South Australian
Certificate of Education

# Geography
## 2019

## Question booklet

**Section 1** (Questions 1 and 2) 28 marks
**Section 2** (Questions 3 to 6) 32 marks

- Answer ***all*** questions
- Write your answers in this question booklet
- You may write on page 16 if you need more space
- Allow approximately 65 minutes for ***each*** section

**Download these resources to complete the examination**

- Map sheet A3
- Map sheet A4

## Examination information

**Materials**
- Question booklet
- Sheet of additional material
- SACE registration number label

**Instructions**
- Use black or blue pen
- Approved calculators may be used

**Total time:** 130 minutes
**Total marks:** 60



**Attach your SACE registration number label here**

Government
of South Australia

SACE
BOARD
OF SOUTH
AUSTRALIA

## **SECTION 1** (Questions 1 and 2)

(28 marks)

1. *Refer to the topographic map COAL RIVER, scale 1:50 000, and the satellite image on Side 1 of the separate sheet, where appropriate, when answering Question 1.*

(a) *Refer to the topographic map, and to **L**, **M**, and **N** on the satellite image.*

(i) When standing on Richmond Bridge (at **L**), in which *one* of the following directions would you need to face in order to see the buildings at **M**? Tick the appropriate box.

north-east ☐ north-west ☐ south-east ☐ south-west ☐ (1 mark)

(ii) What is the cluster of buildings at **M**?

_____ (1 mark)

(iii) There is a proposal to build a group of shops in the area around **N**.

Referring to evidence from the topographic map and the satellite image, suggest *three* possible objections to this development.

_____

_____

_____

_____

_____

_____

_____

_____

_____ (3 marks)

(b) State the scale of the satellite image as a ratio.

1: _____ (1 mark)

(c) As part of your fieldwork, you have to map land use in the part of Richmond shown on the satellite image.

Give *two* advantages of using the satellite image rather than the topographic map to create a base map to use in the field.

(2 marks)

(d) A tourist hires a bicycle in Richmond (area reference 3568) and plans to cycle along route C322 to point **P** (grid reference 282734) and along C324 to point **Q** (grid reference 295625).

Compare the geographical features of these routes.

(5 marks)

(e) Describe the pattern of settlement shown in **Box W** on the topographic map.

(3 marks)

***No further questions refer to Side 1 of the separate sheet.***

2. *Refer to Side 2 of the separate sheet when answering Question 2.*

A group of students investigated building height and liveability within the central business district of a city in order to test the two hypotheses below.

- Hypothesis 1: Liveability increases with distance from the centre of the city.
- Hypothesis 2: Building height decreases with distance from the centre of the city.

(a) To test Hypothesis 1, the students carried out a bipolar analysis to determine the liveability score for each of nine locations along a transect of the city (Source 1). The bipolar analysis was conducted at 9 am, 2 pm, and 7 pm on the same day, every 200 m along the transect.

An example of the data collected at one location at one time is shown in Source 2.

(i) Explain why this is an effective way to collect fieldwork data.

_____

_____

_____

_____

_____

_____

_____

_____

_____ (3 marks)

(ii) Suggest *one* additional factor that could be included in the bipolar analysis (Source 2) that would allow further analysis of liveability. Justify your answer.

_____

_____

_____

_____

_____

_____ (2 marks)

(iii) Evaluate the effectiveness of the method of displaying liveability data as shown in Source 1.

(3 marks)

(iv) Use Source 1 to explain the liveability scores at each end of the transect.

(2 marks)

(b) To test Hypothesis 2, the heights of major buildings along the transect were measured in storeys, and their distance from the centre of the city was measured in metres (m).

(i) State the relationship between the two variables shown on the graph in Source 3.

(1 mark)

(ii) Should Hypothesis 2 be accepted or rejected? Tick the appropriate box.

accept ☐ reject ☐ (1 mark)

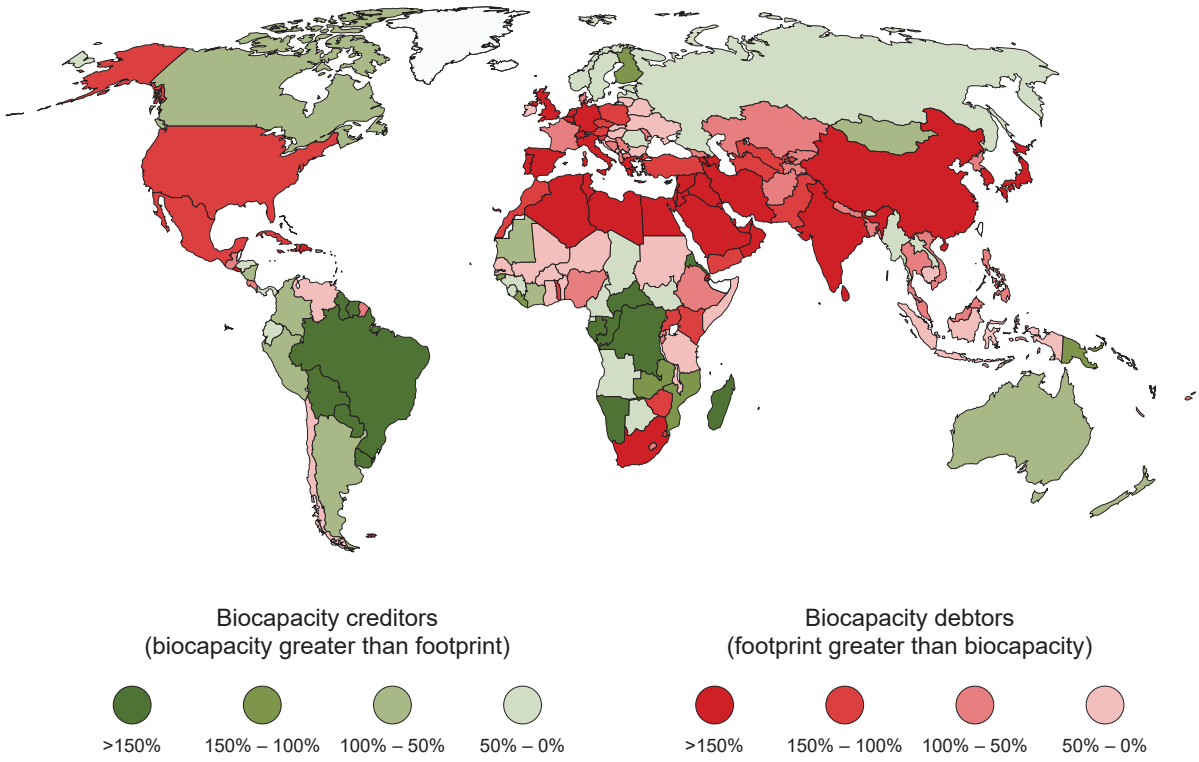
***No further questions refer to Side 2 of the separate sheet.***

## **SECTION 2** (Questions 3 to 6)

(32 marks)

3. *Refer to the following information, where appropriate, when answering Question 3(a).*

**Ecological deficit/reserve**



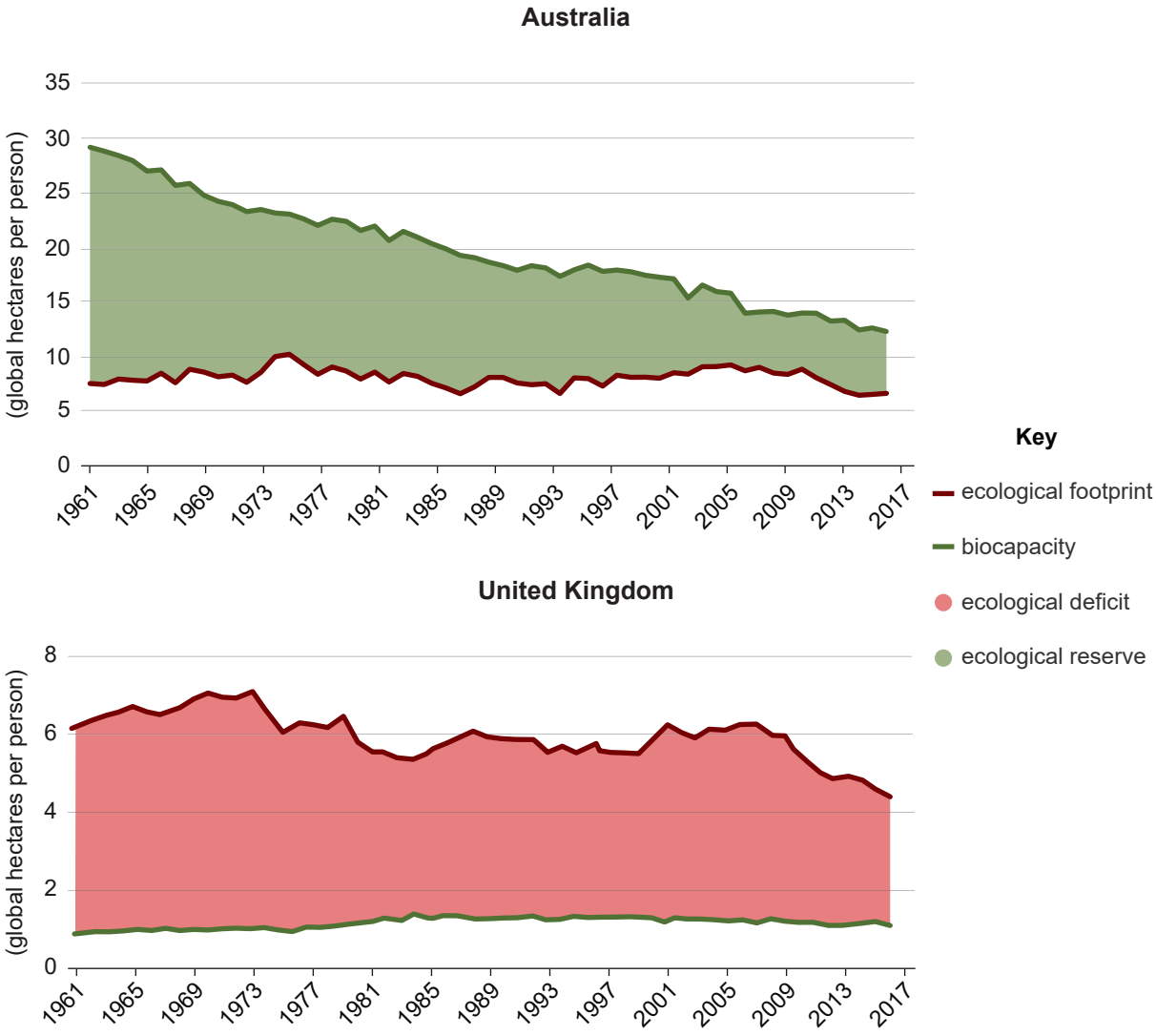

*Source:* Global Footprint Network n.d., 'Ecological deficit/reserve', *Global Footprint Network*, viewed 5 June 2019, data.footprintnetwork.org

**Population and economic data for Australia and the United Kingdom**

| | *Australia* | | *United Kingdom* | |
|---|---|---|---|---|
| | *1961* | *2017* | *1961* | *2017* |
| *Total population* | 10 494 910 | 24 601 860 | 52 765 863 | 66 023 290 |
| *GDP per capita* | US$1874 | US$52 003 | US$1452 | US$44 909 |

*Data sources:* The World Bank 2019, 'Population Total', The World Bank, viewed 19 June 2019, data.worldbank.org; Population Pyramids of the World from 1950 to 2100, viewed 19 June 2019, populationpyramid.net; OECD 2019, 'Gross domestic product (GDP) (indicator)', doi:10.1787/dc2f7aec-en, viewed 19 June 2019; The World Bank 2019, 'GDP per capita (current US$)', The World Bank, viewed 19 June 2019, data.worldbank.org

**Change in ecological footprint and biocapacity, 1961–2016**




*Source:* Global Footprint Network n.d., 'Country trends', Australia and United Kingdom, *Global Footprint Network*, viewed 5 June 2019, data.footprintnetwork.org

(a) (i) In which *one* of the following 4-year periods did the United Kingdom experience the largest decline in ecological deficit? Tick the appropriate box.

☐ 1969–73 ☐ 1981–85 ☐ 1993–97 ☐ 2009–13 (1 mark)

(ii) Explain why Australia has an ecological reserve while the United Kingdom has an ecological deficit.

_____

_____

_____

_____

_____ (2 marks)

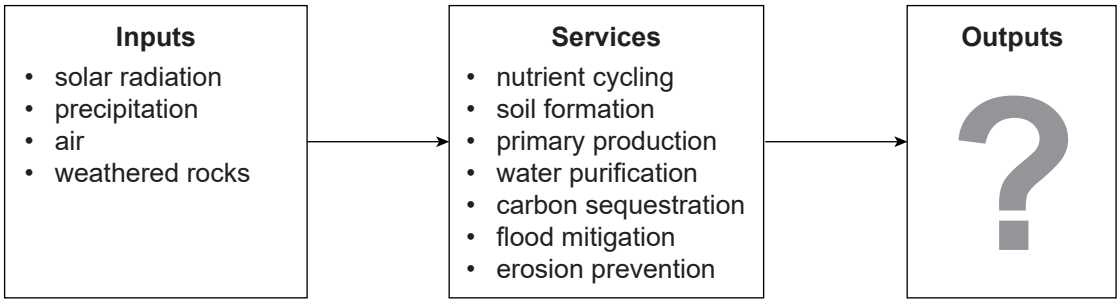
(b) With reference to examples from your studies, explain strategies that people can implement in order to reduce their ecological footprint.

(5 marks)

4. Around 10% of Tasmania's land surface is covered in temperate rainforest.

*Refer to the following diagram:*

**Temperate rainforest ecosystem**




(a) State *three* possible outputs of a forest ecosystem.

_____

_____

_____ (3 marks)

(b) Explain the impact of increased biodiversity on ecosystem services. Refer to some of the services listed in the diagram.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

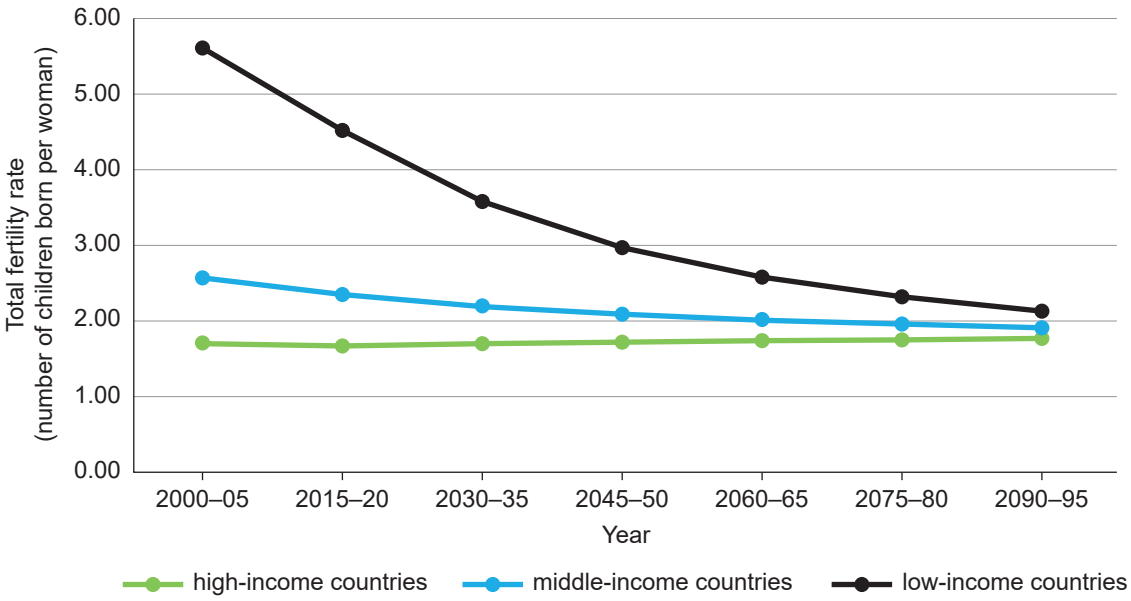
_____

_____

_____ (5 marks)

5. *Refer to the following graph:*

**Actual and predicted total fertility rates for countries by income level**




*Data source:* United Nations, Department of Economic and Social Affairs, Population Division 2019 'World population prospects 2019', custom data acquired via website, viewed 19 June 2019, population.un.org/wpp/DataQuery/

(a) Describe the trends in the total fertility rate for high-income, middle-income, and low-income countries.

(3 marks)

(b) Consider the total fertility rates for 2015–20.

Explain the variation in total fertility rates between high-income and low-income countries. Refer to social and economic factors in your response.

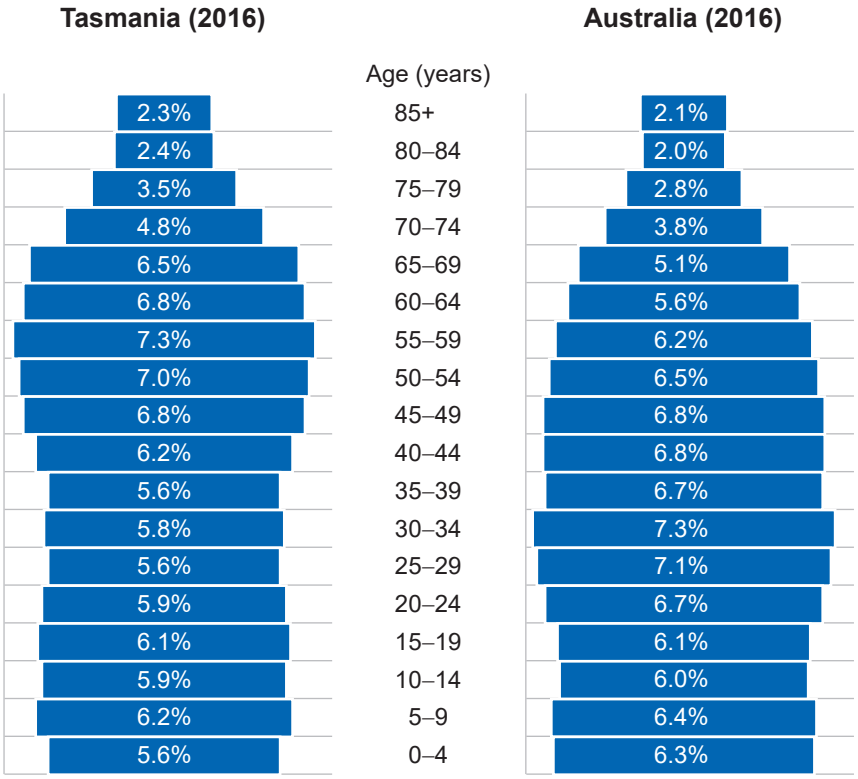
(4 marks)

6. Historically, through population movement, Tasmania has gained older people (those aged 45 years and older), and lost younger, working, and reproductive-aged people (those aged 20–39 years).

*Refer to the following table and population structure diagrams:*

| | *Tasmania (2016)* | *Australia (2016)* |
|---|---|---|
| *Population growth rate* | 0.6% | 1.6% |
| *Median age* | 42 years | 38 years |
| *Median weekly household income* | $1100 | $1438 |
| *Unemployment* | 7.0% | 6.9% |

*Data sources:* Australian Bureau of Statistics 2018, '3101.0 Australian Demographic Statistics, December 2016', '2016 Census QuickStats — Tasmania', viewed 19 June 2019, www.abs.gov.au, CC BY 4.0




*Data source:* Australian Bureau of Statistics 2018, '2016 Census QuickStats — Tasmania', viewed 19 June 2019, www.abs.gov.au, CC BY 4.0

(a) With reference to the diagrams, identify *two* key differences between the population structure of Tasmania and Australia in 2016.

_____

_____

_____

_____

_____

_____ (2 marks)

(b) Discuss the possible long-term consequences of Tasmania's current pattern of population movements.

(3 marks)

(c) Suggest and explain *two* strategies that the government could develop to address the population issues associated with Tasmania's population structure.

(4 marks)

*You may write on this page if you need more space to finish your answers. Make sure that you label each answer carefully (e.g. 3(a)(ii) continued).*

## GEOGRAPHY 2019

## ACKNOWLEDGMENT

Question 3: map source: adapted from Global Footprint Network n.d., 'Ecological deficit/reserve', Global Footprint Network, viewed 5 June 2019, data.footprintnetwork.org