuchi	1286	4	8.1	2	2	4
Higashimat	1105	5	7.3	5	0	0
Kamaishi	1047	6	4.1	9	3	9
Natori	966	7	6.3	7	0	0
Onagawa	915	8	3.4	10	2	4
Minamis	845	9	5.1	8	1	1
Soma	458	10	9.3	1	9	81
					Σ	

Figure 1

Deaths and tsunami wave height resulting from the 2011 Tohoku tsunami in 10 coastal districts in Japan

The formula for Spearman's rank correlation coefficient value R is given below.

$$(R) = 1 - \frac{6 \sum d^2}{n^3 - n}$$

Calculate the value of R for the data given.

You must show your working.

(3)

R = ...

(ii) The table below shows the critical values of Spearman's rank R value and two hypotheses that are being tested.

Confidence level	**0.10 (90% significance)**	**0.05 (95% significance)**	**0.01 (99% significance)**
Critical value of Spearman's rank R value	0.48	0.6	0.78

Null Hypothesis: There is no significant relationship between the tsunami wave height and the number of deaths in coastal districts.
Hypothesis: There is a significant relationship between the tsunami wave height and the number of deaths in coastal districts.

Using the Spearman's rank correlation R value calculated in part (i), state which hypothesis can be accepted.

(1)

.....

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(b) Assess the importance of tectonic hazard profiles in understanding the severity of impacts resulting from earthquake events.

(12)

(Total for Question 1 = 16 marks)

TOTAL FOR SECTION A = 16 MARKS

SECTION B: LANDSCAPE SYSTEMS, PROCESSES AND CHANGE

Answer ONE question in this section – either Question 2 OR Question 3.

Glaciated Landscape and Change

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

You must use the Resource Booklet provided.

2 Study Figure 2a which shows an upland glacial landscape.

(a) (i) Explain how erosional processes have contributed to the formation of the features shown.

(6)

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(ii) Explain how subaerial processes have contributed to the development of this landscape.

(6)

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(b) Explain why glaciated landscapes have economic value.

(8)

(c) Study Figure 2b.

Evaluate the view that climate change is of limited importance in understanding differences in the rate of glacier movement.

(20)

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(Total for Question 2 = 40 marks)

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

Coastal Landscape and Change

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

You must use the Resource Booklet provided.

3 Study Figure 3a which shows a coastal landscape.

(a) (i) Explain how erosional processes have contributed to the formation of the features shown.

(6)

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(ii) Explain how subaerial processes have contributed to the development of this landscape.

(6)

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(b) Explain why hard engineering approaches are still used to protect some coastal environments.

(8)

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(c) Study Figure 3b.

Evaluate the view that climate change is the most important factor in influencing coastal flood risk.

(20)

(Total for Question 3 = 40 marks)

TOTAL FOR SECTION B = 40 MARKS

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SECTION C: PHYSICAL SYSTEMS AND SUSTAINABILITY

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

You must use the Resource Booklet provided.

4 (a) Study Figure 4a.

Explain one reason for changing oil production in the USA.

(3)

(b) Explain the impact of the changing global consumption of fossil fuels on the carbon cycle.

(6)

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(c) Explain why energy pathways are prone to disruption.

(8)

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(d) Study Figure 4b.

Assess the likely impacts of changing precipitation on the hydrological processes in the drainage basins shown.

(12)

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(e) Evaluate the view that some approaches to managing water insecurity are more sustainable than others.

(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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Do not return this Resource Booklet with the question paper.

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SECTION B

The following resource relates to Question 2.

(Source: © Fred Hirschmann/Getty Images)

Figure 2a : Upland glacial landscape

Glacier	Location	Average velocity of ice metres/year	Latitude	Altitude of glacier snout
Jakobshavn	Greenland	5000	69° N	Sea level
Humboldt	Greenland	150	79° N	Sea level
Kahiltna	Alaska, USA	130	62° N	1 500 metres
Rhone	France	90	46° N	2 000 metres
Lambert	Antarctica	600	71° S	Sea level
Flask	Antarctica	150	65° S	Sea level

Figure 2b: Rate of glacier movement for various glaciers

The following resource relates to Question 3.

Figure 3a: Coastal landscape

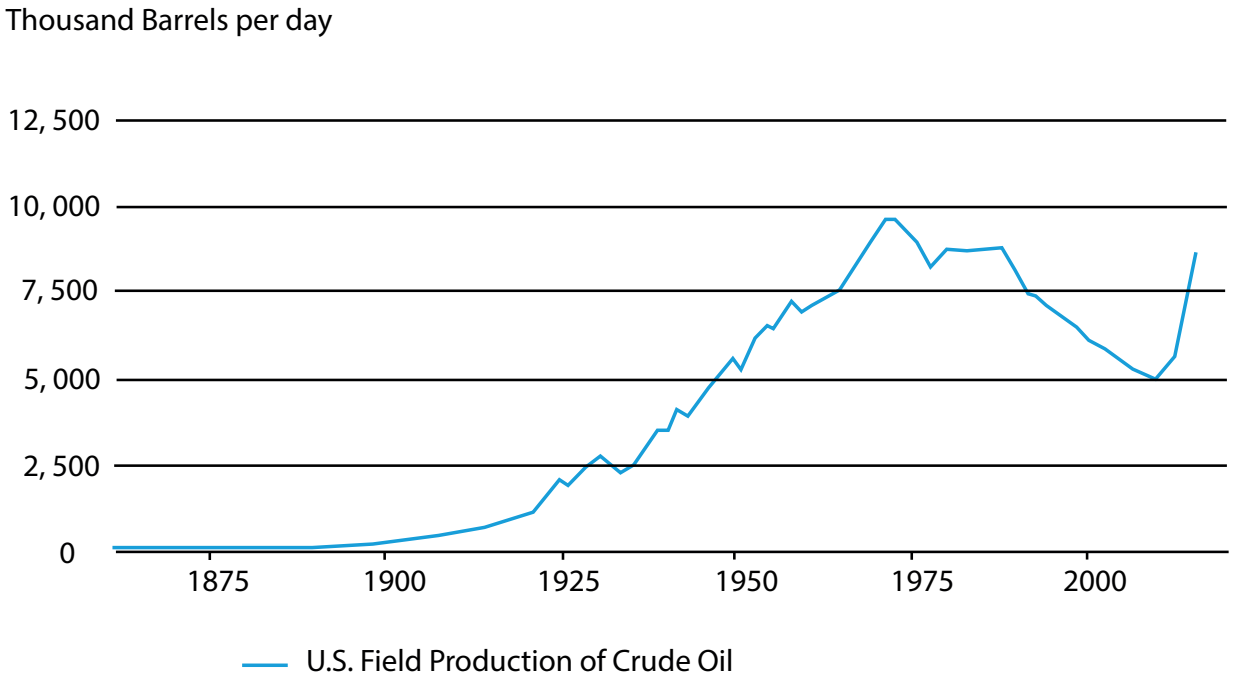
City	Location	Current population at risk	Future population at risk (2070)	Value of property at risk in $billions (2070)
Kolkata	India	1 930 000	14 000 000	2 150
Mumbai	India	2 750 000	11 500 000	1 600
Dhaka	Bangladesh	844 000	11 150 000	400
Shanghai	China	2 500 000	5 150 000	1 775
Miami	USA	2 000 000	4 750 000	3 500
New York	USA	1 500 000	2 900 000	2 150

Figure 3b: Various cities at risk of coastal flooding

SECTION C

The following resources relates to Question 4.

Figure 4a: U.S. field production of crude oil



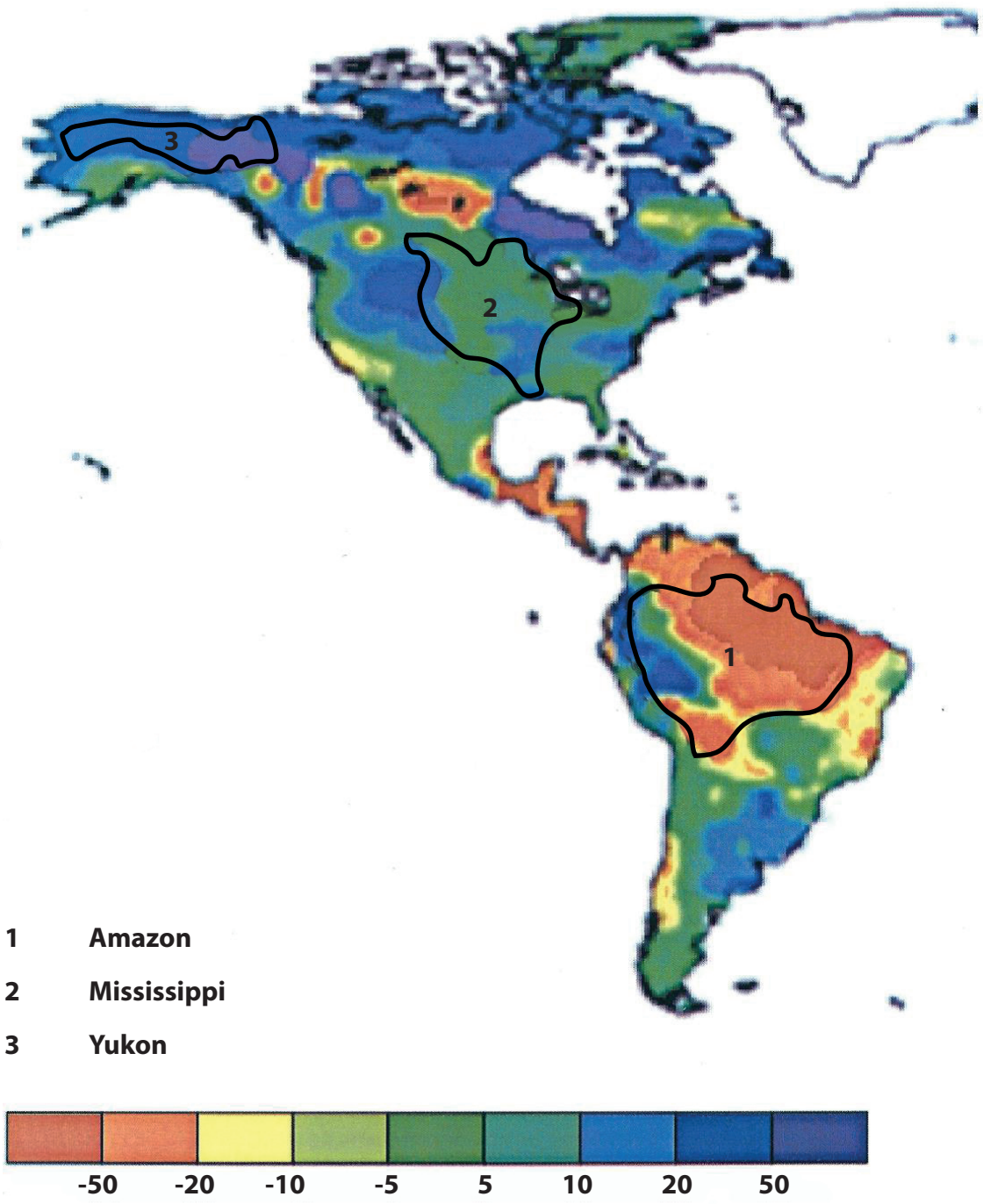


Figure 4b : Predicted change in annual precipitation levels by 2050 and selected drainage basins