Contents

[List of maps 3](#_Toc53473410)

[Skills short answer 4](#_Toc53473411)

[SCASA: sample exam (Capel map) 4](#_Toc53473412)

[Unit 3 2016 GAWA (Tanunda map) 4](#_Toc53473413)

[Unit 3 and 4 2016 GAWA (Mudgee map) 4](#_Toc53473414)

[WACE 2016 (Byford map) 5](#_Toc53473415)

[Unit 3 2017 GAWA (Ellenbrook) 5](#_Toc53473416)

[Unit 3 and 4 2017 GAWA (Aubin Grove) 6](#_Toc53473417)

[Unit 3 2018 GAWA (Port Coogee) 7](#_Toc53473418)

[Unit 3 and 4 2018 GAWA (Burns Beach) 9](#_Toc53473419)

[WACE 2018 Busselton 10](#_Toc53473420)

[Unit 3 2019 GAWA (Collie) 11](#_Toc53473421)

[Unit 3 and 4 2019 (Karrartha) 11](#_Toc53473422)

[WACE 2019 Noarlunga 12](#_Toc53473423)

[Unit 3 2020 Angelsea 12](#_Toc53473424)

[Unit 3 and 4 2020 Maroochydore 14](#_Toc53473425)

[Overview short answer Unit 3 16](#_Toc53473426)

[SCASA: sample exam (Capel map) 16](#_Toc53473427)

[Unit 3 2016 GAWA (Tanunda map) 16](#_Toc53473428)

[Unit 3 and 4 2016 GAWA (Mudgee map) 16](#_Toc53473429)

[WACE 2016 (Byford map) 17](#_Toc53473430)

[Unit 3 2017 GAWA (Ellenbrook) 17](#_Toc53473431)

[Unit 3 and 4 2017 GAWA (Aubin Grove) 18](#_Toc53473432)

[Unit 3 2018 GAWA (Port Coogee) 19](#_Toc53473433)

[Unit 3 and 4 2018 GAWA (Burns Beach) 20](#_Toc53473434)

[WACE 2018 Bussleton 21](#_Toc53473435)

[Unit 3 2019 GAWA (Collie) 21](#_Toc53473436)

[Unit 3 and 4 2019 (Karrartha) 22](#_Toc53473437)

[WACE 2019 Noarlunga 23](#_Toc53473438)

[Unit 3 2020 Angelsea 23](#_Toc53473439)

[Unit 3 and4 2020 Maroochydore 24](#_Toc53473440)

[Unit 3 Short Answer – depth studies 25](#_Toc53473441)

[Scasa Sample 25](#_Toc53473442)

[Unit 3 GAWA 2016 (Tanunda map) 25](#_Toc53473443)

[Unit 3 and 4 2016 GAWA (Mudgee) 25](#_Toc53473444)

[WACE 2016 (Byford map) 25](#_Toc53473445)

[Unit 3 and 4 2017 GAWA (Aubin Grove) 26](#_Toc53473446)

[Unit 3 2018 GAWA (Port Coogee) 26](#_Toc53473447)

[Unit 3 and 4 2018 GAWA (Burns Beach) 27](#_Toc53473448)

[WACE 2018 Busselton 27](#_Toc53473449)

[Unit 3 2019 GAWA (Collie) 27](#_Toc53473450)

[Unit 3 and 4 2019 (Karrartha) 28](#_Toc53473451)

[WACE 2019 Noarlunga 28](#_Toc53473452)

[Unit 3 2020 Angelsea 28](#_Toc53473453)

[Unit 3 and 4 2020 Maroochydore 28](#_Toc53473454)

[Unit 4 Short Answer - overview 29](#_Toc53473455)

[Scasa Sample 29](#_Toc53473456)

[Unit 3 GAWA 2016 (Tanunda map) 29](#_Toc53473457)

[Unit 3 and 4 2016 GAWA (Mudgee) 29](#_Toc53473458)

[WACE 2016 (Byford map) 30](#_Toc53473459)

[Unit 3 and 4 2017 GAWA (Aubin Grove) 30](#_Toc53473460)

[WACE 2017 30](#_Toc53473461)

[Unit 3 and 4 2018 GAWA (Burns Beach) 31](#_Toc53473462)

[WACE 2018 Bussleton 31](#_Toc53473463)

[Unit 3 2019 GAWA (Collie) 31](#_Toc53473464)

[Unit 3 and 4 2019 (Karrartha) 32](#_Toc53473465)

[WACE 2019 Noarlunga 32](#_Toc53473466)

[Unit 3 and 4 Maroochydore 33](#_Toc53473467)

[Unit 4 Short Answer depth studies 33](#_Toc53473468)

[SCASA sample 33](#_Toc53473469)

[Unit 3 and 4 2016 GAWA (Mudgee) 33](#_Toc53473470)

[WACE 2016 (Byford) 34](#_Toc53473471)

[Unit 3 and 4 2018 GAWA (Burns Beach) 34](#_Toc53473472)

[WACE 2018 Busselton 34](#_Toc53473473)

[Unit 3 2019 GAWA (Collie) 34](#_Toc53473474)

[Unit 3 and 4 2019 (Karrartha) 34](#_Toc53473475)

[WACE 2019 Noarlunga 34](#_Toc53473476)

[Unit 3 Extended Answer 35](#_Toc53473477)

[Scasa Sample 35](#_Toc53473478)

[Unit 3 GAWA 2016 (Tanunda map) 35](#_Toc53473479)

[Unit 3 and 4 2016 GAWA (Mudgee) 37](#_Toc53473480)

[WACE 2016 (Byford map) 37](#_Toc53473481)

[Unit 3 2017 GAWA (Ellenbrook) 38](#_Toc53473482)

[GAWA Unit 3 and 4 2017 39](#_Toc53473483)

[WACE 2017 (Quinns Rocks) 40](#_Toc53473484)

[Unit 3 2018 GAWA (Port Coogee) 40](#_Toc53473485)

[GAWA unit 3 and 4 2018 (Burns Beach) 41](#_Toc53473486)

[WACE 2018 Busselton 42](#_Toc53473487)

[Unit 3 2019 GAWA (Collie) 42](#_Toc53473488)

[Unit 3 and 4 2019 (Karratha) 43](#_Toc53473489)

[WACE 2019 Noarlunga 44](#_Toc53473490)

[Unit 3 2020 Angelsea 45](#_Toc53473491)

[Unit 3 and 4 2020 Maroochydore 47](#_Toc53473492)

[Unit 4 extended Answer 48](#_Toc53473493)

[Scasa Sample 48](#_Toc53473494)

[Unit 3 and 4 2016 GAWA (Mudgee) 48](#_Toc53473495)

[WACE 2016 (Byford map) 49](#_Toc53473496)

[Unit 3 and 4 2017 GAWA (Aubin Grove) 50](#_Toc53473497)

[WACE 2017 (Quinns Rock) 50](#_Toc53473498)

[Unit 3 and 4 2018 GAWA (Burns Beach) 51](#_Toc53473499)

[WACE 2018 Busselton 51](#_Toc53473500)

[Unit 3 and 4 2019 (Karratha) 52](#_Toc53473501)

[WACE 2019 Noarlunga 52](#_Toc53473502)

[Unit 3 and 4 2020 Maroochydore 53](#_Toc53473503)

### List of maps

SCASA: sample exam (Capel map)

Unit 3 2016 GAWA (Tanunda map)

Unit 3 and 4 2016 GAWA (Mudgee)

WACE 2016 (Byford map)

Unit 3 2017 GAWA (Ellenbrook)

Unit 3 and 4 2017 GAWA (Aubin Grove)

WACE 2017 (Quinns Rock)

Unit 3 2018 GAWA (Port Coogee)

Unit 3 and 4 2018 GAWA (Burns Beach)

WACE 2018 (Busselton)

Unit 3 2019 GAWA (Collie)

Unit 3 and 4 2019 (Karratha)

WACE 2019 Noarlunga

## Skills short answer

### SCASA: sample exam (Capel map)

(21) 3 marks

Identify three examples of land use change between 1985 and 2004 in the area shown on the aerial photograph

(22) 5 marks

In the frame provided, construct a simple annotated sketch map of the Capel aerial photograph

### Unit 3 2016 GAWA (Tanunda map)

(21) 4 marks

Describe two characteristics of the site and two characteristics of the situation of the town of Lyndoch

(22) 2 marks

A motorist leaves the Shed at GR 107789 and then drives along Heinze Road to its intersection with Gerald Roberts Road at GR 068 784 at an average speed of 80km/hr. Calculate the average gradient of the car journey described in Question 9. Show your working

(23) 4 marks

Describe two examples of land use change between 1985 and 2015 in the area shown on the aerial photograph

(24) 6 marks

In the frame provided, construct a simple annotated sketch map of the Tanunda aerial photograph. Complete the key below

### Unit 3 and 4 2016 GAWA (Mudgee map)

(21) 4 marks

For the area shown on source 1, describe one interrelationship between the following features . Use map evidence to support your answer.

Topography and drainage

Topography and transport

(22) 2 marks

A motorist leaves from the train station in Mudgee (GR 426 897) and travels by the shortest possible vehicular route to the neighbouring town of Gulgong. If the motorist travels at an average speed of 90 km/hr, calculate, to the nearest minute, how long the journey will take. For full marks show working.

(23) 4 marks

Identify and describe two examples of land use change between 1977 and 2015 within the area shown of Source 2.

(24) 6 marks

a. Label the location and/or extent of the following features on the cross section below: Burrundulla Creek; area of dense forest, highway, power transmission line.

b. Describe one difference in the cultural landscape between the eastern and western sides of Easting 46 in the area of the cross section.

### WACE 2016 (Byford)

(24) 4 marks

Complete a cross section

(22) 3 marks

With specific reference to Sources 1 and 3 describe the location and nature of the land use change that has occurred west of easting 48 and south of northing 36

(23) 3 marks

Describe the sequence of land cover changes that occurred in the area east of easting 49 and south of northing 35 between 1985 and 2011

### Unit 3 2017 GAWA (Ellenbrook)

Refer to **Source 1** Ellenbrook topographic map (2014) to answer Question 21.

**Question 21 (4 marks)**

Identify and describe **one** site and **one** situation characteristic of the Houghton Winery

(AR 3051).

Site characteristic

Description:

Situation characteristic:

Description:

Refer to **Source 1** Ellenbrook topographic map (2014) and to the diagrams below to answer Question 22.

Diagram A

GR 280530

Horizontal Distance

30 m

5 m

10 m

15 m

20 m

25 m

Height (m asl)

GR 310530

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |

GR 280530

GR 310530

30 m

5 m

10 m

15 m

20 m

25 m

Height (m asl)

Horizontal Distance

Diagram B

|  |
| --- |
|  |
|  |
|  |
|  |
|  |
|  |

**Question 22 (4 marks)**

1. Identify the diagram that best represents the cross-section extending from

GR 280530 to GR 310530.

(1 mark)

1. Identify the feature that is indicated by the arrow on the cross-section that you chose in part (a).

(1 mark)

1. Describe **one** interrelationship between topography and land use in the area associated with the cross-section that you chose in part (a). Provide map evidence to support your answer.

(2 marks)

Refer to **Source 1** Ellenbrook topographic map (2014) and **Source 2** Ellenbrook aerial photograph (2004) to answer Questions 23 and 24.

**Question 23 (4 marks)**

1. With specific reference to **Sources 1 and 2**, describe the nature of land cover change that has occurred north of northing 58.

(2 marks)

1. Describe **one** likely consequence of the land cover change identified in part (a).

(2 marks)

**Question 24 (2 marks)**

With specific reference to **Sources 1 and/or 2**, describe **one** projected change in land cover that is likely to occur in the Ellenbrook area.

### Unit 3 and 4 2017 GAWA (Aubin Grove)

Refer to **Source 1** *Aubin Grove topographic map (2013)* to answer Questions 21 to 23.

**Question 21 (2 marks)**

A car travels in an easterly direction along Anketell Road, from GR 210805 to the eastern border of the Aubin Grove topographic map. Identify **one** similarity and **one** difference in land cover that might be noted by the driver before and after he/she crosses the bridge over the Kwinana Freeway.

Similarity:

Difference:

**Question 22 (2 marks)**

Calculate the time taken (to the nearest minute) to complete the journey referred to in Question 21. The average speed of the car is 70 km/hr and the driver is delayed for 2 minutes at the traffic lights on the bridge over the Kwinana Freeway. For full marks, show your working in the space provided.

Working:

Time taken:

**Question 23 (6 marks)**

1. In the frame provided, construct a sketch map of the area bounded by Eastings 23 to 26 and Northings 84 to 87 and complete the key below the sketch map.

(4 marks)

1. Identify and label the following features on your sketch map:
* Banksia Eucalypt Woodland Park
* Triandra Reserve

(2 marks)

Refer to **Source 1** *Aubin Grove topographic map (2013)* and **Source 2** *Aubin Grove aerial photograph (2017)* to answer Question 24.

**Question 24 (4 marks)**

Locate and identify **two** examples of land cover change that has taken place since 2013 in the area shown on **Source 2** *Aubin Grove aerial photograph (2017)*.

Example 1:

Example 2:

Refer to **Source 5** *Estimates of global land use in 2000 and additional land demands 2030* to answer Question 27.

**Question 27 (4 marks)**

1. Calculate the mean of the estimated area of types of land use in 2000.

(1 mark)

1. Calculate the range of the estimated area of types of projected land use for 2030.

(1 mark)

1. Outline **one** way that world population growth might impact the rate of land cover change. (2 marks)

### Unit 3 2018 GAWA (Port Coogee)

**Question 21 (2 marks)**

Describe **two** site characteristics of the caravan park shown in AR 8344.

Site characteristic 1:

Site characteristic 2:

Refer to **Source 1:** Lake Coogee topographic map 2014 and the diagram below to answer Question 22.

**Cross-section between GR 840430 and GR 870430**

**Height**

**(m asl)**

**GR 840430**

**Distance**

**GR 870430**

**Question 22 (4 marks)**

1. On the diagram above, complete the cross section that extends from

GR 840430 to GR 870430.

(1 mark)

1. On the diagram above, correctly annotate/label the extent **or** location of the following features;
2. Lake Coogee
3. Stock Road
4. the most westerly rail line

(3 marks)

Refer to **Source 1:** Lake Coogee topographic map 2014 to answer Question 23.

**Question 23 (4 marks)**

Describe **one** similarity of and **one** difference between the cultural landscapes of the following areas as shown on **Source 1**. Provide evidence from the source to support your answer.

* **Area 1:** West of Stock Road and north of northing 43.
* **Area 2:** East of Stock Road and south of Russell Road.

Similarity:

Difference:

Refer to **Source 1:** Lake Coogee topographic map 2014, **Source 2:** Lake Coogee satellite image 2017 **and/or** **Source 3:** Lake Coogee oblique aerial photograph to answer Question 24.

**Question 24 (4 marks)**

Provide evidence from the broadsheet to locate and identify **two** examples of land cover change that has occurred between 2014 and 2017 in the area covered by **Source 2**.

Example 1:

Example 2: \_\_

### Unit 3 and 4 2018 GAWA (Burns Beach)

Refer to **Source 1:** Burns Beach topographic map 2014 to answer Questions 21 and 22.

**Question 21 (2 marks)**

Calculate the average gradient of the rail line between GR 810915 and Clarkson Station (AR 8093). For full marks, show your working in the space provided.

Working:

Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question 22 (4 marks)**

Using map evidence, describe the relationship between each of the following pairs of characteristics for the area shown on **Source 1**.

**Topography and transport:** (2 marks)

**Transport and urban area:** (2 marks)

Refer to **Source 1:** Burns Beach topographic map 2014 and **Source 2:** Burns Beach satellite image 2002 to answer Question 23.

**Question 23 (6 marks)**

Locate and outline **three** examples of land cover change that have taken place since 2002 in the area shown on **Source 2**.

**Example 1:** (2 marks)

**Example 2:** (2 marks)

**Example 3:** (2 marks)

### WACE 2018 Busselton

Refer to **Source 1:** Busselton topographic map 1969 and **Source 2:** Busselton photograph 2016

to answer Question 21.

**Question 21 (4 marks)**

(a) Draw and label the following features on the precis sketch map below:

(i) the location of the Busselton Airfield in 1969 (1 mark)

(ii) the extent of the Busselton built-up areas in 2016. (2 marks)

1. On the same sketch map, label the intermittent swamp (1969). (1 mark)



**Question 22 (2 marks)**

(a) What is the range in mean monthly temperatures experienced in Busselton? (1 mark)

(b) Calculate the mean yearly maximum temperature experienced in Busselton. (1 mark)

Refer to **Source 1:** Busselton topographic map 1969 and **Source 3:** Busselton photograph insert

2016 to answer Question 23.

**Question 23 (6 marks)**

1. Identify **two** processes of land cover change that took place between 1969 and 2016 in

the area depicted by **Source 3**. (2 marks)

One:

Two:

1. Select **one** process identified in part (a) and describe the location and extent of the land

cover change that occurred from 1969 to 2016. Make specific reference to the sources in

your answer. (4 marks)

### Unit 3 2019 GAWA (Collie)

Refer to **Source 1:** Collie topographic map 2017 to answer Question 21.

**Question 21 (2 marks)**

Describe **one** site and **one** situation characteristic of the horse racing track shown in grid squares AR 2207 and AR 2307.

Refer to **Source 1:** Collie topographic map 2017, **Source 2:** Collie satellite image 1987 and **Source 3:** Collie satellite image 2017 to answer Question 22.

**Question 22 (5 marks)**

1. With specific reference to the **Sources**, describe the nature and extent of the land cover change that has occurred East of easting 25 and North of northing 08.

(3 marks)

1. Outline **one** consequence of land cover change identified in part (a).

(2 marks)

Refer to **Source 6:** Australia’s monthly minimum and maximum temperature anomaly 1951 – 2015 to answer Question 24.

**Question 24 (4 marks)**

Describe the changes and trends in monthly temperature minimums and maximums between 1951 and 2015.

### Unit 3 and 4 2019 (Karrartha)

Refer to **Source 1:** Karratha-Nickol Bay topographic map 2017 to answer Questions 21 and 22.

**Question 21 4 marks)**

Describe **two** characteristics of the site and **two** characteristics of the situation of the airport in the North West quadrant of the map.

**Question 22 (6 marks)**

1. In the frame provided, construct a sketch map of the area bounded by Eastings 83 to 87 and Northings 06 to 09 and complete the key below the sketch map.

(4 marks)

1. On your sketch map, identify and label the location of the communication tower located at GR 853071 on Source 1.

(1 mark)

1. Insert the scale of your sketch map in the space provided below the frame.

(1 mark)

Refer to **Source 3:** Karratha demographic data – 2016 comparisonsto answer Question 23.

**Question 23 (4 marks)**

With specific reference to data from **Source 3**, describe **two** differences in the population characteristics of Karratha and Western Australia.

Refer to **Source 6:** Australia’s monthly minimum and maximum temperature anomaly 1951 – 2015 to answer Question 24.

### WACE 2019 Noarlunga

Refer to **Source 1:** Noarlunga topographic map 2001 to answer Questions 21 and 22.

**Question 21 (3 marks)**

* (a)  Identify **one** site feature of the built-up area of Maslin Beach at AR 7098.
* (1 mark)
* (b)  Describe **one** situation feature of the built-up area of Maslin Beach at AR 7098. (2 marks)

**Question 22**  **(2 marks)**

Calculate how long (in minutes and seconds) a car travelling at an average speed of 72 kilometres per hour will take to go from the intersection of Victor Harbor Road and Main Road (GR 745012), south along Main Road to Willunga. Show your method of calculation and your answer.

Refer to **Source 1:** Noarlunga topographic map 2001 and **Source 2:** Noarlunga aerial photograph 2017 to answer Question 23.

**Question 23 (5 marks)**

(a) Locate and describe **one** example of land use change that has occurred in the area covered by **Source 2** between 2001 and 2017. (3 marks)

(b) Describe how the land use change identified in part (a) has been influenced by the natural and/or cultural features in this area. (2 marks)

### Unit 3 2020 GAWA (Angelsea)

Refer to **Source 1:** Anglesea topographic map 2019 to answer Questions 21 to 25.

**Question 21 (3 marks)**

1. Describe **one** site characteristic of the Anglesea Golf Club course at GR 530454.

 (1 mark)

|  |
| --- |
|  |
|  |
|  |

(b) Describe **two different** situation characteristics of the Anglesea Golf Club course at GR 530454

 (2 marks)

Situation characteristic 1:

|  |
| --- |
|  |
|  |
|  |

Situation characteristic 2:

|  |
| --- |
|  |
|  |
|  |

**Question 22 4 marks)**

1. Describe **one** interrelationship between topography and transport on **Source 1**.

(2 marks)

(b) Describe **one** interrelationship between topography and hydrological features on **Source 1**.

(2 marks)

**Question 23 (2 marks)**

Calculate the average gradient of the section of Messmate Track, from the 76m spot elevation at GR 521454 to the Gate or cattlegrid at GR 525459.

Show your method of calculation and your answer.

Calculation:

**Question 24 (2 marks)**

A fire truck departed the Anglesea Fire Station (GR 548456) at 9.00am and travelled north-east along the Great Ocean Road to arrive at the Anglesea Landfill and Transfer Station (561477) at 9.03am. Calculate the average speed of the fire truck (in km/per hour) for this journey.

Show your method of calculation and your answer.

Calculation:

Refer to **Source 1:** Anglesea topographic map 2019 and **Source 4:** Anglesea oblique aerial photograph 2019 to answer Question 25.

**Question 25 (6 marks)**

1. In the frame below, construct a sketch map of the area shown in **Source 4:** Anglesea oblique aerial photograph 2019.

Accurately label a north point on the sketch map.

(3 marks)

1. Identify and label the following **three** features on the sketch map:
* Anglesea River bridge
* Great Ocean Road
* Lions Park

(3 marks)

### Unit 3 and 4 2020 GAWA (Maroochydore)

Refer to **Source 1:** Maroochydore topographic map 1980; **Source 2:** Maroochydore topographic map 2019 and **Source 3:** Maroochydore oblique satellite image to answer Questions 21 to 24.

**Question 21 (2 marks)**

Using **Source 1**, describe **two different** situation characteristics of the built-up area of Buddina (AR 1347).

**Question 22 (3 marks)**

1. Using **Source 2**, identify the features labelled A and B on **Source 3.**

(2 marks)

**Feature A**:

**Feature B**:

1. In which direction is **Source 3** oblique satellite image facing?

(1 mark)

**Question 23**

Refer to **Source 1.**

1. Complete the cross-section below, which extends from GR 040480 to GR 080480.
2. marks)
3. Label the following features on the cross-section below:
* Mooloolaba Road
* High voltage transmission line (2 marks)

**Cross section from Source 1 Maroochydore topographic map 1980**

## Overview short answer Unit 3

### SCASA: sample exam (Capel map)

(26) 4marks

Explain the concept of climate change (4 marks)

(27) 4 marks)

Explain the concept of biodiversity loss

(30) 6 marks

Explain briefly two impacts of land cover change on local and/or regional environments

### Unit 3 2016 GAWA (Tanunda map)

(25) 4 marks

Explain one process of land cover change that you have studied

(26) (4 marks)

Describe how world population growth has impacted the rate and extent of land cover change and loss of biodiversity

Landcover change:

Loss of biodiversity:

(27) 4 marks

Explain the impact of one land cover change on a local or regional environment

(29) 2 marks

Define the term sustainability

### Unit 3 and 4 2016 GAWA (Mudgee map)

(25) 2 marks

Refer to source 7: Describe one impact of land cover change on the local environment

(26) 2 marks

Describe one impact of indigenous peoples’ land management practices on land cover over time.

(27) 4 marks

Explain one implication of anthropogenic biomes to the functioning of the world ecosystems

(28) 4 marks

Choose one of the following factors:

 Government policy;

 institutional arrangements; land ownership;

 type of economy;

 ideology; culture

Explain how this factor has led to differences in the process of land cover change between countries. Support your answer with examples

### WACE 2016 (Byford map)

**(24)** 2 marks

What is a natural biome

**(25)** 3 marks

Explain the concept of climate change

### Unit 3 2017 GAWA (Ellenbrook)

**Question 25 (2 marks)**

Define the term biodiversity loss.

**Question 27 (4 marks)**

Identify **one** advance in technology and explain how it has impacted the nature and extent of land cover change **or** biodiversity loss.

Advance in technology: \_\_

Explanation:

Refer to **Source 5** Change in agricultural land and forest area in selected countries

(1990-2013) to answer Question 28.

**Question 28 (6 marks)**

1. Identify the **two** nations with the highest amount of agricultural land (as a percentage of land area) in 2013.

(2 marks)

One: \_\_\_\_\_\_\_

Two: \_\_\_\_\_\_\_

1. Identify the nation in which agricultural land and forest area both declined since 1990.

(1 mark)

1. Identify the nation where the loss of forest (as a percentage of land area) has been greatest since 1990.

(1 mark)

1. The data appears to show that the rate of forest loss is greatest in the less developed nations. Outline **two** reasons why this apparent statistical association does not prove a causal relationship.

(2 marks)

Reason one:

Reason two:

**Question 30 (6 marks)**

With specific reference to **Source 6**, explain **two** differences in the processes of land cover change between **two** countries that you have studied.

Country one:

Country two:

Difference one:

Difference two:

### Unit 3 and 4 2017 GAWA (Aubin Grove)

**Question 25 (2 marks)**

Define the term ecosystem structure.

**Question 26 (6 marks)**

Describe **two** processes of land cover change from the following list:

* deforestation • expansion and intensification of agriculture
* growth of urban settlement • land and/or soil degradation

Process 1:

Description:

Process 2:

Description:

|  |
| --- |
|  |
|  |

### Unit 3 2018 GAWA (Port Coogee)

**Question 25 (2 marks)**

Define the term ‘climate change’.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Refer to **Source 4:** Woodman Point vegetation distribution and management zones to answer Question 26.

**Question 26 (6 marks)**

1. Outline the spatial distribution of **one** type of vegetation within the Woodman Point

Regional Park.

(2 marks)

1. Describe the nature, location and extent of urban land cover within the Woodman Point Regional Park.

(4 marks)

Refer to **Source 5:** Grazing land area and area set aside for conservation by Australian Agricultural Environment Region, 2015-2016 **and/or** **Source 6:** Anthropogenic biomes by world region to answer Questions 27 and 28.

**Question 27 (5 marks)**

Identify and explain **one** process of land cover change. Provide evidence from **Source 5 and/or** **Source 6** to support your answer.

**Question 28 (5 marks)**

Explain how **one** of the following factors has led to differences in the process of land cover change between countries. Include evidence from **Source 5 and/or** **Source 6** to support your answer.

* government policy
* institutional arrangements
* land ownership
* type of economy
* ideology
* culture

**Question 29 (4 marks)**

Explain the impact of growing affluence on the rate and extent of land cover change **or** biodiversity loss.

Refer to **Source 7:** Global surface area allocation for food production to answer Question 30.

**Question 30 (4 marks)**

Identify **one** land cover change that is associated with global food production and describe its impact on **one** local **or** **one** regional environment.

### Unit 3 and 4 2018 GAWA (Burns Beach)

**Question 24 (2 marks)**

Define the term ‘environment’.

Refer to **Source 4:** Annual net change in forest area 1990-2015 to answer Questions 25 and 26.

**Question 25 (3 marks)**

Identify the **three** classifications of net change in forest area upon which the information presented in **Source 4** is based. Include reference to the units used in each classification.

**Classification 1:**

**Classification 2:**

**Classification 3:**

**Question 26 (4 marks)**

Describe **two** features of the spatial distribution of annual net change in forest area from 1990 to 2015. Provide data from **Source 4** to support your answer.

Refer to **Source 5:** Land-atmosphere interrelationships to answer Question 27.

**Question 27 (5 marks)**

Explain the impacts of land cover change with reference to **one** of the following:

* water cycle
* soil erosion and degradation
* loss of habitat and biodiversity
* changes to regional climates

### WACE 2018 Bussleton

**Question 24 (3 marks)**

Outline the concept of ecosystem structure and dynamics.

Refer to **Source 6:** World land use over the long-term to answer Question 26.

**Question 26 (4 marks)**

With specific reference to **Source 6**, describe the extent to which the earth’s surface has been

modified by any **two** of the following over time:

● cropland

● grazing land

● built-up areas.

### Unit 3 2019 GAWA (Collie)

**Question 23 (4 marks)**

Briefly explain each of the following concepts:

1. climate change
2. sustainability.

Refer to **Source 6:** Australia’s monthly minimum and maximum temperature anomaly 1951 – 2015 to answer Question 24.

**Question 24 (4 marks)**

Describe the changes and trends in monthly temperature minimums and maximums between 1951 and 2015.

**Question 26** **(2 marks)**

Define the term ecosystem services.

**Question 27 (4 marks)**

Describe the implications of anthropogenic biomes to the functioning of the world’s ecosystems.

Refer to **Source 7:** Global temperature trend 1951 to 2015 to answer Question 28.

**Question 28 (4 marks)**

With specific reference to Source 7, compare the earth’s surface temperature between 1951 and 2015 in the northern and southern hemisphere.

**Question 29 (3 marks)**

Identify **one** advance in technology and outline the impact that it has had on the nature and extent of land cover change or biodiversity loss.

**Question 31 (4 marks)**

Explain how **one** of the following factors has led to differences in the process of land cover change between countries.

|  |  |  |
| --- | --- | --- |
| * government policy
 | * institutional arrangements
 | * culture
 |
| * land ownership
 | * type of economy
 | * ideology
 |
| * other
 |  |  |

### Unit 3 and 4 2019 (Karrartha)

Refer to **Source 7:** Ecological footprint and human development index of countries 2016 to answer Question 24.

**Question 24 (2 marks)**

With specific reference to **Source 7**, describe **one** correlation between the Human Development Index and countries ecological footprint.

**Question 25 (2 marks)**

Using an example, outline the concept of an anthropogenic biome.

**Question 27 6 marks)**

Describe the key elements of **one** of the following natural systems:

* ecosystem structure and dynamics
* heat budget
* hydrological cycle
* carbon cycle
* atmospheric circulation.

**Natural system:**

**Question 28** **(4 marks**)

Briefly describe **one** land management practice followed by Indigenous peoples **and** outline its impact on land cover change over time.

### WACE 2019 Noarlunga

Refer to **Source 5:** The results of change due to human activity on ecosystems and climate to answer Question 24.

**Question 24 (6 marks)**

With specific reference to **Source 5**, explain **two** of the changes that result from the negative

impacts of human behaviour/activities on ecosystems and climate.

**Question 25 (2 marks)**

Identify **one** environmental variable and **one** socio-economic variable that could be used in spatial modelling to project changes in land cover.

**Question 26**

Define the term ‘natural biome’. (2 marks)

Refer to **Source 6:** Satellite image of forest cover clearance, Borneo (Indonesia and Malaysia) 1973–2010 to answer Question 27.

**Question 27 (4 marks)**

With specific reference to **Source 6**, describe the nature and extent of land cover change that can be observed to have taken place on the island of Borneo between 1973 and 2010.

### Unit 3 2020 Angelsea

**Question 26 (2 marks)**

Define the term ‘environment’.

**Question 27 (4 marks)**

Explain the difference between a ‘natural biome’ and an ‘anthropogenic biome’.

Refer to **Source 8:** How the world’s land is used: total area sizes by type of use and cover to answer Question 28.

**Question 28 (6 marks)**

(a) With specific reference to **Source 8**, define ‘land cover change’. (2 marks)

1. With specific reference to **Source 8**, identify **two** classifications of land use and list two characteristics of each land use classification.

(4 marks)

**Question 29 (5 marks)**

Describethe impact on land cover over time of **one** land management practice undertaken by Indigenous peoples.

**Question 30 (6 marks)**

Explain how land cover change contributes to a ‘loss of ecosystem services’ in local and regional environments.

### Unit 3 and4 2020 Maroochydore

**Question 24 (4 marks)**

Refer to **Source 1** and **Source 2.**

Identify and describe **one** process of land cover change that has occurred between 1980 and 2019 in the area south of northing 49 and west of easting 12. Use map evidence in your answer.

**Question 25 (3 marks)**

Describe, using an example, the concept of ‘sustainability’.

**Question 26 (4 marks)**

Select **one** factor listed below and explain how it has contributed to differences in one process of land cover change between any two countries.

* government policy
* institutional arrangements
* land ownership
* type of economy
* ideology and culture

**Question 27 (4 marks)**

Refer to **Source 4:** Cumulative CO2 emissions by world region, 1751 to 2017.

With specific reference to **Source 4**, describe the changes in CO2 emissions between 1900 and 2017 for EU-28 and China.

[Note: EU-28 refers to the 28 member states (countries) of the European Union.]

## Unit 3 Short Answer – depth studies

### Scasa Sample

**Question 28 (3 marks)**

Identify and describe briefly **one** major type of evidence for climate change, **or** biodiversity loss, through geological time.

Refer to **Source 5** to answer Question 29.

**Question 29 (3 marks)**

Describe **three** characteristics of the spatial distribution of the world’s biomes.

### Unit 3 GAWA 2016 (Tanunda map)

**Question 28 (2 marks)**

Describe **one (1)** major type of evidence for climate change **or** loss of biodiversity through

geological time.

**Question 30 (4 marks)**

With the aid of a diagram, briefly describe the key elements of **one (1)** of the following;

* heat budget
* hydrological cycle
* carbon cycle
* atmospheric circulation
* ecosystem structure
* ecosystem dynamics

**Question 31 (4 marks)**

Explain **one (1)** approach to land cover restoration **or** rehabilitation that has included the

use of a preservation strategy.

### Unit 3 and 4 2016 GAWA (Mudgee)

**none**

### WACE 2016 (Byford map)

**Question 26** (4 marks)

Identify one process responsible for land cover change and outline its impact on local or regional environments

Describe two projected impacts of global climate change or biodiversity loss

**Question 27 (6 marks)**

Describe **two** projected impacts of global climate change **or** biodiversity loss.

### Unit 3 2017 GAWA (Ellenbrook)

**Question 26 (4 marks)**

1. Identify **one** natural and **one** anthropogenic cause of global climate change **or** biodiversity loss.

(2 marks)

Natural cause:

\_

Anthropogenic cause:

1. Describe the rate of global climate change **or** biodiversity loss, with reference to a specific example.

(2 marks)

**Question 29 (4 marks)**

Explain the interrelationship between land cover change and climate **or** biodiversity.

Refer to **Source 6** Processes of land cover change and selected sustainability goals to answer Question 30.

### Unit 3 and 4 2017 GAWA (Aubin Grove)

**none**

### Unit 3 2018 GAWA (Port Coogee)

none

### Unit 3 and 4 2018 GAWA (Burns Beach)

NONE

### WACE 2018 Busselton

**Question 25 (4 marks)**

Identify **one** source from recent human history and **one** source from geological time and account

for how these provide evidence for either climate change **or** biodiversity loss.

### Unit 3 2019 GAWA (Collie)

**Question 25**

Describe one approach to land cover restoration and/or rehabilitation aimed at mitigating the effects of land cover change.

**(4 marks)**

**Question 30 (4 marks)**

Identify and outline **two** examples of the interrelationships between land cover change and either climate or biodiversity loss.

### Unit 3 and 4 2019 (Karrartha)

**Question 27 6 marks)**

Describe the key elements of **one** of the following natural systems:

* ecosystem structure and dynamics
* heat budget
* hydrological cycle
* carbon cycle
* atmospheric circulation.

### WACE 2019 Noarlunga

none

### Unit 3 2020 Angelsea

None

### Unit 3 and 4 2020 Maroochydore

None

## Unit 4 Short Answer - overview

### Scasa Sample

NONE

### Unit 3 GAWA 2016 (Tanunda map)

### Unit 3 and 4 2016 GAWA (Mudgee)

**Question 29 (2 marks)**

Define the term urbanisation.

**Question 30 (4 marks)**

Choose **one** of the following urban processes:

* urban sprawl
* invasion and succession
* renewal
* planning
* land use competition
* inertia
* agglomeration

Explain how this process has contributed to the characteristics of **one** urban place in Australia.

**Name of urban place:**

**Question 31 (2 marks)**

Briefly outline **one** challenge facing rural **or** remote places in Australia.

**Challenge:**

**Outline:**

### WACE 2016 (Byford map)

Refer to **Source 7** World urbanisation for different areas from 1950–2050 to answer

**Question 29 (4 marks)**

1. Identify **two** world areas in which the process of urbanisation has reversed temporarily.

(2 marks)

One:

Two:

(b) Identify the world area in which urbanisation rates will increase **most** between 1950 and

2050. (1 mark)

(c) Identify the approximate year in which China is predicted to attain the Oceanian rate of

urbanisation. (1 mark)

Refer to **Source 8** World urban and rural populations from 1950–2050 to answer Question 30.

**Question 30 (5 marks)**

With specific reference to **Source 8**, describe the implications for world population growth

resulting from the process of urbanisation.

### Unit 3 and 4 2017 GAWA (Aubin Grove)

**Question 28 (2 marks)**

Define the process of inertia.

**Question 29 (6 marks)**

Describe the economic and environmental interdependence of urban and rural places.

Economic interdependence:

Environmental interdependence:

**Question 30 (6 marks)**

Identify and explain **one** challenge facing rural and remote places in Australia.

Selected challenge:

Explanation:

### WACE 2017

**Question 30 (5 marks)**

(a) Explain the concept of urbanisation. (2 marks)

(b) Use data from **Source 7** to describe how the process of urbanisation is occurring. (3 marks)

### Unit 3 and 4 2018 GAWA (Burns Beach)

**Question 28 (2 marks)**

Define the urban process of ‘planning’.

Refer to **Source 7:** Projected growth of cities by population size to answer Question 30.

**Question 30 (6 marks)**

1. Explain the process of urbanisation. Provide evidence from **Source 7** to support your answer.

 (3 marks)

(b) Explain **one** challenge facing megacities. (3 marks)

**Question 31 (2 marks)**

Outline how **one** historical **or** economic factor has contributed to the spatial distribution of urban **and/or** rural places in Australia.

### WACE 2018 Bussleton

Refer to **Source 7:** Australia to answer Question 27.

**Question 27 (6 marks)**

Select **two** of the following factors and explain how they have contributed to the spatial

distribution of urban and rural places in Australia. Refer to specific evidence from **Source 7** in

your response.

● historical

● cultural

● economic

● environmental

**Question 28 (4 marks)**

Provide **one** economic and **one** environmental example demonstrating the interdependence of

urban and rural places.

**Question 29 (4 marks)**

From the list below, select **two** challenges facing rural and remote places in Australia, including

Indigenous communities. Explain how each presents a challenge to these places.

● population loss ● social inclusion and exclusion

● economic restructuring ● transportation

● employment ● resource degradation

● housing ● land-use conflicts

● service and water provision ● declining political influence

● concentrations of socially vulnerable ● isolation and remoteness

populations ● fly-in/fly-out work patterns

Refer to **Source 8:** Percentage urban and urban agglomerations by size and class to answer

Question 30.

**Question 30 (3 marks)**

With specific reference to **Source 8**, describe the relationship between the changes from 1990

to 2030 in the percentage of the population that is urban and the number and size of cities.

### Unit 3 2019 GAWA (Collie)

**None**

### Unit 3 and 4 2019 (Karrartha)

**Question 26 (2 marks)**

Using an example, outline the process of urban planning.

**Question 29 (6 marks)**

From the list of below, describe **two** challenges facing Australian Metropolitan and Regional centres.

|  |  |
| --- | --- |
| * changing demographics
* congestion
* economic restructuring
* employment
* environmental degradation
* housing
* land abandonment
 | * personal safety
* social inclusion and exclusion
* socio-spatial inequality
* transportation
* urban sprawl
* waste management
* other
 |

### WACE 2019 Noarlunga

* 1. the process of urbanisation and its implications for world population growth and human wellbeing in urban and rural places

**Question 28 (2 marks)**

Describe the process of invasion and succession occurring in urban areas.

Refer to **Source 7:** The growth of worldwide rural and urban population 1960–2016 to answer Question 29.

**Question 29 (4 marks)** With specific reference to **Source 7**, describe **two** changes that have occurred as the process of

urbanisation has taken place between 1960 and 2016.

**Question 30**Explain **one** implication of changes in the level of urbanisation for world population growth and

**one** implication for human wellbeing.

Refer to **Source 9:** Age and sex distribution (%) capital cities and rest of Australia, June 2006 and June 2017 to answer Question 31.

**Question 31 (4 marks)**

(a) With specific reference to the June 2006 population pyramid, describe **one** difference in

the age and sex distributions between the capital cities and the rest of Australia. (2 marks)

(b) With specific reference to the June 2006 and June 2017 population pyramids, describe **one** change that has occurred between 2006 and 2017 in the distribution of the population in the 20 to 34-year-old age groups. (2 marks)

### Unit 3 and 4 2020 (Maroochydore)

**Question 28 (4 marks)**

Describe **one** economic and **one** environmental example of the interdependence between urban and rural places.

**Question 29 (6 marks)**

Refer to **Source 6:** Current population of selected regional centres and their projected population growth to 2026.

Select **two** factors listed below and explain how each one has influenced the spatial distribution of urban places in Australia.

* historical
* cultural
* economic
* environmental

**Question 30 (6 marks)**

Refer to **Source 7:** The world’s urban and rural population 1950 to 2050.

With specific reference to **Source 7**, describe the process of urbanisation and explain how changes in rates of urbanisation will impact world population growth.

## Unit 4 Short Answer depth studies

### SCASA sample

**Question 23 (4 marks)**

Identify **one** significant challenge in either metropolitan Perth **or** a regional urban centre in

Western Australia. Discuss briefly the views and attitudes of **two** major stakeholder groups who

will be affected.

**Question 24 (4 marks)**

Describe **two** characteristics of the site and **two** characteristics of the situation of **either**

metropolitan Perth **or** a regional urban centre in Western Australia.

**Question 25 (4 marks)**

Identify **one** megacity of your choice. Explain briefly the extent to which **one** planning strategy can be used to address **one** challenge.

### Unit 3 and 4 2016 GAWA (Mudgee)

**Question 32 (4 marks)**

For metropolitan Perth **or** a regional centre in Western Australia, and a megacity of your choice:

Describe **one** site and **one** situation characteristic for each of the two places.

### WACE 2016 (Byford)

Refer to metropolitan Perth **or** a regional urban centre in Western Australia to answer

Question 28.

**Question 28 (6 marks)**

Identify **two** significant challenges facing your chosen location and describe the views and

attitudes of a major stakeholder group for each challenge.

Challenge one:

Major stakeholder group:

Views and attitudes:

Challenge two:

Major stakeholder group:

Views and attitudes:

### Unit 3 and 4 2018 GAWA (Burns Beach)

Refer to **Source 6:** Place of birth as a percentage of residents for selected suburbs to answer Question 29.

**Question 29 (4 marks)**

Describe **one** similarity and **one** difference in the populations of Burns Beach and Crawley. Provide evidence from **Source 6** to support your answer.

### WACE 2018 Busselton

none

### Unit 3 2019 GAWA (Collie)

**None**

### Unit 3 and 4 2019 (Karrartha)

Refer to **Source 3:** Karratha demographic data – 2016 comparisonsto answer Question 23.

**Question 23 (4 marks)**

With specific reference to data from **Source 3**, describe **two** differences in the population characteristics of Karratha and Western Australia.

**Question 30 (4 marks)**

Outline the views and attitudes of **one** major stakeholder group in relation to **one** challenge in metropolitan Perth or a regional urban centre in Western Australia.

### WACE 2019 Noarlunga

Unit 3 2020 Angelsea

Unit 3 and 4 2020 Maroochydore

##

## Unit 3 Extended Answer

### Scasa Sample

**Part A: Unit 3 –**

**Answer either Question 31 or Question 32 20% (20 marks)**

**Question 31 (20 marks)**

Refer to **Source 7** if you choose loss of biodiversity or to **Source 8** if you choose climate change, to answer Question 31(a).

(a) Explain the effects of **either** loss of biodiversity **or** climate change in natural and anthropogenic biomes, and comment on the projected impacts of these changes.

(10 marks)

(b) Evaluate **two** strategies proposed and/or implemented to mitigate the adverse effects of

**either** global climate change **or** loss of biodiversity. (10 marks)

**or**

**Question 32 (20 marks)**

Refer to **Source 7** if you choose loss of biodiversity or to **Source 8** if you choose climate change, to answer Question 32(a).

(a) Explain the anthropogenic causes of **either** loss of biodiversity **or** climate change and comment on the effects of these changes in natural and anthropogenic biomes.

(10 marks)

(b) Evaluate the sustainability of a program designed to address the impacts of land cover

change on local and regional environments. (10 marks)

### Unit 3 GAWA 2016 (Tanunda map)

**PART A: Depth Study 1 - Answer either Question 32 or Question 33 20% (20 Marks)**

**Question 32 (20 marks)**

Refer to **Source 5** if you choose global climate change or to **Source 9** if you choose loss of biodiversity to answer Question 32(a).

1. Explain **one (1)** natural and **one (1)** anthropogenic cause of **either** global climate change **or** loss of biodiversity.

(10 marks)

(b) Discuss **two (2)** projected impacts of **either** global climate change **or** loss of biodiversity.

(10 marks)

**OR**

**Question 33 (20 marks)**

Refer to **Source 5** if you choose global climate change or to **Source 9** if you choose loss of biodiversity to answer Question 33(a).

1. Explain the interrelationship between land cover change and **either** climate **or** loss of biodiversity.

(10 marks)

1. Discuss the effects of **either** climate change **or** loss of biodiversity in **one (1)** natural and **one (1)** anthropogenic biome.

(10 marks)

**PART B: Depth Study 2 - Answer either Question 34 or Question 35 20% (20 Marks)**

**Question 34 (20 marks)**

Refer to **Source 10 and/or 11** to answer Question 34(a).

1. Describe **one** **(1)** current **and one (1)** proposed strategy implemented to mitigate the adverse effects of **either** global climate change **or** loss of biodiversity.

(8 marks)

1. Evaluate **one (1)** program designed to address the impacts of land cover change on local **or** regional environments, giving consideration to environmental, economic and social benefits and costs.

(12 marks)

**OR**

**Question 35 (20 marks)**

Refer to **Source 10 and/or 11** to answer Question 35(a).

1. Describe how **two (2)** human activities have adapted **or** may be required to adapt to **either** global climate change **or** loss of biodiversity.

(8 marks)

1. Evaluate **one (1)** alternative approach to the management of land cover change in an area you have studied, using the concept of sustainability to determine the extent to which the approach has the potential to address the issue in the future.

(12 marks)

### Unit 3 and 4 2016 GAWA (Mudgee)

**PART A: Unit 3 Answer either Question 33 or Question 34 20% (20 Marks)**

**Question 33 (20 marks)**

Refer to **Source 6** to answer Question 33(a).

For **either** global climate change **or** loss of biodiversity:

1. Describe **two** major types of evidence for this phenomenon, including **one** through geological time and **one** in recent human history.

(8 marks)

(b) Discuss **one** program designed to address the impacts of land cover change in **one** local and **one** regional environment.

(12 marks)

**OR**

**Question 34 (20 marks)**

Refer to **Source 6** to answer Question 34(a).

1. Describe **one** natural cause and **one** anthropogenic cause for **either** global climate change **or** loss of biodiversity.

(8 marks)

1. Discuss **two** approaches to land cover restoration **and/or** rehabilitation.

(12 marks)

### WACE 2016 (Byford map)

**Part A: Answer either Question 31 or 32.**

**Question 31 (20 marks)**

(a) Explain the natural and anthropogenic causes of global climate change **or** biodiversity

loss. (10 marks)

(b) Describe **two** examples of human activity and explain how each has adapted to or may

be required to adapt to global climate change **or** biodiversity loss. (10 marks)

**or**

**Question 32 (20 marks)**

(a) With reference to specific examples, explain the interrelationships between land cover

change and either climate **or** biodiversity loss. (10 marks)

(b) Describe **two** current or proposed environmental strategies and explain how each aims

to mitigate the adverse effects of global climate change **or** biodiversity loss. (10 marks)

### Unit 3 2017 GAWA (Ellenbrook)

Suggested working time: 80 minutes

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PART A: Answer either Question 31 or 32**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question 31 (20 marks)**

**Source 6**

1. Describe the spatial distribution of the world’s rainfall and temperature patterns **or** natural biomes.

(8 marks)

1. For global climate change **or** loss of biodiversity, discuss **one** major type of evidence through geological time and **one** major type of evidence in recent human history.

(12 marks)

**OR**

**Question 32 (20 marks)**

1. Describe **four** key elements of **one** of the following:
* hydrological cycle • atmospheric circulation • heat budget
* ecosystem structure • ecosystem dynamics • carbon cycle

(8 marks)

1. Discuss the effects of climate change **or** biodiversity loss in **one** natural and **one** anthropogenic biome.

(12 marks)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**PART B: Answer either Question 33 or 34**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question 33 (20 marks)**

1. Describe **one** current and **one** proposed strategy implemented to mitigate the adverse effects of global climate change **or** loss of biodiversity.

(8 marks)

1. Evaluate **one** program designed to address the impacts of land cover change, giving consideration to environmental and economic benefits and costs.

(12 marks)

**OR**

**Question 34 (20 marks)**

1. Describe **two** approaches to land cover restoration and/or rehabilitation.

(8 marks)

1. Evaluate **two** ways that human activity has adapted to global climate change **or** loss of biodiversity.

(12 marks)

### GAWA Unit 3 and 4 2017 (Aubin Grove)

Suggested working time: 80 minutes.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Part A Answer either Question 31 or Question 32**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Question 31 (20 marks)**

1. Describe **two** causes of either global climate change **or** loss of biodiversity.

(8 marks)

1. Discuss theapproaches to land cover change mitigation, with reference to **one** restoration or rehabilitation strategy and **one** preservation strategy.

(12 marks)

**OR**

**Question 32 (20 marks)**

(a) Describe **two** projected impacts of global climate change **or** loss of biodiversity on

 land cover in natural and/or anthropogenic biomes.

1. marks)
2. Discuss **two** ways that human activity has or may be required to adapt and/or mitigate against the adverse effects of either global climate change **or** loss of biodiversity.

(12 marks)

### WACE 2017 (Quinns Rocks)

**Question 32 (20 marks)**

* (a)  Describe the effects of either climate change **or** biodiversity loss on natural and anthropogenic biomes. (12 marks)
* (b)  Discuss **one** approach to land cover restoration and rehabilitation and explain how it mitigates future land cover changes. (8 marks)

**Question 33**

(a) Describe the key elements of ecosystem structure and dynamics.

**or**

Describe any **two** of the following natural systems:

* ● heat budget
* ● hydrological cycle
* ● carbon cycle
* ● atmospheric circulation. (12 marks)

 (b) Identify and discuss a program designed to address the impacts of land cover change on local and regional environments. (8 marks)

### Unit 3 2018 GAWA (Port Coogee)

**Question 31 (20 marks)**

1. Explain the spatial distribution of the world’s rainfall and temperature patterns **or**

biomes.

(10 marks)

1. Discuss **two** interrelationships between land cover change and climate **or**

biodiversity loss.

1. marks

**Question 32 (20 marks)**

1. Explain **one** major type of evidence for climate change **or** loss of biodiversity through geological time and **one** major type of evidence in recent human history.

(10 marks)

1. Discuss the effects of climate change **or** loss of biodiversity on land cover in **two** anthropogenic biomes.

(10 marks)

**Question 33 (20 marks)**

1. Discuss **one** program designed to address the impacts of land cover change on local **or** regional environments.

(10 marks)

(b) Use the concept of sustainability to explain the extent to which **two** approaches to the management of land cover change have the potential to address the issue into the future.

(10 marks)

**Question 34 (20 marks)**

(a) Discuss **one** approach to land cover restoration **and/or** rehabilitation that includes the use of a preservation strategy.

(10 marks)

(b) Explain how **two** human activities have adapted, or may be required to adapt, to either global climate change **or** loss of biodiversity.

(10 marks)

### GAWA unit 3 and 4 2018 (Burns Beach)

**Question 32 (20 marks)**

(a) Describe the key elements of **one** natural system **or** ecosystem structure and dynamics.

(8 marks)

(b) Evaluate **two** strategies designed to mitigate the adverse effects of either global climate change **or** loss of biodiversity.

(12 marks)

**Question 33 (20 marks)**

(a) Describe **two** projected impacts of global climate change **or** loss of biodiversity.

(8 marks)

(b) Evaluate **one** program designed to address the impacts of land cover change, giving consideration to environmental and economic benefits and costs.

(12 marks)

### WACE 2018 Busselton

**Question 31 (20 marks)**

(a) Explain the interrelationships between land cover change and climate with direct

reference to surface reflectivity and the process of natural carbon sequestration.

**or**

Explain the interrelationships between land cover change and biodiversity loss with direct

reference to shifting ecological boundaries, evolutionary diversification and species

extinction. (8 marks)

(b) Evaluate a program that addresses the impacts of land cover change, giving

consideration to its environmental, economic and social benefits and costs. (12 marks)

**OR**

**Question 32 (20 marks)**

(a) Explain **one** natural cause and **one** anthropogenic cause of global climate change.

**or**

Explain **one** natural cause and **one** anthropogenic cause of declining biodiversity.

(8 marks)

(b) Evaluate **one** approach to the management of land cover change, with specific reference

to the concept of sustainability. (12 marks)

### Unit 3 2019 GAWA (Collie)

**Question 32 (20 marks)**

1. With the aid of a diagram, describe the key elements of ecosystem structure and dynamics.

**or**

With the aid of a diagram, describe the key elements of one natural system.

(8 marks)

1. Explain **two** projected impacts of global climate change.

**or**

Explain **two** projected impacts of loss of biodiversity.

(12 marks)

**OR**

 **Question 33 (20 marks)**

1. Describe **one** natural and **one** anthropogeniccauseof climate change.

**or**

Describe **one** natural and **one** anthropogenic cause of biodiversity loss.

(8 marks)

1. Discuss the effects of climate change in **one** anthropogenic biome and **one** natural biome.

**or**

Discuss the effects of loss of biodiversity in **one** anthropogenic biome and **one** natural biome

(12 marks)

**Question 34 (20 marks)**

1. Describe **one** local level and **one** regional level strategy, or proposed strategy that mitigates the adverse effects of global climate change.

**or**

Describe **one** local level and **one** regional level strategy, or proposed strategy that mitigates the adverse effects of loss of biodiversity.

(8 marks)

1. Describe **one** program that addresses the impacts of land cover change and evaluate the sustainability of the program, giving consideration to environmental, economic and social benefit and costs.

(12 marks)

**OR**

 **Question 35 (20 marks)**

1. Describe how **two** human activities have adapted, or may be required to adapt, to global climate change.

**or**

Describe how **two** human activities have adapted, or may be required to adapt, to loss of biodiversity.

(8 marks)

1. Evaluate **one** alternative approach to the management of land cover change in an area you have studied, using the concept of sustainability to determine the extent to which the approach has the potential to address the issue into the future.

 (12 marks)

### Unit 3 and 4 2019 (Karratha)

**Question 31 (20 marks)**

1. Describe the spatial distribution of the world's biomes.

**or**

Describe the spatial distribution of the world’s rainfall and temperature patterns.

(8 marks)

1. Evaluate **one** program designed to address the impacts of land cover change on local and/or regional environments, giving consideration to environmental, economic and social benefits and costs.

(12 marks)

**OR**

 **Question 32 (20 marks)**

1. Identify **one** major type of evidence through geological time **and** **one** major type of evidence from recent human history and explain how each provides evidence for global climate change.

**or**

Identify **one** major type of evidence through geological time **and** **one** major type of evidence from recent human history and explain how each provides evidence for loss of biodiversity.

(8 marks)

1. Explain **two** ways that human activity has adapted or may be required to adapt to global climate change.

**or**

Explain **two** ways that human activity has adapted or may be required to adapt to loss of biodiversity.

 (12 marks

### WACE 2019 Noarlunga

**Question 32 (20 marks)**

(a) Choose one of the natural systems listed below and describe the ways in which it interacts with two of the other natural systems listed to influence the Earth’s climate.

● heat budget ● hydrological cycle ● carbon cycle ● atmospheric circulation

or

Describe two key elements of ecosystem structure and dynamics from the five listed below.

● biotic and abiotic elements

● food chains and food webs

● biomass

● trophic levels

● flows of matter and energy (8 marks)

(b) With reference to specific examples, discuss two ways in which human activity has adapted, or may be required to adapt, to either global climate change or loss of biodiversity. (12 marks)

**Question 33 (20 marks)**

(a) Describe the effects of climate change on land cover in any two of the following types of biomes.

● vegetation

● ice sheets

● glaciers

● coastal systems and coral reefs

 ● agriculture

● urban settlements and industry

**or**

Describe the effects of biodiversity loss on any two of the following elements, in natural or human biomes.

● ecosystem services

 ● ecosystem species

● ecosystem diversity

● genetic diversity

● loss of human foods

● loss of medicinal plants (8 marks)

(b) With reference to specific examples, discuss two current and/or proposed strategies implemented to mitigate the adverse effects of either global climate change or loss of biodiversity. (12 marks)

### Unit 3 2020 Angelsea

**Question 31 (20 marks)**

1. Describe the key elements of **one** of the following natural systems:
* heat budget
* carbon cycle

**or**

Describe the key elements of **one** of the following aspects of ecosystem structure and dynamics:

* abiotic/biotic elements
* flows of matter and energy

(8 marks)

(b) Explain the interrelationships between land cover change and climate, making specific reference to changing surface reflectivity and the process of natural carbon sequestration.

**or**

Explain the interrelationships between land cover change and biodiversity loss, making specific reference to shifting ecological boundaries and species extinction.

(12 marks)

**Question 32 (20 marks)**

1. Describe the key elements of **one** of the following natural systems:
* atmospheric circulation
* hydrological cycle

**or**

Describe the key elements of **one** of the following aspects of ecosystem structure and dynamics:

* food chains/food webs
* biomass/trophic levels
1. marks)
2. Explain the effects of climate change on land cover in natural and anthropogenic biomes.

**or**

Explain the effects of biodiversity loss in natural and anthropogenic biomes:

(12 marks)

**Question 33 (20 marks)**

1. Describe the difference between land cover restoration and land cover rehabilitation and outline how **one** of these approaches addresses the impact of land cover change.
2. marks)
3. Evaluate **one** program that addresses the impacts of land cover change on local and/or regional environments, giving consideration to environmental, economic and social benefits and costs.

(12 marks)

**Question 34 (20 marks)**

1. Describe the difference between mitigation strategies and preservation strategies and outline how **one** of these strategies addresses the impacts of land cover change.

(8 marks)

(b) Using the concept of sustainability, evaluate **one** approach to the management of

land cover change in **one** area you have studied.

(12 marks

### Unit 3 and 4 2020 Maroochydore

**Question 31 20% (20 marks)**

1. Describe the spatial distribution of the world’s biomes **or** of the world’s rainfall and temperature patterns.

(8 marks)

1. Describe and discuss **one** program that addresses the impacts of land cover change on local and regional environments.

 (12 marks)

**or**

 **Question 32 (20 marks)**

(a) Describe **two** projected impacts of global climate change **or** loss of biodiversity.

(8 marks)

(b) Describe and discuss **one** restoration and rehabilitation approach to land cover change.

(12 marks)

##

## Unit 4 extended Answer

### Scasa Sample

**Part B: Unit 4 – Answer either Question 33 or Question 34 20% (20 marks)**

**Question 33 (20 marks)**

(a) Identify **one** challenge facing metropolitan Perth **or** a regional urban centre in Western

Australia, and **one** different challenge in a megacity of your choice. Describe the nature,

scope and causes of each of these challenges. (8 marks)

(b) Assess **one** planning strategy that has been used to address **one** challenge facing

metropolitan Perth **or** a regional urban centre in Western Australia. Comment on how this

strategy compares with responses implemented in other places. (12 marks)

**or**

**Question 34 (20 marks)**

(a) With reference to specific examples, describe **one** challenge facing rural and remote

places in Australia, and **one** different challenge in a megacity of your choice. (8 marks)

(b) Evaluate the extent to which **two** planning strategies adopted in metropolitan Perth, **or** a

regional urban centre in Western Australia have enhanced liveability. (12 marks)

### Unit 3 and 4 2016 GAWA (Mudgee)

**PART B: Unit 4 Answer either Question 35 or Question 36 20% (20 Marks)**

**Question 35 (20 marks)**

For metropolitan Perth **or** a regional urban centre in Western Australia, **and** a megacity of your choice:

1. Describe **four** demographic characteristics of each place.

(8 marks)

Refer to **Source 9** to answer Question 35(b).

For metropolitan Perth **or** a regional urban centre in Western Australia, **and** a megacity of your choice:

1. Evaluate the extent to which **one** planning strategy has improved the liveability of each place.

(12 marks)

**OR**

**Question 36 (20 marks)**

For metropolitan Perth **or** a regional urban centre in Western Australia, **and** a megacity of your choice:

1. Describe the implications of **one** challenge facing each place.

(8 marks)

Refer to **Source 10** to answer Question 36(b).

For metropolitan Perth **or** a regional urban centre in Western Australia, **and** a megacity of your choice:

1. Evaluate the extent to which **one** planning strategy implemented in each place has been influenced by the concept of sustainability.

(12 marks)

### WACE 2016 (Byford map)

**Part B: Answer either Question 33 or 34.**

**Question 33 (20 marks)**

(a) Describe the site and internal morphology of metropolitan Perth **or** a regional urban

centre in Western Australia. (8 marks)

To answer Question 33(b), refer to **one** planning strategy adopted in metropolitan Perth **or** a regional urban centre in Western Australia and **one** planning strategy adopted in a megacity.

(b) Explain how these planning strategies aim to enhance/have enhanced the sustainability and liveability of **each** of the two locations. (12 marks)

**or**

**Question 34 (20 marks)**

(a) Describe the nature, scope and causes of any **two** significant challenges confronting metropolitan Perth **or** a regional urban centre in Western Australia. (8 marks)

To answer Question 34(b), refer to **one** challenge facing metropolitan Perth **or** a regional urban centre in Western Australia and **one** different challenge in a megacity.

(b) Explain how a planning strategy has addressed/is addressing these challenges in **each** of the two locations. (12 marks)

### Unit 3 and 4 2017 GAWA (Aubin Grove)

**Question 33 (20 marks)**

1. Describe the external morphology and **two** major demographic characteristics and/or patterns that occur within metropolitan Perth **or** a regional urban centre in Western Australia.

(8 marks)

With reference to metropolitan Perth **or** a regional urban centre in Western Australia **and** a megacity;

1. Discuss **one** strategy in each urban location that has been adopted to address **one** challenge facing that location.

(12 marks)

**OR**

**Question 34 (20 marks)**

1. Describe the views and attitudes of **two** major stakeholder groups related to **one** challenge facing metropolitan Perth **or** a regional urban centre in Western Australia.

(8 marks)

With reference to metropolitan Perth **or** a regional urban centre in Western Australia **and** a megacity;

1. Discuss the extent to which **one** strategy adopted in each urban location has enhanced the liveability of that location.

(12 marks)

### WACE 2017 (Quinns Rock)

**Question 34 (20 marks)**

* (a)  Describe the site and internal morphology of a megacity. (8 marks)
* (b)  Describe **two** significant challenges and explain the implications of each for metropolitan Perth or a regional centre in Western Australia. (12 marks)

**OR**

**Question 35 (20 marks)**

(a) Describe the nature, scope and causes of any **two** significant challenges

confronting a megacity. (8 marks)

To answer question 35(b),

●

● (b) select **one** planning strategy adopted in metropolitan Perth or a regional centre in Western Australia

**or one** planning strategy adopted in a megacity.

Describe the selected planning strategy and explain the extent to which it has been or could be informed by the concept of sustainability. (12 marks)

### Unit 3 and 4 2018 GAWA (Burns Beach)

**Question 34 (20 marks)**

(a) Describe and account for the internal morphology of either metropolitan Perth **or** a regional urban centre in Western Australia.

(10 marks)

(b) Describe **one** planning strategy adopted in a megacity and explain how it has been informed by responses implemented in other world megacities.

(10 marks)

**Question 35 (20 marks)**

(a) Describe the nature and explain the causes of **one** challenge being confronted in metropolitan Perth **or** a regional urban centre in Western Australia.

(10 marks)

(b) Describe **one** planning strategy adopted in a megacity and discuss the extent to which it has enhanced its sustainability.

(10 marks)

### WACE 2018 Busselton

**Part B: Unit 4 20% (20 marks)**

Choose **either** Question 33 **or** Question 34.

**Question 33 (20 marks)**

(a) Describe the patterns of **two** demographic characteristics in a megacity of your choice.

(8 marks)

(b) Describe a planning strategy designed to address an urban challenge in metropolitan Perth **or** a regional urban centre in Western Australia and compare this with a planning response implemented elsewhere.

 (12 marks)

**OR**

**Question 34 (20 marks)**

1. Describe the patterns of **two** demographic characteristics in metropolitan Perth **or** a regional urban centre in Western Australia. (8 marks)
2. Describe a planning strategy designed to address an urban challenge in **one** megacity and compare this with a planning response implemented in another megacity. (12 marks)

### Unit 3 and 4 2019 (Karratha)

**Question 33 (20 marks)**

1. Describe and account for the internal morphology of metropolitan Perth or a regional urban centre in Western Australia that you have studied.

(8 marks)

1. Evaluate how **one** planning strategy adopted in metropolitan Perth or a regional urban centre in Western Australia **and** **one** planning strategy adopted in a megacity has enhanced the liveability of each location.

(12 marks)

**OR**

**Question 34 (20 marks)**

1. Describe **four** demographic characteristics of a megacity that you have studied. (8 marks)
2. Evaluate the extent to which **one** planning strategy adopted for metropolitan Perth or a regional urban centre in Western Australia **and** **one** planning strategy adopted in a megacity has been, or could be, informed by the concept of sustainability. (12 marks)

### WACE 2019 Noarlunga

**Question 34 (20 marks)**

(a) Describe the internal and external morphology of **either** metropolitan Perth **or** a regional urban centre in Western Australia. (8 marks)

To answer Question 34(b), refer to both a planning strategy adopted to address **one** challenge facing **either** metropolitan Perth **or** a regional urban centre in Western Australia **and** a planning strategy adopted to address **one** challenge facing a megacity.

(b) Assess the extent to which these strategies have enhanced the sustainability and liveability of these places.

**Question 35**

(a) Describe the internal and external morphology of a megacity.

To answer Question 35(b), refer to both a planning strategy adopted to address **one** challenge facing **either** metropolitan Perth **or** a regional urban centre in Western Australia **and** a planning strategy adopted to address **one** challenge facing a megacity.

(b) Evaluate the extent to which these strategies have been, or could be, informed by the concept of sustainability. (12 marks)

### Unit 3 and 4 2020 Maroochydore

**Question 33 (20 marks)**

1. Describe the site and functions of metropolitan Perth **or** a regional urban centre in Western Australia.

(8 marks)

1. Evaluate **two** planning strategies used to address **one** challenge in a megacity.

(12 marks)

**OR**

**Question 34 (20 marks)**

1. Describe the nature, scope and causes of **one** challenge confronting a megacity.

(8 marks)

(b) Discuss the views and attitudes of major stakeholder groups related to **two** challenges facing **either** metropolitan Perth **or** a regional urban centre in Western Australia.

(12 marks)

Question 33 (20 marks) (a) Describe one major type of evidence through geological time and one major type of evidence in recent human history for either climate change or loss of biodiversity. (8 marks) (b) Evaluate a program designed to address the impacts of land cover change, giving consideration to two of the following: ● environmental benefits and costs ● economic benefits and costs ● social benefits and costs. (12 marks) or Question 34 (20 marks) (a) Describe one natural and one anthropogenic cause of either global climate change or loss of biodiversity. (8 marks) (b) Evaluate an approach to the management of land cover change, giving consideration to how it has the potential to achieve two of the following aspects of sustainability into the future: ● environmental ● economic ● social.