LUI | | | | | | | | | | | School code | | | | |

School name

Given name/s

Family name

Attach your barcode ID label here

Book of books used

External assessment 2025

Question and response book

Earth & Environmental Science

Paper 1

Time allowed

- Perusal time — 10 minutes
- Working time — 90 minutes

General instructions

- Answer all questions in this question and response book.
- QCAA-approved calculator permitted.
- Planning paper will not be marked.

Section 1 (20 marks)

- 20 multiple choice questions

Section 2 (29 marks)

- 4 short response questions

Clear zone — margin trimmed off after completion of assessment

Queensland Government | QCAA Queensland Curriculum & Assessment Authority

DO NOT WRITE ON THIS PAGE

THIS PAGE WILL NOT BE MARKED

Section 1

Instructions

- This section has 20 questions and is worth 20 marks.
- Use a 2B pencil to fill in the A, B, C or D answer bubble completely.
- Choose the best answer for Questions 1–20.
- If you change your mind or make a mistake, use an eraser to remove your response and fill in the new answer bubble completely.

	A	B	C	D
Example:	●	○	○	○

	A	B	C	D
1.	○	○	○	○
2.	○	○	○	○
3.	○	○	○	○
4.	○	○	○	○
5.	○	○	○	○
6.	○	○	○	○
7.	○	○	○	○
8.	○	○	○	○
9.	○	○	○	○
10.	○	○	○	○
11.	○	○	○	○
12.	○	○	○	○
13.	○	○	○	○
14.	○	○	○	○
15.	○	○	○	○
16.	○	○	○	○
17.	○	○	○	○
18.	○	○	○	○
19.	○	○	○	○
20.	○	○	○	○

Ensure you have filled an answer bubble for each question.

Do not write outside this box.

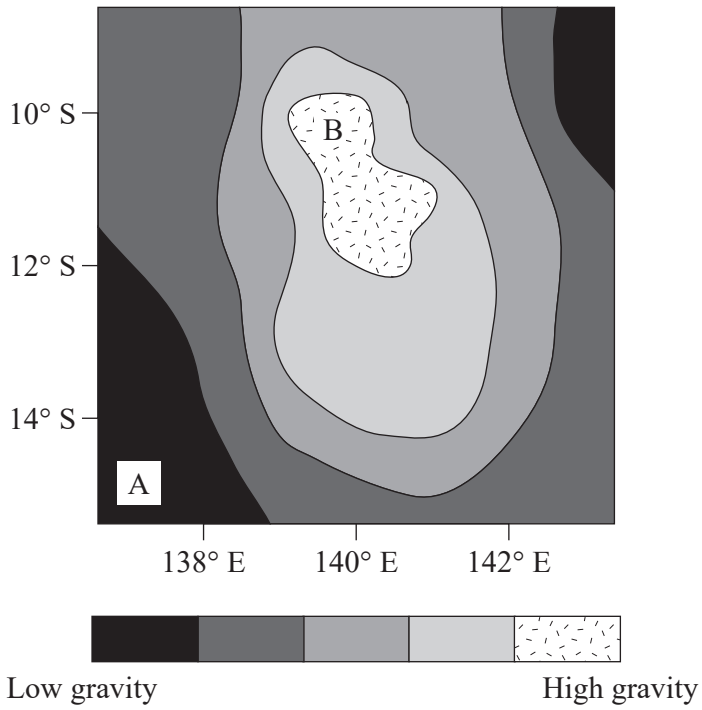
Section 2

Instructions

- Write using black or blue pen.
- If you need more space for a response, use the additional pages at the back of this book.
  - On the additional pages, write the question number you are responding to.
  - Cancel any incorrect response by ruling a single diagonal line through your work.
  - Write the page number of your alternative/additional response, i.e. See page …
  - If you do not do this, your original response will be marked.
- This section has four questions and is worth 29 marks.

QUESTION 21 (6 marks)

The gravity anomaly map shows a potential ore body and the location of two possible mine sites (A and B).



Do not write outside this box.

a) Explain two benefits of using remote sensing techniques for resource exploration. *[2 marks]*

1: _____

_____

2: _____

_____

b) Predict which mine site is most likely to have a viable metallic resource deposit.
Justify your response. *[2 marks]*

_____

_____

_____

_____

c) Identify a remote sensing technique and describe how it could confirm the presence of a viable metallic resource deposit at the site you identified in Question 21b). *[2 marks]*

_____

_____

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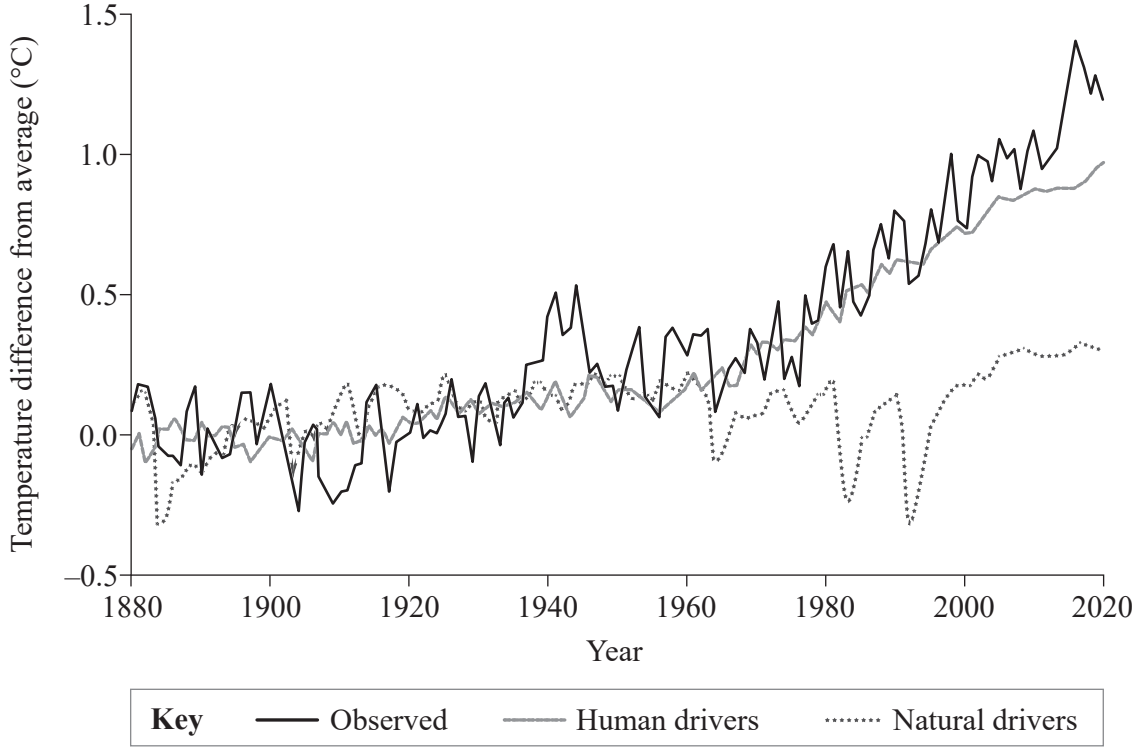
QUESTION 22 (9 marks)

The graph shows observed changes in global temperature from 1880 to 2020 and the contribution of natural and human drivers.



a) Identify the influence of natural and human drivers on observed changes in global temperature. *[2 marks]*

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b) Explain how land clearing can lead to a change in global temperatures. *[3 marks]*

c) Describe why natural drivers cannot explain the observed temperature changes in the last 100 years. *[1 mark]*

d) Identify a natural driver and explain two ways it could potentially influence global temperatures. *[3 marks]*

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QUESTION 23 (8 marks)

The run-off coefficients for different types of land use are shown.

Land use	Run-off coefficient
agricultural	0.36
remnant bushland	0.12
suburban	0.61
urban	*C*

a) Describe how a run-off coefficient is calculated and represented. *[2 marks]*

b) Contrast the amount of run-off produced by agricultural land and remnant bushland. Refer to the run-off coefficients in your response. *[2 marks]*

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c) Explain a reason for the difference between the run-off coefficients of agricultural land and remnant bushland. *[2 marks]*

d) Predict a value for the run-off coefficient (C) in an urban area and give a reason for your response. *[2 marks]*

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QUESTION 24 (6 marks)

The table shows characteristics of two mineral resources found at a quarry. The density of most rocks in Earth's crust is 2.6–2.7 g/cm^3.

	Bauxite	**Gold**
Resource type	metallic	metallic
Density (g/cm^3)	2.0–2.6	19.3
Geological setting	metamorphic rock	placer deposits
Processing technique	milling	sluicing

a) Contrast two characteristics of bauxite and gold. *[2 marks]*

b) Explain how the properties of bauxite and gold result in different processing techniques. *[4 marks]*

END OF PAPER

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ADDITIONAL PAGE FOR STUDENT RESPONSES

Write the question number you are responding to.

Do not write outside this box.

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References

Question 22

Adapted from Fig 2.1 in D. R. Reidmiller, C. W. Avery, D. R. Easterling, K. E. Kunkel, K. L. M. Lewis, T. K. Maycock, and B. C. Stewart, editors (2018). *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment*, Volume II. United States Global Change Research Program, Washington, DC, USA, pages 72–144 doi: 10.7930/NCA4.2018.CH2

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