

Essential Insight Exam Guide

Geography
Year 12 WACE
Western Australian Curriculum

2025 Edition

Noah Patterson

Essential Insight Exam Guide

Geography

Year 12 WACE

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Books available in this series

Mathematics	Science	Humanities and Social Sciences
<ul style="list-style-type: none">• Mathematics Applications• Mathematics Methods• Mathematics Specialist	<ul style="list-style-type: none">• Biology• Chemistry• Human Biology• Physics• Psychology	<ul style="list-style-type: none">• Accounting and Finance• Economics• Geography

Acknowledgements

School Curriculum and Standards Authority. (2019-2023). ATAR Examinations and Marking Keys. The School Curriculum and Standards Authority does not endorse this publication or product.

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Notes	<ul style="list-style-type: none"> Section 3 questions for Unit 3 and Unit 4 combine multiple topics from each unit. These Section 3 questions from Unit 3 and Unit 4 have been grouped in their own topic subheading. Questions regarding Depth Study Two for Unit 3 and 4 tend to be within Section 3 questions which has been categorised as a separate topic at the end. This is why there is no subheading for these two syllabus subheadings. Questions which focus primarily on 'Geographical Skills' have been grouped as a separate topic. All relevant sources have been included within each relevant section. Due to the size of the broadsheet, some sources may be blurry when shrunk down to A4 size. These sources have still been included in the question to help students locate sources on the original broad sheet. It is recommended that teachers provide students either a digital copy or printed copy of all broadsheets so that students can complete questions which refer to broadsheet sources.
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<p>2022 Section 1 Question 16</p> <p>Land cover change</p>	<p>Which statement best describes an impact of land drainage and reclamation? It</p> <p>(a) causes the degradation of aquatic and marine environments. (b) causes habitat destruction in forested areas being cleared for urban development. (c) creates areas of land that have been rehabilitated, which mitigates future land cover changes. (d) reduces ocean levels, which may mitigate the impacts of climate change.</p>
<p>2021 Section 1 Question 13</p> <p>Land cover change</p>	<p>The changes that have taken place in natural environments due to a variety of natural and/or human-induced causes, is a definition of</p> <p>(a) biodiversity loss. (b) land cover change. (c) loss of ecosystem services. (d) soil degradation.</p>
<p>2021 Section 1 Question 16</p> <p>Land cover change</p>	<p>Which one of the following pairs contains an environmental variable and a socioeconomic variable that may be used in spatial models to project changes in land cover?</p> <p>(a) average temperatures and annual rainfall (b) gross domestic product and per capita income (c) natural resources present and population density (d) population growth rates and level of energy consumption</p>
<p>2020 Section 1 Question 14</p> <p>Land cover change</p>	<p>An environment is best described as</p> <p>(a) a community of plants and animals and the flows of energy between them. (b) a community of life forms adapted to a large natural area. (c) the living and non-living elements of the earth's surface and atmosphere. (d) a set of naturally occurring interrelated parts, with inputs, throughputs and outputs.</p>
<p>2020 Section 1 Question 16</p> <p>Land cover change</p>	<p>Which of the following are all impacts of land cover change on local and regional environments?</p> <p>(a) changes to regional climates, urban heat islands and soil erosion and degradation (b) changes to the water cycle, unemployment, loss of habitat and biodiversity (c) changes to regional climates, soil erosion and degradation and unemployment (d) changes to demographics, loss of ecosystem services and urban heat islands</p>
<p>2019 Section 1 Question 15</p> <p>Land cover change</p>	<p>Land cover change is best defined as the</p> <p>(a) removal of natural vegetation for human purposes. (b) changes that have taken place to both natural and human land uses due to human actions. (c) changes that have taken place in natural environments due to natural and/or human causes. (d) removal of forest biomes for the purpose of food production.</p>
<p>2019 Section 1 Question 16</p> <p>Land cover change</p>	<p>Human factors that can facilitate differences in land cover changes between countries include</p> <p>(a) government policy and seasonal temperature variations. (b) government policies and land ownership. (c) institutional arrangements and rainfall variability. (d) land ownership and natural hazards.</p>

Section 2

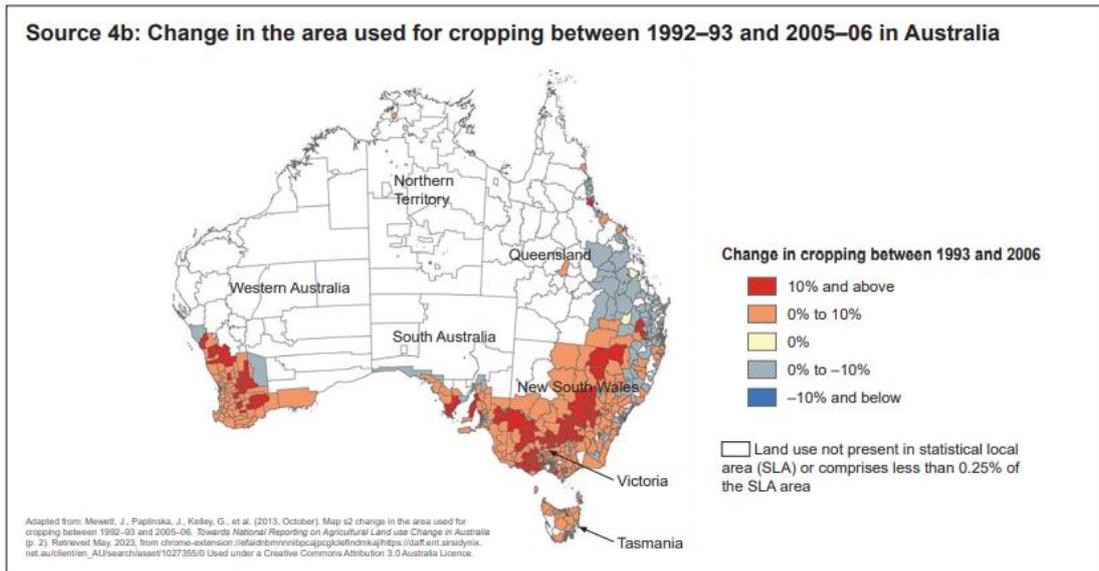
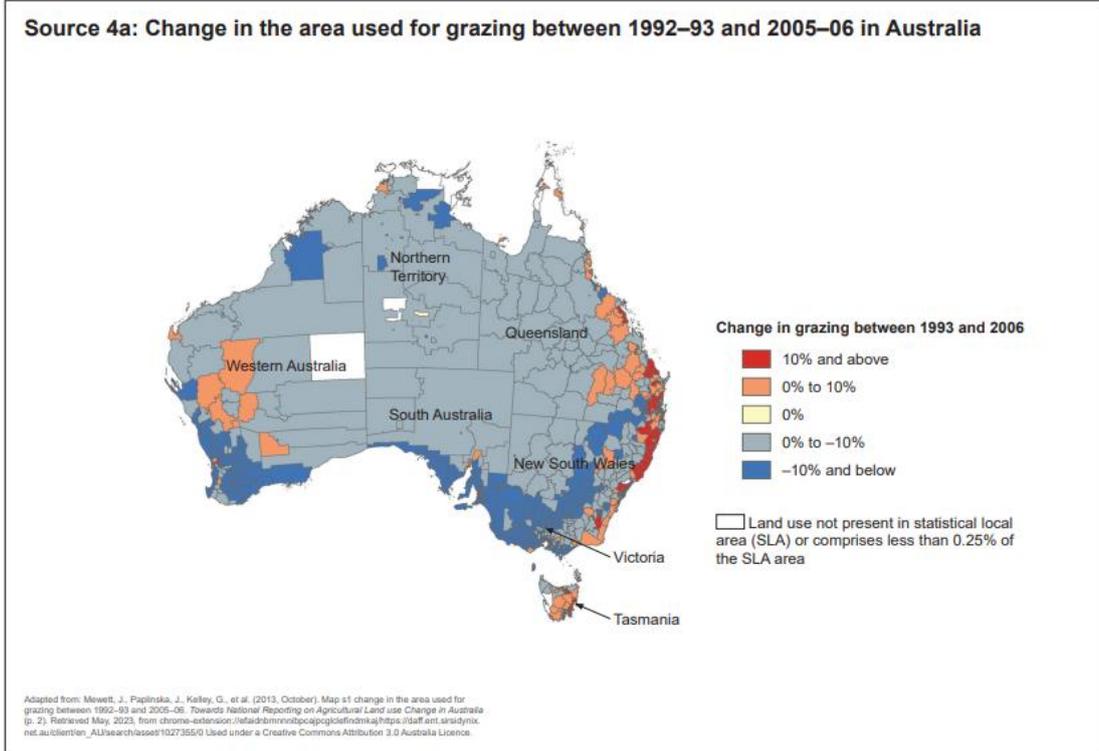
2023 Section 2 Question 23 Land cover change	Define the concept of climate change. (2 marks)

2023 Section 2 Question 25 Land cover change	Outline how two of the following factors account for difference in land cover change between two countries:
	<ul style="list-style-type: none">• government policy• ideology• land ownership• type of economy• culture.
	One:
	Two:

**2023
Section 2
Question
24**

**Land cover
change**

Refer to **Source 4a**: Change in the area used for grazing between 1992–93 and 2005–06 in Australia and **Source 4b**: Change in the area used for cropping between 1992–93 and 2005–06 in Australia to answer Question 24.



With specific reference to Sources 4a and 4b, describe the expansion of agriculture as a process of land cover change. (3 marks)

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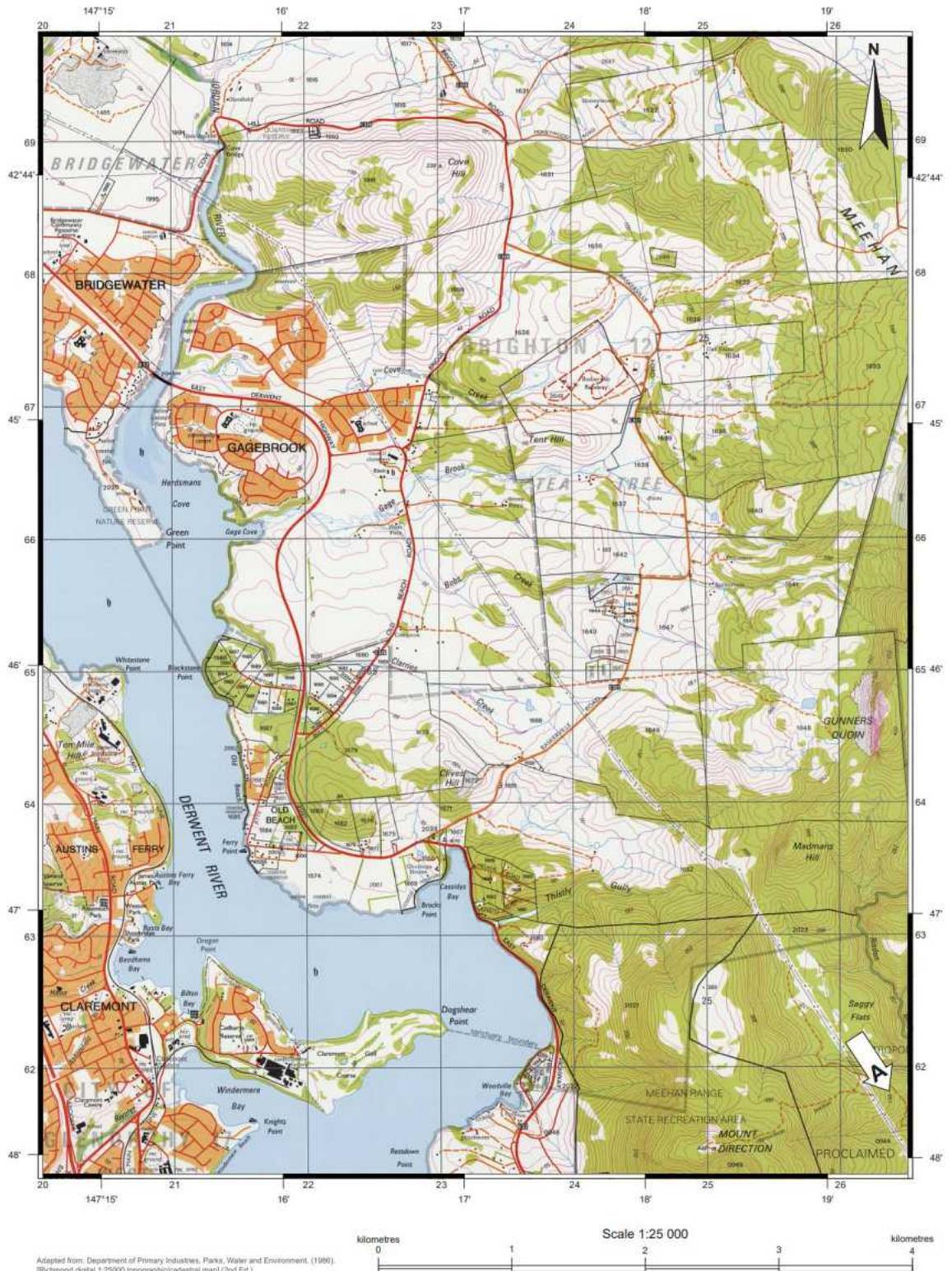
<p>2023 Section 2 Question 26</p> <p>Land cover change</p>	<p>Explain one of the following impacts of land cover change:</p> <ul style="list-style-type: none">• changes to the water cycle• soil erosion and degradation• loss of habitat and biodiversity• loss of ecosystem services• the degradation of aquatic and marine environments• urban heat islands. <p>(3 marks)</p> <p>Impact:</p> <hr/>
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**2022
Section 2
Question
23**

**Land cover
change**

Refer to **Source 1: Derwent River Valley topographic map 1986** and **Source 2: Old Beach aerial photograph 2019** to answer Question 23.

Source 1: Derwent River Valley topographic map 1986



Source 1: Key

Residential area; Commercial buildings		Post office; Police station; Fire station; School		Swamp	
Roads maintained for continuous public use	Primary road with route number	Caravan park; Camping ground; Public toilets		Wetland	
	Secondary road with route number	Disposal area; Information centre; Cemetery		Waterfall; Rapids	
	Mixed road with route number	Picnic areas; Trig station beacon; Spot elevation		Indefinite shoreline or floodbank; Lagoon	
	Other road	Contour with value; Depression contour		Tidal rocks or ledge; Offshore rock	
Roads of restricted use or access	Other roads with bridge	Quarry, pit or open cut mine		Navigation light or lighthouse; Exposed wreck	
	Vehicular track with gate	Rock scree; Broken rocky surface		Sand; Tidal reef	
Walking track or horse trail (approximate position) with bridge	Walking track with bridge	Dense forest; Medium forest		Saline coastal flat; Tidal flats	
Railway with station; Places entered in National Estate Register	Railway with station	Low dense vegetation; Distinctive grass		Jetty; Launching ramp	
Power transmission line and pylon positions	Power transmission line	Orchard; Pine plantation		Property boundary; Land parcel boundary and number	
Building; Feature of historic or special interest; Ruin; Mine	Building				

Source 2: Old Beach aerial photograph 2019



DigitalGlobe. (2019). [Old Beach aerial photograph] (Camera -3500m). Retrieved April, 2022, from Google Earth Pro.

Locate by grid reference and describe one land use change that has occurred between 1986 and 2019 in the area situated between eastings 21 and 23, and northings 63 and 65. (3 marks)

Location by grid reference:

Description of land use change:

<p>2022 Section 2 Question 25</p> <p>Land cover change</p>	Define the term 'anthropogenic biome'. (2 marks)

<p>2022 Section 2 Question 26</p> <p>Land cover change</p>	Refer to Source 6 : The loss of biodiversity 1800 to 2100 to answer Question 26.																								
	Source 6: The loss of biodiversity 1800 to 2100																								
	<table border="1"> <thead> <tr> <th>Year</th> <th>Population</th> <th>Land area converted for human use</th> <th>Loss of species in ecosystems</th> </tr> </thead> <tbody> <tr> <td>1800</td> <td>0.9 billion</td> <td>7.6%</td> <td>-1.8%</td> </tr> <tr> <td>1900</td> <td>1.7 billion</td> <td>16.9%</td> <td>-4.9%</td> </tr> <tr> <td>2000</td> <td>6.1 billion</td> <td>39.3%</td> <td>-13.6%</td> </tr> <tr> <td>2100 <i>*Green Model</i></td> <td>8.7 billion</td> <td>33.4%</td> <td>-11.6%</td> </tr> <tr> <td>2100 <i>**Current Model</i></td> <td>12 billion</td> <td>49.1%</td> <td>-17%</td> </tr> </tbody> </table>	Year	Population	Land area converted for human use	Loss of species in ecosystems	1800	0.9 billion	7.6%	-1.8%	1900	1.7 billion	16.9%	-4.9%	2000	6.1 billion	39.3%	-13.6%	2100 <i>*Green Model</i>	8.7 billion	33.4%	-11.6%	2100 <i>**Current Model</i>	12 billion	49.1%	-17%
	Year	Population	Land area converted for human use	Loss of species in ecosystems																					
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	2100 <i>**Current Model</i>	12 billion	49.1%	-17%																					
	<p>* Green Model refers to low-impact land use model</p> <p>**Current Model refers to the current land use model</p>																								
<p><small>Data from: Newbold, T., Hudson, L. N., Purvis, A. et al. (2019), Global effects of land use on local terrestrial biodiversity, <i>Nature</i> 520, pp. 45–50. Retrieved May, 2022, from https://www.unep-wcmc.org/news/biodiversity-damage-mapped-by-global-land-use-study</small></p>																									
With specific reference to Source 6 , explain how land cover change contributes to biodiversity loss. (3 marks)																									

<p>2022 Section 2 Question 27</p> <p>Land cover change</p>	(a) Describe the impact of world population growth on the rate of biodiversity loss. (2 marks)
	(b) Describe the impact of advances in technology on the extent of land cover change. (2 marks)

<p>2022 Section 2 Question 28</p> <p>Land cover change</p>	Explain one indigenous peoples' land management practice and its impact on land cover over time. (3 marks)

2020 Section 2 Question 25 Land cover change	Explain the concept of biodiversity loss. (3 marks)

2020 Section 2 Question 28 Land cover change	Name one land management practice of Aboriginal and Torres Strait Islander Peoples and summarise its impact on land cover over time. (3 marks)

2019 Section 2 Question 25 Land cover change	Identify one environmental variable and one socio-economic variable that could be used in spatial modelling to project changes in land cover. (2 marks)
	Environmental variable:
	Socio-economic variable:

2019 Section 2 Question 26 Land cover change	Define the term 'natural biome'. (2 marks)

Marking Guide – Section 1

<p>2023 Section 1 Question 16</p> <p>Land cover change</p>	<p>16. Sustainability is defined as</p> <p>(a) addressing the wants of the world's population through selective economic changes, environmental adaptations and social improvements.</p> <p>(b) meeting the needs of current and future generations through simultaneous environmental, social and economic adaptation and improvement. – Answer</p> <p>(c) preserving the current levels of resource use to ensure that exploitation rates do not increase and consumption patterns can be maintained.</p> <p>(d) stabilising the rate of population increase so that developing nations can enjoy an increased standard of living, and improved air and environmental quality</p>
<p>2023 Section 1 Question 17</p> <p>Land cover change</p>	<p>Refer to Source 4a: Change in the area used for grazing between 1992–93 and 2005–06 in Australia to answer Question 17.</p> <p>17. Which of the following statements most accurately reflects changes in the area used for grazing between 1992–93 and 2005–06 in Australia shown in Source 4a?</p> <p>(a) Tasmania's most extensive change in land area used for grazing was a 0% to –10% reduction.</p> <p>(b) Southwest of Western Australia's most extensive change in land area used for grazing was an increase above 10%.</p> <p>(c) Central Australia showed no change in land area used for grazing.</p> <p>(d) New South Wales had more areas that experienced a 10% and above increase in land area used for grazing compared to Western Australia. – Answer</p>
<p>2022 Section 1 Question 16</p> <p>Land cover change</p>	<p>Which statement best describes an impact of land drainage and reclamation? It</p> <p>(a) causes the degradation of aquatic and marine environments. – Answer</p> <p>(b) causes habitat destruction in forested areas being cleared for urban development.</p> <p>(c) creates areas of land that have been rehabilitated, which mitigates future land cover changes.</p> <p>(d) reduces ocean levels, which may mitigate the impacts of climate change.</p>
<p>2021 Section 1 Question 13</p> <p>Land cover change</p>	<p>The changes that have taken place in natural environments due to a variety of natural and/or human-induced causes, is a definition of</p> <p>(a) biodiversity loss.</p> <p>(b) land cover change. – Answer</p> <p>(c) loss of ecosystem services.</p> <p>(d) soil degradation.</p>
<p>2021 Section 1 Question 16</p> <p>Land cover change</p>	<p>Which one of the following pairs contains an environmental variable and a socioeconomic variable that may be used in spatial models to project changes in land cover?</p> <p>(a) average temperatures and annual rainfall</p> <p>(b) gross domestic product and per capita income</p> <p>(c) natural resources present and population density – Answer</p> <p>(d) population growth rates and level of energy consumption</p>
<p>2020 Section 1 Question 14</p> <p>Land cover change</p>	<p>An environment is best described as</p> <p>(a) a community of plants and animals and the flows of energy between them.</p> <p>(b) a community of life forms adapted to a large natural area.</p> <p>(c) the living and non-living elements of the earth's surface and atmosphere. – Answer</p> <p>(d) a set of naturally occurring interrelated parts, with inputs, throughputs and outputs.</p>

<p>2020 Section 1 Question 16</p> <p>Land cover change</p>	<p>Which of the following are all impacts of land cover change on local and regional environments?</p> <p>(a) changes to regional climates, urban heat islands and soil erosion and degradation – Answer (b) changes to the water cycle, unemployment, loss of habitat and biodiversity (c) changes to regional climates, soil erosion and degradation and unemployment (d) changes to demographics, loss of ecosystem services and urban heat islands</p>
<p>2019 Section 1 Question 15</p> <p>Land cover change</p>	<p>Land cover change is best defined as the</p> <p>(a) removal of natural vegetation for human purposes. (b) changes that have taken place to both natural and human land uses due to human actions. (c) changes that have taken place in natural environments due to natural and/or human causes. – Answer (d) removal of forest biomes for the purpose of food production.</p>
<p>2019 Section 1 Question 16</p> <p>Land cover change</p>	<p>Human factors that can facilitate differences in land cover changes between countries include</p> <p>(a) government policy and seasonal temperature variations. (b) government policies and land ownership. – Answer (c) institutional arrangements and rainfall variability. (d) land ownership and natural hazards.</p>

Marking Guide – Section 2

<p>2023 Section 2 Question 23</p> <p>Land cover change</p>	Define the concept of climate change. (2 marks)	
	Description	Marks
	Defines the concept of climate change, including reference to at least two of; space, time and variability	2
	Defines the concept of climate change, including reference to one of; space, time or variability	1
	Total	2
<p>Answers could include:</p> <p>Climate change is a long term change in the statistical distribution of weather patterns over periods of time that range from decades to millions of years. It may be a change in the average weather condition or the distribution of weather events with respect to an average. Variations in temperature may result in either global cooling or global warming. Climate change may be limited to a specific region or may occur across the whole earth.</p> <p>Accept other relevant answers.</p>		

<p>2023 Section 2 Question 24</p> <p>Land cover change</p>	Refer to Source 4a : Change in the area used for grazing between 1992–93 and 2005–06 in Australia and Source 4b : Change in the area used for cropping between 1992–93 and 2005–06 in Australia to answer Question 24.	
	With specific reference to Sources 4a and 4b, describe the expansion of agriculture as a process of land cover change. (3 marks)	
	Description	Marks
	Describes the expansion of agriculture as a process of land cover change and uses relevant data from both sources to support their answer	3
	Outlines the expansion of agriculture as a process of land cover change and uses relevant data from either source to support their answer	2
Makes a generalised statement about the expansion of agriculture as a process of land cover change with limited, or no reference to the sources	1	
Total	3	
<p>Answers could include:</p> <p>Expansion refers to an increase in area used for production.</p> <p>Examples from the sources could include:</p> <ul style="list-style-type: none"> • between 1993 and 2006, parts of the Victorian, New South Wales and Queensland coastal strip have experienced more than a 10% increase in area used for grazing animals • areas of the midwest of Australia have experienced animal grazing land use increase by up to 10% between 1993 and 2006 • between 1993 and 2006, most of the south west of Western Australia has experienced up to a 10% increase in land used for cropping, while the same areas have had a decrease of up to 10% in grazing land • almost all of Victoria experienced an increase in land used for cropping, with large parts experiencing an increase of more than 10%. <p>Accept other relevant answers.</p>		

**2023
Section 2
Question
25**

**Land cover
change**

Outline how **two** of the following factors account for difference in land cover change between **two** countries:

- government policy
- ideology
- land ownership
- type of economy
- culture.

Description	Marks
For each of the two factors (2 x 3 marks)	
Outlines how the factor has led to differences in land cover change between two countries. Uses relevant examples	3
Outlines a factor that has led to differences in land cover change between two countries. Uses some general examples	2
Makes a generalised statement about land cover change in two countries. Uses limited or no examples	1
Total	6

Answers could include:

Government policy:

Both Australia and Brazil have policy controls on deforestation, however these vary. Those in Brazil which were reformed and passed in parliament by a large majority could see large areas of the Amazon forests opened up to agriculture and cattle ranching and will provide an amnesty for the illegal deforestation that occurred prior to 2008. In Australia, all states and territories are signatories to the 1992 National Forest Policy statement which provides a framework for sustainable forestry management. Therefore, deforestation has occurred at a faster rate in Brazil, with 8.1% of primary forests removed between 2001 and 2021. Whereas Australia's policies are stricter and deforestation is therefore occurring at a slower a rate with 0.49% of primary forests removed between 2001 and 2021.

Accept other relevant answers.

Note: for answers which only refer to one country, no marks should be awarded, since the question refers to differences between two countries.

<p>2023 Section 2 Question 26</p> <p>Land cover change</p>	<p>Explain one of the following impacts of land cover change:</p> <ul style="list-style-type: none"> • changes to the water cycle • soil erosion and degradation • loss of habitat and biodiversity • loss of ecosystem services • the degradation of aquatic and marine environments • urban heat islands. <p>(3 marks)</p>									
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Explains the impact of land cover change</td> <td>3</td> </tr> <tr> <td>Describes the impact of land cover change</td> <td>2</td> </tr> <tr> <td>Makes a generalised statement about the impact of land cover change</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>3</td> </tr> </tbody> </table> <p>Answers could include:</p> <ul style="list-style-type: none"> • changes to the water cycle – the removal of vegetation for agriculture can cause climate change, which subsequently can cause floods and droughts, leading to erosion and desertification • the degradation of aquatic and marine environments – excess atmospheric carbon contributes to climate change and subsequently causes oceans to warm and ocean acidification to occur, leading to species' decline and ecosystem collapse • loss of ecosystem services – the removal of vegetation, which sequesters carbon from the atmosphere providing a climate regulation function, leads to an increase in climate change. <p>Accept other relevant answers.</p>	Description	Marks	Explains the impact of land cover change	3	Describes the impact of land cover change	2	Makes a generalised statement about the impact of land cover change	1	Total
Description	Marks									
Explains the impact of land cover change	3									
Describes the impact of land cover change	2									
Makes a generalised statement about the impact of land cover change	1									
Total	3									

<p>2022 Section 2 Question 23</p> <p>Land cover change</p>	<p>Refer to Source 1: Derwent River Valley topographic map 1986 and Source 2: Old Beach aerial photograph 2019 to answer Question 23.</p> <p>Locate by grid reference and describe one land use change that has occurred between 1986 and 2019 in the area situated between eastings 21 and 23, and northings 63 and 65. (3 marks)</p>									
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Provides a grid reference of where the land use change has occurred within the area specified in the question.</td> <td>1</td> </tr> <tr> <td>Describes a land use in 1986 at the grid reference given within the area specified in the question.</td> <td>1</td> </tr> <tr> <td>Describes a land use change that has occurred by 2019 at the grid reference given within the area specified in the question.</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>3</td> </tr> </tbody> </table> <p>Marker information:</p> <p>GR 221634 - In 1986 accept cleared or vacant land; in 2019 accept residential, built-up, urban.</p> <p>GR 225634 - In 1986 accept cleared or vacant land; in 2019 accept residential, built-up, urban.</p> <p>GR 218646 - In 1986 accept forest/medium forest; in 2019 accept residential, built-up, urban.</p> <p>Accept other relevant answers.</p>	Description	Marks	Provides a grid reference of where the land use change has occurred within the area specified in the question.	1	Describes a land use in 1986 at the grid reference given within the area specified in the question.	1	Describes a land use change that has occurred by 2019 at the grid reference given within the area specified in the question.	1	Total
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Describes a land use in 1986 at the grid reference given within the area specified in the question.	1									
Describes a land use change that has occurred by 2019 at the grid reference given within the area specified in the question.	1									
Total	3									

2022 Section 2 Question 25 Land cover change	Define the term 'anthropogenic biome'. (2 marks)	
	Description	Marks
	Defines the term anthropogenic biome, including reference to ecosystems and sustained direct human interactions.	2
	Defines the term anthropogenic biome, including reference to ecosystems or sustained direct human interactions.	1
	Total	2
Answers could include: Anthropogenic biomes are biomes that are the result of sustained direct human interactions with ecosystems.		

2022 Section 2 Question 26 Land cover change	Refer to Source 6 : The loss of biodiversity 1800 to 2100 to answer Question 26.	
	With specific reference to Source 6 , explain how land cover change contributes to biodiversity loss. (3 marks)	
	Description	Marks
	Explains how land cover change contributes to biodiversity loss with specific data from Source 6.	3
	Describes how land cover change contributes to biodiversity loss with data from Source 6.	2
States what land cover change is and/or generally relates this to biodiversity loss with no data from Source 6.	1	
Total	3	
Answers could include: Explanation should include reference to specific data, e.g. <ul style="list-style-type: none"> as land area converted to human use has increased from 7.6% in 1800 to 16.9% in 1900, the loss of species in ecosystems rose from -1.8% to -4.9%. Accept other relevant examples from Source 6 to support answer.		

2022 Section 2 Question 27 Land cover change	(a) Describe the impact of world population growth on the rate of biodiversity loss. (2 marks)	
	Description	Marks
	Describes the impact of world population growth on the rate of biodiversity loss.	2
	States an impact of world population growth on the rate of biodiversity loss.	1
	Total	2
Marker information: Rate refers to change over time at varying speeds.		
(b) Describe the impact of advances in technology on the extent of land cover change. (2 marks)		
Description	Marks	
Describes the impact of advances in technology on the extent of land cover change.	2	
States an impact of advances in technology on the extent of land cover change.	1	
Total	2	
Marker information: Extent refers to the size of an area of land cover change.		

2022 Section 2 Question 28 Land cover change	Explain one indigenous peoples' land management practice and its impact on land cover over time. (3 marks)										
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Explains (cause and effect) one indigenous land management practice and its impact on land cover over time.</td> <td>3</td> </tr> <tr> <td>Describes one indigenous land management practice and its impact on land cover over time.</td> <td>2</td> </tr> <tr> <td>States one indigenous land management practice or its impact on land cover over time.</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>3</td> </tr> </tbody> </table>	Description	Marks	Explains (cause and effect) one indigenous land management practice and its impact on land cover over time.	3	Describes one indigenous land management practice and its impact on land cover over time.	2	States one indigenous land management practice or its impact on land cover over time.	1	Total	3
	Description	Marks									
	Explains (cause and effect) one indigenous land management practice and its impact on land cover over time.	3									
	Describes one indigenous land management practice and its impact on land cover over time.	2									
	States one indigenous land management practice or its impact on land cover over time.	1									
Total	3										
<p>Marker information:</p> <p>A good answer will show how land cover has been changed over time. e.g., 'Firestick farming' was a land management practice used by Aboriginal peoples where areas of land were regularly burned in a coordinated way. The use of low intensity burns favoured certain species of plants, such as smaller undergrowth varieties, leading to a less dense and more open vegetation cover. In addition, larger species, such as eucalypts, thrived and spread into areas more suitable to rainforest. As areas were burnt at different times and were at different stages of regeneration, the practice created patchy 'mosaic' patterns of landcover.</p>											

2021 Section 2 Question 26 Land cover change	Explain the concept of climate change. (3 marks)										
	<table border="1"> <thead> <tr> <th>Description</th> <th>Mark</th> </tr> </thead> <tbody> <tr> <td>Explains the concept of climate change (describing its characteristics and explaining why it is occurring i.e. some of the factors which cause it to occur).</td> <td>3</td> </tr> <tr> <td>Describes the concept of climate change (only describing some of its characteristics).</td> <td>2</td> </tr> <tr> <td>States or briefly defines climate change.</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>3</td> </tr> </tbody> </table>	Description	Mark	Explains the concept of climate change (describing its characteristics and explaining why it is occurring i.e. some of the factors which cause it to occur).	3	Describes the concept of climate change (only describing some of its characteristics).	2	States or briefly defines climate change.	1	Total	3
	Description	Mark									
	Explains the concept of climate change (describing its characteristics and explaining why it is occurring i.e. some of the factors which cause it to occur).	3									
	Describes the concept of climate change (only describing some of its characteristics).	2									
	States or briefly defines climate change.	1									
Total	3										
<p>Marker information:</p> <p>Climate change:</p> <ul style="list-style-type: none"> • is the long-term shift in an area's climatic conditions • shifts have been caused by natural variations such as: astronomical (solar radiation and Earth orbital) and geomorphological (tectonic and volcanic) processes • shifts have been caused by anthropogenic changes to the Earth's atmosphere. 											

2021 Section 2 Question 28 Land cover change	Explain how two of the factors listed below have led to differences in the process of land cover change between any two countries: (6 marks) <ul style="list-style-type: none"> • government policy • institutional arrangements • land ownership • type of economy • ideology and culture.
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	Description	Marks
	For each factor (2 x 3 marks each)	
	Explains how the factor has led to differences in the process of land cover change between any two countries. Uses appropriate examples.	3
	Describes how the factor has led to differences in the process of land cover change between any two countries. May use appropriate examples.	2
	Outlines in general terms the process of land cover change in any two countries. No examples included.	1
	Subtotal	3
	Total	6
	<p>Marker information:</p> <p>Since the question refers to differences between two countries, 'half marks' cannot be awarded for answers which only refer to one country when discussing either factor.</p> <p>e.g. Government policies on deforestation in Australia and Brazil vary. Although both countries have some policy controls on deforestation, those in Australia are stricter and deforestation is therefore occurring at a slower rate than is the case in Brazil.</p>	

2020 Section 2 Question 25 Land cover change	<p>Explain the concept of biodiversity loss. (3 marks)</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Description</th> <th style="text-align: center;">Marks</th> </tr> </thead> <tbody> <tr> <td>Correctly explains the concept of biodiversity loss, (describing its characteristics and explaining why it is occurring i.e. some of the factors which cause it to occur)</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Correctly describes the concept of biodiversity loss (only describing some of its characteristics)</td> <td style="text-align: center;">2</td> </tr> <tr> <td>States or briefly defines biodiversity loss</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: center;">3</td> </tr> </tbody> </table> <p>Answers could include:</p> <ul style="list-style-type: none"> • a decrease in number, type, extent or variety of living organisms • reference to causes such as habitat destruction through agriculture, forestry, urban expansion, species invasion, species depletion. <p>Accept other relevant answers.</p>	Description	Marks	Correctly explains the concept of biodiversity loss, (describing its characteristics and explaining why it is occurring i.e. some of the factors which cause it to occur)	3	Correctly describes the concept of biodiversity loss (only describing some of its characteristics)	2	States or briefly defines biodiversity loss	1	Total	3
Description	Marks										
Correctly explains the concept of biodiversity loss, (describing its characteristics and explaining why it is occurring i.e. some of the factors which cause it to occur)	3										
Correctly describes the concept of biodiversity loss (only describing some of its characteristics)	2										
States or briefly defines biodiversity loss	1										
Total	3										

**2020
Section 2
Question
26**

**Land cover
change**

Refer to **Source 4**: Factors influencing land cover change to answer Question 26.

Explain how **one** indirect driver of land cover change and **one** direct pressure on land cover change have brought about loss of ecosystem services. (6 marks)

Description	Mark
For one indirect driver of land cover change	
Correctly explains how one indirect driver of land cover change has brought about a loss of ecosystem services. Clearly demonstrates cause and effect or a clear relationship between the indirect driver and the loss of ecosystem services. Refers to one driver and at least one of the impacts found in the source to support the explanation	3
Describes one indirect driver of land cover change that has brought about a loss of ecosystem services. Demonstrates a simple cause and effect or relationship between the indirect driver and the loss of ecosystem services. Makes a general reference to the source to support the explanation	2
States one indirect driver of land cover change that has brought about a loss of ecosystem services. Demonstrates a simple cause and effect or relationship between the indirect driver and the loss of ecosystem services. Limited or no reference to the source has been made	1
Subtotal	3
For one direct pressure on land cover change	
Correctly explains how one direct pressure on land cover change has brought about a loss of ecosystem services. Clearly demonstrates cause and effect or a clear relationship between the direct pressure and the loss of ecosystem services. Refers to one direct pressure and at least one of the impacts found in the source to support the explanation	3
Describes one direct pressure on land cover change that has brought about a loss of ecosystem services. Demonstrates a simple cause and effect or relationship between the direct pressure and the loss of ecosystem services. Makes a general reference to the source to support the explanation	2
States one direct pressure on land cover change that has brought about a loss of ecosystem services. Demonstrates a simple cause and effect or relationship between the direct pressure and the loss of ecosystem services. Limited or no reference to the source has been made	1
Subtotal	3
Total	6
<p>Marker information:</p> <ul style="list-style-type: none"> • drivers, pressures and areas of impact are clearly labelled in the source • these points are what the candidates should be referring to and addressing • better answers will demonstrate a clear understanding of the concepts being referred to. <p>Answers should include reference to Ecosystem services such as:</p> <ul style="list-style-type: none"> • Provisioning services – such as the production of food and water • Regulating services – such as the control of climate and diseases • Supporting services – such as nutrient cycling and oxygen production • Cultural services – such as spiritual, recreational and cultural benefits. <p>Accept other relevant answers.</p>	

2020 Section 2 Question 28 Land cover change	Name one land management practice of Aboriginal and Torres Strait Islander Peoples and summarise its impact on land cover over time. (3 marks)	
	Description	Marks
	Names one recognised land management practice of Aboriginal and Torres Strait Islander Peoples and summarises (expresses concisely) the relevant details of its impact on land cover over time. Clearly demonstrates the relationship between the land management practice and its impact on land cover	3
	Names one land management practice of Aboriginal and Torres Strait Islander Peoples and expresses some relevant details of its impact on land cover over time. Adequately demonstrates the relationship between the land management practice and its impact on land cover	2
	Attempts to name one land management practice of Aboriginal and Torres Strait Islander Peoples. Limited details of its impact on land cover over time are provided. Relationship between the land management practice and its impact on land cover may not be clear or If the practice is named on its own	1
	Total	3
Answers could include: <ul style="list-style-type: none"> • after gathering in an area for a time, leaving adequate seeds and vegetation to ensure regrowth and future supply • use of fire to encourage plant regrowth and seed dispersal • use of knowledge of seasons to maximise food supply and to not over-exploit an area. The impact on land cover of these and other relevant practices need to be summarised, i.e. expressed concisely. Accept other relevant answers.		

2019 Section 2 Question 25 Land cover change	Identify one environmental variable and one socio-economic variable that could be used in spatial modelling to project changes in land cover. (2 marks)	
	Description	Marks
	Correctly identifies one environmental variable that could be used in spatial modelling to project changes in land cover	1
	Correctly identifies one socio-economic variable that could be used in spatial modelling to project changes in land cover	1
	Total	2
	Answers could include: <p>Environmental variables could include aspects of:</p> <ul style="list-style-type: none"> • ecological processes • natural vegetation cover • soil • climate change • sea level changes • the carbon cycle • the heat budget • the hydrological cycle • climate systems and weather components (i.e. temperature and rainfall). <p>Socio-economic variables could include aspects of:</p> <ul style="list-style-type: none"> • population (i.e. total, growth, density) • energy production and consumption • economic activity and land use • rates of economic growth • income, wealth, affluence • levels of development • globalisation. Accept other relevant answers.	

2019 Section 2 Question 26 Land cover change	Define the term 'natural biome'. (2 marks)								
	<table border="1"> <thead> <tr> <th>Description</th> <th>Mark</th> </tr> </thead> <tbody> <tr> <td>Correctly defines the term natural biome, including both parts of the definition</td> <td>2</td> </tr> <tr> <td>Defines the term natural biome but only includes one part of the definition</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>2</td> </tr> </tbody> </table>	Description	Mark	Correctly defines the term natural biome, including both parts of the definition	2	Defines the term natural biome but only includes one part of the definition	1	Total	2
Description	Mark								
Correctly defines the term natural biome, including both parts of the definition	2								
Defines the term natural biome but only includes one part of the definition	1								
Total	2								
	<p>Marker information:</p> <p>A natural biome is a community of life forms adapted to a large natural area. They may cover a region made up of several ecosystems and refer to the biotic or living components of that region. There is no obvious or direct human interaction with the biome.</p> <p>For two marks candidates will need to correctly indicate that a natural biome is a community of living things and that a natural biome has not been directly altered, changed or transformed by human actions.</p>								

2019 Section 2 Question 27 Land cover change	Refer to Source 6 : Satellite image of forest cover clearance, Borneo (Indonesia and Malaysia) 1973–2010 to answer Question 27.																	
	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. (4 marks)																	
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Correctly describes the nature of land cover change that can be observed to have taken place on the island of Borneo between 1973 and 2010, including reference to the source</td> <td>2</td> </tr> <tr> <td>Identifies in general terms that land cover changes have occurred</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>2</td> </tr> <tr> <td>Correctly describes the extent of land cover change that can be observed to have taken place on the island of Borneo between 1973 and 2010, including reference to the source</td> <td>2</td> </tr> <tr> <td>Identifies in general terms the extent of land cover change</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>2</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>4</td> </tr> </tbody> </table>	Description	Marks	Correctly describes the nature of land cover change that can be observed to have taken place on the island of Borneo between 1973 and 2010, including reference to the source	2	Identifies in general terms that land cover changes have occurred	1	Subtotal	2	Correctly describes the extent of land cover change that can be observed to have taken place on the island of Borneo between 1973 and 2010, including reference to the source	2	Identifies in general terms the extent of land cover change	1	Subtotal	2	Total	4	
Description	Marks																	
Correctly describes the nature of land cover change that can be observed to have taken place on the island of Borneo between 1973 and 2010, including reference to the source	2																	
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Subtotal	2																	
Correctly describes the extent of land cover change that can be observed to have taken place on the island of Borneo between 1973 and 2010, including reference to the source	2																	
Identifies in general terms the extent of land cover change	1																	
Subtotal	2																	
Total	4																	
	<p>Marker information:</p> <p>Nature of land cover change: Candidates should use terms from the source such as forest, non-forest, cleared forest, forest clearance, logged forest, intact forest, industrial plantations and logging. Other terms may be relevant and correct, such as deforestation, removal of tropical hardwoods or palm oil plantations/production, but are based on prior knowledge or learning and are not essential to receive full marks. This is a data (satellite image) interpretation question.</p> <p>Extent of land cover change: Candidates should give an indication of the percentage or proportion of land that has been cleared or altered to support their answer. Examples include:</p> <ul style="list-style-type: none"> • approximately a third of the forest cover has been cleared between 1973 and 2010 • 20 per cent of forest existing in 1973 was still intact in 2010 • almost half of the forest existing in 1973 existed as logged forest in 2010 • 10–15 per cent of the forest existing in 1973 was used for industrial plantations by 2010. <p>Accept other relevant answers.</p>																	

Unit 3 – Depth study one: Global climate OR Loss of biodiversity

Section 1

There have been no questions on this topic for this section in the exams of recent years.

Section 2

2021
Section 2
Question 27

Unit 3 –
Depth
study one

Refer to **Source 5**: Global land cover to answer Question 27.

Source 5: Global land cover

Category	Sub-category	Percentage	Area (Million km²)
Earth's surface	Land	29%	149
	Ocean	71%	361
Land surface	Habitable Land	71%	104
	Glaciers	10%	15
	Barren land	19%	28
Habitable land	Agriculture	50%	51
	Forests	37%	39
	Shrub	11%	12
Agricultural land	Livestock: meat and dairy	77%	40
	Crops excluding feed	23%	11
	Urban and built-up land	1%	1.5
	Freshwater (Lakes and rivers)	1%	1.5

Adapted from: Ritchie, H., & Roser, M. (2019). Global land use for food production. In *Environmental impacts of food production*. Retrieved April, 2021, from <https://ourworldindata.org/environmental-impacts-of-food> Used under Creative Commons Attribution 4.0 International licence.

Name **one** anthropogenic biome identified in **Source 5** and explain its implications for the functioning of the world's ecosystems. (4 marks)

Name of the anthropogenic biome: _____

Implications: _____

Marking Guide – Section 1

There have been no questions on this topic for this section in the exams of recent years.

Marking Guide – Section 2

2021 Section 2 Question 27 Unit 3 – Depth study one	Refer to Source 5 : Global land cover to answer Question 27.																
	Name one anthropogenic biome identified in Source 5 and explain its implications for the functioning of the world's ecosystems. (4 marks)																
	<table border="1"><thead><tr><th>Description</th><th>Marks</th></tr></thead><tbody><tr><td>Correctly identifies one anthropogenic biome.</td><td>1</td></tr><tr><td>Subtotal</td><td>1</td></tr><tr><td>Explains its implications for the functioning of the world's ecosystems.</td><td>3</td></tr><tr><td>Describes its implications for the functioning of the world's ecosystems.</td><td>2</td></tr><tr><td>Outlines its implications for the functioning of the world's ecosystems.</td><td>1</td></tr><tr><td>Subtotal</td><td>3</td></tr><tr><td>Total</td><td>4</td></tr></tbody></table>	Description	Marks	Correctly identifies one anthropogenic biome.	1	Subtotal	1	Explains its implications for the functioning of the world's ecosystems.	3	Describes its implications for the functioning of the world's ecosystems.	2	Outlines its implications for the functioning of the world's ecosystems.	1	Subtotal	3	Total	4
	Description	Marks															
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	Describes its implications for the functioning of the world's ecosystems.	2															
	Outlines its implications for the functioning of the world's ecosystems.	1															
	Subtotal	3															
Total	4																
Marker Information: The anthropogenic biomes identified in Source 5 are: i. 'Agriculture', ii. 'Livestock: meat and dairy' iii. 'Crop' iv. 'Urban and built-up land'. A candidate may correctly name any one of these four.																	
Implications may include: <ul style="list-style-type: none">• biodiversity (habitat and species) loss• soil degradation• watercourse and/or groundwater disruption• climate change.																	
These will be referred to as implications of the creation of the anthropogenic biome and the answer will show how these implications affect the functioning of the world's ecosystems.																	

Marking Guide – Section 3

<p>2023 Section 3 Question 30</p> <p>Unit 3 – Section 3 Questions</p>	<p>(a) Describe the interrelationships between land cover change and climate, including changes to surface reflectivity (albedo) and the process of natural carbon sequestration.</p> <p style="text-align: center;">or</p> <p>Describe the interrelationships between land cover change and biodiversity loss, including shifting ecological boundaries, evolutionary diversification and species extinction. (8 marks)</p>								
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	Description	Marks							
	<p>For climate change: Describes the interrelationships between land cover change and climate, including changes to surface reflectivity (albedo) and the process of natural carbon sequestration</p> <p>For biodiversity loss: Describes the interrelationships between land cover change and biodiversity loss, including shifting ecological boundaries, evolutionary diversification and species extinction</p> <p>Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the description. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response</p>	7–8							
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	<p>For climate change: Makes generalised statements about the relationships between land cover change and climate, including changes to surface reflectivity (albedo) and/or the process of natural carbon sequestration</p>	1-2
	<p>For biodiversity loss: Makes generalised statements about the relationships between land cover change and biodiversity loss, including shifting ecological boundaries and/or evolutionary diversification and species extinction</p>	
	Limited or no use of geographical terminology and concepts, in a largely unstructured response	
	Total	8
<p>Answers could include:</p> <p>For climate change: Descriptions should demonstrate the bi-directional nature of feedback loops associated with land cover change (albedo) and climate change and the natural process of carbon sequestration.</p> <p>For biodiversity loss: Descriptions should demonstrate the bi-directional nature of feedback loops associated with land cover change (biodiversity loss) and shifting ecological boundaries, evolutionary diversification and species extinction.</p> <p>Accept other relevant answers.</p>		

(b) Explain **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)

Description	Marks
For each of two ways of adaptation (2 x 6 marks)	
Explains a way in which human activity has adapted, or may be required to adapt, to either global climate change or loss of biodiversity Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the explanation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response	5–6
Describes a way in which human activity has adapted, or may be required to adapt, to either global climate change or loss of biodiversity Presents some supporting evidence and examples to develop and strengthen the description. Applies relevant geographical terminology and concepts to develop a cohesive response	3–4
Makes generalised statements about a way in which human activity has adapted, or may be required to adapt, to either global climate change or loss of biodiversity Limited evidence to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response	1–2
Total	12
<p>Answers could include:</p> <p>Adaptation is an alteration or adjustment in response to a changed environment. It refers to actions undertaken to live with a new set of conditions rather than to reverse or stop changes that have occurred.</p> <p>Answers may use environmental and/or economic and/or social benefits and costs to frame their explanation.</p> <p>Answers for climate change could include:</p> <ul style="list-style-type: none"> • alternative agricultural practices and varieties • alternative transportation infrastructure to allow for network disruptions • development of alternative fuel sources to allow for supply disruptions • securing alternative water supplies • responding to sea level rise in coastal zones. <p>Answers for loss of biodiversity could include:</p> <ul style="list-style-type: none"> • breeding programs • conservation strategies • preservation strategies • changes in primary industry practices • gene and seed banks. <p>Accept other relevant answers.</p>	

2023
Section 3
Question
31

Unit 3 –
Section 3
Questions

(a) Describe **one** present or projected impact of either climate change **or** biodiversity loss in one natural and **one** anthropogenic environment. (8 marks)

Description	Marks
For each of the two environments (2 x 4 marks)	
Describes one present or projected impact of either climate change or biodiversity loss in a natural or anthropogenic environment Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the description. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response	4
Describes briefly one present or projected impact of either climate change or biodiversity loss in a natural or anthropogenic environment Presents a range of appropriate supporting evidence and examples to develop and strengthen the description. Applies relevant geographical terminology and concepts to develop a cohesive response	3
Outlines one present or projected impact of either climate change or biodiversity loss in a natural or anthropogenic environment Presents some relevant evidence and examples to support the outline. Uses some relevant geographical terminology and concepts	2
Makes generalised statements about one present or projected impact of either climate change or biodiversity loss in a natural or anthropogenic environment Limited or no use of geographical terminology and concepts, in a largely unstructured response	1
Total	8
<p>Answers could include:</p> <p>For climate change in natural environments:</p> <ul style="list-style-type: none"> increased frequency of extreme weather events, such as heat waves leading to bush fires extinction due to the inability of species to adapt and subsequent biodiversity loss changes to ocean currents/acidification due to ocean warming. <p>For climate change in anthropogenic environments:</p> <ul style="list-style-type: none"> significant changes to hydrological processes resulting in lower availability of freshwater increases or decreases in yield in some rain fed crops human health impacts from extreme weather events, such as heat waves. <p>For loss of biodiversity in natural environment:</p> <ul style="list-style-type: none"> loss of ecosystem regulation and stability and a reduction in the productivity of an ecosystem species extinction leading to a reduction in genetic diversity and species' resilience changing microclimates of areas/regions. <p>For loss of biodiversity in anthropogenic environments:</p> <ul style="list-style-type: none"> loss of ecosystem services including provisioning and regulating services, such as water filtration and carbon sequestration increases in contact between humans and wild animals exposing humans to infectious diseases economic costs of managing land degradation, and increased pest and disease control in agricultural areas. <p>Accept other relevant answers.</p>	

(b) Explain **two** strategies designed to address the impacts of land cover change on local and/or regional environments. (12 marks)

Description	Marks
For each strategy (2 x 6 marks)	
Explains a strategy designed to address the impacts of land cover change on local and/or regional environments Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the explanation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response	5–6
Describes a strategy designed to address the impacts of land cover change on local and/or regional environments Presents some supporting evidence and examples to develop and strengthen the description. Applies relevant geographical terminology and concepts to develop a cohesive response	3–4
Makes generalised statements about a strategy designed to address the impacts of land cover change on local and/or regional environments Limited evidence to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response	1–2
Total	12
<p>Answers could include:</p> <p>The selected strategies can be designed by local or state governments, by corporations or conservation groups or by any combination of these and they can be of varying spatial scales from the purely local to the sub-national. Responses should clearly indicate what impacts of land cover change the strategies are addressing.</p> <p>Strategies to address the impacts of land cover change may include:</p> <ul style="list-style-type: none"> • forestry programs, e.g. <i>Djarlma Plan for the Western Australian Forestry Industry. A framework for action 2019–2030</i> • environmental rehabilitation programs, e.g. <i>Rehabilitation Plan Project Atlas and the Atlas Stage 3 Project</i> • environmental protection programs, e.g. <i>Bindjareb Djilba (Peel-Harvey estuary) Protection Plan: A plan for the protection of the Peel-Harvey estuary</i> • economic initiatives aimed at reducing LCC impacts or rehabilitating land, e.g. <i>Native vegetation policy for Western Australia May 2022</i> • urban consolidation/infill initiatives, e.g. <i>Perth and Peel @ 3.5 million / Development Control Policy 1.6 Planning to Support Transit Use and Transit Oriented Development 31 August 2021</i> • intensification of agriculture/improvements in agricultural technologies – technologies that facilitate intensification of agricultural production with clear links to how they address land cover change. <p>Accept other relevant answers.</p>	

**2022
Section 3
Question
32**

**Unit 3 –
Section 3
Questions**

(a) Describe one natural cause and one anthropogenic cause of global climate change or declining biodiversity. (8 marks)

Description	Marks
For each of two causes (2 x 4 marks)	
Describes in detail a cause and uses accurate information to clearly demonstrate how the cause brings about either climate change or loss of biodiversity. Presents a wide range of appropriate supporting evidence and examples to strengthen the description. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	4
Describes a cause and uses relatively accurate information to demonstrate how the cause brings about either climate change or loss of biodiversity. Uses a range of appropriate and supporting evidence and examples to develop and strengthen the description. Applies relevant geographical terminology and concepts to develop a cohesive response.	3
Identifies a cause and uses some generalised information to indicate how the cause brings about either climate change or loss of biodiversity. Uses limited evidence and examples to support statements and generalisations. Limited use of geographical terminology and concepts.	2
Provides a generalised statement about a cause. Limited or no information is provided on how the cause brings about either climate change or loss of biodiversity. Limited or no use of geographical terminology and concepts, in a largely unstructured response.	1
Total	8

Marker information:

Responses should focus on how the identified cause leads to climate change or biodiversity loss.

Answers could include:

Natural causes of climate change:

- solar variations
- changes to earth's orbit
- movement of tectonic plates
- volcanic eruptions.

Anthropogenic causes of climate change:

- agriculture
- forestry
- urban development (transportation, energy consumption, industrial activities).

Natural causes of biodiversity loss:

- changes to climate through geological time
- flood basalt events
- volcanic eruptions
- asteroid impacts.

- Anthropogenic causes of biodiversity loss:
- land cover change - habitat fragmentation
 - pollution
 - enhanced climate change
 - invasive species
 - over exploitation.

Accept other relevant answers.

(b) Assess two current or proposed strategies implemented to mitigate the adverse effects of either global climate change or loss of biodiversity. (12 marks)

Description	Marks
For each of two strategies (2 x 6 marks)	
Assesses a current or proposed strategy. Accurately relates the strategy to mitigating the adverse effects of global climate change or biodiversity loss. Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the assessment. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	5–6
Explains a current or proposed strategy. Relates the strategy to mitigating the adverse effects of global climate change or biodiversity loss. Uses some supporting evidence and examples to develop and strengthen the explanation. Applies relevant geographical terminology and concepts to develop a cohesive response.	3–4
States some general information about a strategy. Provides little evidence of the relationship between the strategy and mitigating the adverse effects of global climate change or biodiversity loss. Limited evidence is used to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response.	1–2
Total	12
<p>Answers could include:</p> <p>Climate change – strategies that reduce the impacts of climate change</p> <ul style="list-style-type: none"> • carbon sequestration strategies • renewable energy strategies. <p>Loss of biodiversity – strategies that reduce the impacts of biodiversity loss</p> <ul style="list-style-type: none"> • urban infill/growth boundaries • land conservation and preservation strategies. <p>Accept other relevant answers.</p>	

**2022
Section 3
Question
33**

**Unit 3 –
Section 3
Questions**

(a) Describe one major type of evidence through geological time and one major type of evidence in recent human history for climate change or loss of biodiversity. (8 marks)

Description	Marks
For each of two types of evidence (2 x 4 marks)	
Describes in detail a major type of evidence and uses accurate information to clearly demonstrate how the evidence provides knowledge about either climate change or loss of biodiversity. Presents a wide range of appropriate supporting evidence and examples to strengthen the description. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	4
Describes a major type of evidence and uses relatively accurate information to demonstrate how the evidence provides knowledge about either climate change or loss of biodiversity. Uses a range of appropriate and supporting evidence and examples to develop and strengthen the description. Applies relevant geographical terminology and concepts to develop a cohesive response.	3
Identifies a major type of evidence and uses some generalised information to indicate how the evidence provides knowledge about either climate change or loss of biodiversity. Uses limited evidence and examples to support statements and generalisations. Limited use of geographical terminology and concepts.	2
Provides a generalised statement about a major type of evidence. Limited or no information is provided on how the evidence provides knowledge about either climate change or loss of biodiversity. Limited or no use of geographical terminology and concepts, in a largely unstructured response.	1
Total	8
<p>Answers could include:</p> <p>Climate change evidence – through geological time</p> <ul style="list-style-type: none"> • proxy data extracted from ice core modelling • proxy data from sedimentation in marine environments • records of fossilised pollen distribution. <p>Climate change evidence – recent human history</p> <ul style="list-style-type: none"> • records of average land surface temperature • records of average ocean surface temperature • records of changes to mass of the cryosphere. <p>Loss of biodiversity evidence – through geological time</p> <ul style="list-style-type: none"> • records of rock layers and fossils from extinction events • records of marine fossils • asteroid impacts. <p>Loss of biodiversity evidence – recent human history</p> <ul style="list-style-type: none"> • records of the impact of industrial agriculture • data for ecosystem and genetic diversity • sampling data of species richness. <p>Accept other relevant answers.</p>	

(b) Assess a program designed to address the impacts of land cover change on local and regional environments, giving consideration to two of the following aspects of sustainability:

- environmental
- economic
- social. (12 marks)

Description	Marks
For each aspect of sustainability (2 x 6 marks)	
Assesses a program designed to address the impacts of land cover change on local and regional environments, accurately relating the outcomes of the program to the chosen aspect of sustainability.	5–6
Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the assessment. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	
Explains a program designed to address the impacts of land cover change on local and regional environments, relating the outcomes of the program to the chosen aspect of sustainability.	3–4
Uses some supporting evidence and examples to develop and strengthen the explanation. Applies relevant geographical terminology and concepts to develop a cohesive response.	
States some general information about a program designed to address the impacts of land cover change on local and regional environments. Provides little or no information on how the outcomes of the program relates to a chosen aspect of sustainability.	1–2
Limited evidence is used to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response.	
Total	12
<p>Answers could include:</p> <p>Programs selected should be specific programs that have a primary focus on addressing the impacts of land cover change.</p> <p>Specific program could include:</p> <ul style="list-style-type: none"> • agroforestry • forest management programs – silviculture • wetland restoration • pest control. <p>Impacts that may be addressed include:</p> <ul style="list-style-type: none"> • biodiversity loss • soil salinity • water quality • pollutant runoff • flood mitigation • displacing native species and altering habitat. <p>Accept other relevant answers.</p>	

**2021
Section 3
Question
32**

**Unit 3 –
Section 3
Questions**

(a) Describe the interrelationship between land cover change and climate or land cover change and biodiversity loss. Make reference to specific examples to support your response. (8 marks)

Description	Marks
<p>Describes in detail the interrelationship between land cover change and climate.</p> <p>Or</p> <p>Describes in detail the interrelationship between land cover change and biodiversity loss.</p> <p>Includes detailed examples to demonstrate the complexity of these interrelationships i.e. by providing an explanation of their bi-directional nature. Uses detailed and accurate evidence extensively and in a manner that comprehensively supports the description. Uses data (e.g. examples, sources and statistics) to develop and strengthen the description. Uses accurate and relevant geographical terms. Employs well-structured sentences and links paragraphs together in a coherent manner.</p>	7–8
<p>Describes the interrelationship between land cover change and climate.</p> <p>Or</p> <p>Describes the interrelationship between land cover change and biodiversity loss.</p> <p>Includes examples to demonstrate these interrelationships. Uses accurate evidence throughout the description. Uses data to support the response. Uses some appropriate geographical terms. Sentences and paragraphs are well developed and easy to comprehend.</p>	5–6
<p>Outlines a relationship between land cover change and climate.</p> <p>Or</p> <p>Outlines a relationship between land cover change and biodiversity loss.</p> <p>Includes at least one example to demonstrate these relationships. Uses evidence, some of which is accurate. Uses some geographical terms. Sentences and paragraphs are simplistic and may lack structure and clarity.</p>	3–4
<p>States a relationship between land cover change and climate.</p> <p>Or</p> <p>States a relationship between land cover change and biodiversity loss.</p> <p>A generalised statement with little detail. Information may be in dot point form. Limited evidence is used, and the response may contain many generalisations. Limited use of geographical terms. Poor literacy skills reduce the ability of the marker to understand the response.</p>	1–2
Total	8

(b) Assess 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)

Description	Marks
For each of two ways of adaptation (2 x 6 marks each)	
<p>Provides an assessment of a way in which human activity has adapted, or may be required to adapt, to global climate change or loss of biodiversity.</p> <p>Uses a wide range of appropriate supporting evidence and examples to develop and strengthen the response. Uses accurate geographical terminology and concepts to develop a cohesive, concise and articulate answer with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>Provides an explanation of a way in which human activity has adapted, or may be required to adapt, to global climate change or loss of biodiversity.</p> <p>Uses some supporting evidence and examples to develop and strengthen the response. Uses some relevant geographical terminology and concepts to develop a cohesive and concise answer with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>Provides generalised statements on a way in which human activity has adapted, or may be required to adapt, to global climate change or loss of biodiversity.</p> <p>Uses insufficient evidence and examples to support generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12
<p>Marker information: Adaptation refers to alterations or adjustments in human responses to changed environments, brought about, in this context, by climate change or loss of biodiversity. It refers to measures taken to adapt to a 'new normal', not to reverse or stop changes that have occurred.</p> <p>Candidates may assess the measure by referring to its environmental and/or economic and/or social benefits and costs.</p>	

**2021
Section 3
Question
33**

**Unit 3 –
Section 3
Questions**

(a) Describe one approach to land cover restoration and rehabilitation with reference to the mitigation of future land cover changes. (8 marks)

Description	Marks
<p>Describes in detail a specific approach to land cover restoration and rehabilitation. Accurately relates this approach to the mitigation of future land cover changes.</p> <p>Includes detailed examples to demonstrate the nature of the approach and the means by which it might mitigate future land cover changes. Uses a range of detailed and accurate evidence to support the description. Uses data (e.g. examples, sources and statistics) to develop and strengthen the description. Uses accurate and relevant geographical terms. Employs well-structured sentences and links paragraphs together in a coherent manner.</p>	7–8
<p>Describes an approach to land cover restoration and rehabilitation. Relates this approach to the mitigation of future land cover changes.</p> <p>Includes examples to demonstrate the nature of the approach and the means by which it might mitigate future land use changes. Uses accurate evidence throughout the description. Uses data to support the response. Uses some appropriate geographical terms. Sentences and paragraphs are well developed and easy to comprehend.</p>	5–6
<p>Outlines an approach to land cover restoration and rehabilitation. Provides a limited indication of the relationship between this approach and the mitigation of future land cover changes.</p> <p>Includes at least one example to demonstrate the nature of the approach and the means by which it might mitigate future land use changes. Uses evidence, some of which is accurate. Uses some geographical terms. Sentences and paragraphs are simplistic and may lack structure and clarity.</p>	3–4
<p>States an approach to land cover restoration and rehabilitation. Provides little or no indication of the relationship between this approach and the mitigation of future land cover changes.</p> <p>A generalised statement with little detail. Information may be in dot point form. Limited evidence is used, and the response may contain many generalisations. Limited use of geographical terms. Poor literacy skills reduce the ability of the marker to understand the response.</p>	1–2
Total	8
<p>Marker information: Restoration and rehabilitation approaches can include removal of introduced plant and animal species, removal of any contaminants in the soil or hydrological features and revegetation of the area. Note: If candidates fail to relate the approach to the mitigation of future land cover changes, a maximum of four marks should be awarded.</p>	

(b) Assess the effects of climate change on land cover in natural and anthropogenic biomes or assess the effects of biodiversity loss in natural and anthropogenic biomes. (12 marks)

Description	Marks
For each of natural and anthropogenic biomes (2 x 6 marks each)	
<p>Provides an assessment of how either climate change or biodiversity loss brings about modifications in the selected biomes.</p> <p>Uses a wide range of appropriate supporting evidence and examples to develop and strengthen the response. Uses accurate geographical terminology and concepts to develop a cohesive, concise and articulate answer with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>Provides an explanation of how either climate change or biodiversity loss brings about modifications in the selected biomes.</p> <p>Uses some supporting evidence and examples to develop and strengthen the response. Uses some relevant geographical terminology and concepts to develop a cohesive and concise answer with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>Provides generalised statements on how either climate change or biodiversity loss brings about modifications in the selected biomes.</p> <p>Uses limited evidence and examples to support generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12

**2020
Section 3
Question
33**

**Unit 3 –
Section 3
Questions**

(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)

Description	Marks
For each of two major types of evidence (2 x 4 marks each)	
<p>A detailed description of the type of evidence is given and accurate information is provided on how this type of evidence provides information on either climate change or loss of biodiversity.</p> <p>A wide range of appropriate supporting material and examples is used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	4
<p>An appropriate description of the type of evidence is given and relatively accurate information is provided on how this type of evidence provides information on either climate change or loss of biodiversity.</p> <p>A range of appropriate supporting material and examples is used to develop and strengthen the description. Relevant geographical terminology and concepts help to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3
<p>An outline (limited description) of the type of evidence is given and some generalised information is provided on how this type of evidence provides information on either climate change or loss of biodiversity.</p> <p>Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	2
<p>Identifies a type of evidence. Limited or no information is provided on how this type of evidence provides information on either climate change or loss of biodiversity.</p> <p>There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.</p>	1
Subtotal	4
Total	8
<p>Marker information: Primary focus of the candidates' answers should be on how the selected type of evidence provides information on the occurrence of either climate change or loss of biodiversity.</p> <p>Answers could include: Climate change/geological time:</p> <ul style="list-style-type: none"> • ice cores • ocean sediments <p>Climate change/recent human history:</p> <ul style="list-style-type: none"> • changes in atmospheric carbon dioxide levels • sea level rise • ocean temperatures/acidity. 	
<p>Loss of biodiversity/geological time:</p> <ul style="list-style-type: none"> • fossil records • mass extinctions <p>Loss of biodiversity/recent human history:</p> <ul style="list-style-type: none"> • climate change • land cover change and habitat destruction. 	
<p>Accept other relevant answers.</p>	

(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)

Description	Marks
For each of two aspects of benefits and costs (2 x 6 marks each)	
<p>A detailed and comprehensive evaluation of how the selected aspect of these benefits and costs results from the program's response to the impacts of land cover change is presented</p> <p>A wide range of appropriate supporting evidence and examples is used to develop and strengthen the evaluation. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format</p>	5–6
<p>An evaluation of how the selected aspect of these benefits and costs results from the program's response to the impacts of land cover change is presented</p> <p>Some supporting evidence and examples are used to develop and strengthen the evaluation. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format</p>	3–4
<p>A basic description, of how the selected aspect of these benefits and costs results from the program's response to the impacts of land cover change is presented</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand</p>	1–2
Subtotal	6
Total	12
<p>Marker information: On any one of the environmental, economic or social aspects for any given program the benefits are likely to outweigh the costs or vice versa. Markers are therefore not seeking a balance of benefits and costs in every – or indeed any – case. Nevertheless, to obtain at least a mark for their evaluation, a candidate must ascertain the value or amount of the benefits or costs they have highlighted.</p> <p>Specific programs referred to should focus on addressing impacts of land cover change, rather than just general statements referring to 'reforestation' or 'restoration'. Specific programs could relate to:</p> <ul style="list-style-type: none"> • agroforestry • silviculture • habitat protection and reconstruction • alternative farming practices • land care management programs. <p>These types of programs address impacts such as:</p> <ul style="list-style-type: none"> • soil salinity • soil erosion • soil degradation • habitat loss • species protection. 	
Accept other relevant answers.	

**2020
Section 3
Question
34**

**Unit 3 –
Section 3
Questions**

(a) Describe one natural and one anthropogenic cause of either global climate change or loss of biodiversity. (8 marks)

Description	Marks
For each of two causes (2 x 4)	
<p>A detailed description of a cause is given, and accurate information is provided on how the selected cause brings about either climate change or loss of biodiversity.</p> <p>A wide range of appropriate supporting material and examples is used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts help to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	4
<p>An appropriate description of a cause is given, and relatively accurate information is provided on how the selected cause brings about either climate change or loss of biodiversity.</p> <p>A range of appropriate supporting material and examples is used to develop and strengthen the description. Relevant geographical terminology and concepts help to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3
<p>An outline (limited description) of a cause is given and some generalised information is provided on how the selected cause brings about either climate change or loss of biodiversity.</p> <p>Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	2
<p>Correctly identifies a cause. Limited or no information is provided on how the selected cause brings about either climate change or loss of biodiversity.</p> <p>There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.</p>	1
Subtotal	4
Total	8
<p>Marker information: Primary focus of candidates' answers should be on how the selected cause brings about either climate change or loss of biodiversity.</p> <p>Answers could include: Climate change/natural cause:</p> <ul style="list-style-type: none"> • sun spot variation • variation in solar orbits <p>Climate change/anthropogenic cause:</p> <ul style="list-style-type: none"> • fossil fuel consumption • agricultural practices. <p>Loss of biodiversity/natural cause:</p> <ul style="list-style-type: none"> • impact of volcanic activity • climate related events such as floods, fires and droughts <p>Loss of biodiversity/anthropogenic cause:</p> <ul style="list-style-type: none"> • habitat fragmentation due to introduced species such as feral cats, prickly pear. <p>Accept other relevant answers.</p>	

(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. (12 marks)

Description	Marks
For each of two aspects of sustainability (2 x 6 marks each)	
<p>A detailed and comprehensive evaluation of the selected approach to the management of land cover change is presented. Detailed and accurate information is provided on the extent to which the selected approach contributes to the achievement of the relevant aspect of sustainability into the future.</p> <p>A wide range of appropriate supporting evidence and examples is used to develop and strengthen the evaluation. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>An evaluation of the selected approach to the management of land cover change is presented. Information is provided on the extent to which the selected approach contributes to the achievement of the relevant aspect of sustainability.</p> <p>Some supporting evidence and examples are used to develop and strengthen the evaluation. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>A basic description of the selected approach to the management of land cover change is presented. Limited information is provided on the extent to which the selected approach contributes to the achievement of the relevant aspect of sustainability.</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12
<p>Marker information:</p> <p>The question requires an evaluation. A good answer (i.e. one receiving high marks) will therefore include both the extent to which the selected approach may fail to manage land cover change sustainably as well as the extent to which it may succeed in doing so.</p> <p>Approaches to the management of land cover change could include:</p> <ul style="list-style-type: none"> • mitigation strategies • conservation strategies • preservation strategies • restoration strategies • reforestation strategies • rehabilitation strategies. <p>Good answers will focus on an evaluation of the approach to the management of land cover change, in the context of the two selected aspects of sustainability, rather than just a general description of an approach.</p> <p>Accept other relevant answers.</p>	

**2020
Section 3
Question
35**

**Unit 3 –
Section 3
Questions**

(a) Describe the nature and causes of one significant challenge facing metropolitan Perth or a regional urban centre in Western Australia. (8 marks)

Description	Marks
<p>For either metropolitan Perth or a regional urban centre in Western Australia: A detailed and comprehensive description is given, and accurate information is provided, on both the nature and the causes of the selected significant challenge.</p> <p>A wide range of appropriate supporting evidence and examples are used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts help to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	7–8
<p>For either metropolitan Perth or a regional urban centre in Western Australia: An appropriate description is given, and relatively accurate information is provided on both the nature and the causes of the selected challenge.</p> <p>A range of appropriate supporting evidence and examples are used to develop and strengthen the description. Relevant geographical terminology and concepts help to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>For either metropolitan Perth or a regional urban centre in Western Australia: An outline (limited description) is given and generalised information is provided on both the nature and causes of the selected challenge.</p> <p>Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	3–4
<p>For either metropolitan Perth or a regional urban centre in Western Australia: Provides some information on either the nature or the causes of the selected challenge.</p> <p>There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Total	8
<p>Marker information: Nature refers to the characteristics and impacts of the selected challenge, usually by providing a definition and a description of the general features of the challenge. Causes refer to the factors and conditions that have brought about the challenge.</p> <p>Note: An answer which only describes the nature of, or only describes the cause of should not be awarded more than four marks.</p> <p>Example, Urban sprawl: Nature:</p> <ul style="list-style-type: none"> • the rapid spread of typically low density residential and urban development on the periphery of urban areas without the adequate provision of services and infrastructure • good answer will continue on to describe, with examples, the aspects of the challenge that cause disadvantage and disruption to daily urban living. 	

Causes:

Underlying conditions which have caused the challenge to occur, such as:

- desire for cheap land
- rapid urban growth
- desire for low density, privately owned housing
- high motor vehicle dependence
- availability of easily cleared land.

Accept other relevant answers.

(b) Select a significant challenge facing a megacity you have studied and explain two planning strategies adopted in the selected megacity to address this challenge. (12 marks)

Description	Marks
For each planning strategy described and explained (2 x 6 marks each)	
<p>A detailed and comprehensive explanation of why and how the planning strategy addresses the selected challenge is presented. Detailed and accurate information is provided about the strategy and the means by which it addresses the selected challenge.</p> <p>A wide range of appropriate supporting evidence and examples is used to develop and strengthen the evaluation. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>An explanation of why and how the planning strategy addresses the selected challenge is presented. Relatively accurate information is provided about the strategy and the means by which it addresses the selected challenge.</p> <p>Some supporting evidence and examples are used to develop and strengthen the evaluation. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>A basic description, with little explanation of why and how the planning strategy addresses the selected challenge. Limited information is provided about the strategy. The explanation of the means by which the planning strategy addresses the selected challenge is limited.</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12

Marker information:

Note: Part A refers to Perth or a regional urban centre in WA, whilst Part B refers to a megacity.

The syllabus uses the term strategy, which can be taken to include a plan or scheme. Teachers and candidates may therefore interpret this term as referring to a large-scale plan, such as ONENYC, a specific strategy within such a plan or a more local initiative. All of these approaches are to be accepted and assessed on the merit of their explanation of why and how the strategy addresses the selected challenge.

**2019
Section 3
Question
32**

**Unit 3 –
Section 3
Questions**

(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)

Description	Marks
For each of the two interactions (2 x 4) or two key elements of ecosystem structure and dynamics (2 x 4)	
<p>A detailed description is given and accurate information is provided on the ways in which the chosen natural system interacts with another natural system listed to influence the Earth's climate.</p> <p style="text-align: center;">or</p> <p>A detailed description is given and accurate information is provided on a key element of ecosystem structure and dynamics from the list provided.</p> <p>A wide range of appropriate supporting evidence and examples are used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	4
<p>An appropriate description is given and relatively accurate information is provided on the ways in which the chosen natural system interacts with another natural system listed to influence the Earth's climate.</p> <p style="text-align: center;">or</p> <p>An appropriate description is given and relatively accurate information is provided on a key element of ecosystem structure and dynamics from the list provided.</p> <p>A range of appropriate supporting evidence and examples are used to develop and strengthen the description. Relevant geographical terminology and concepts helps to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3
<p>An outline (limited description) is given and some generalised information is provided on the ways in which the chosen natural system interacts with another natural system listed. Some detail on the influence on the Earth's climate is given.</p> <p style="text-align: center;">or</p> <p>An outline (limited description) is given and some generalised information is provided on a key element of ecosystem structure and dynamics from the list provided.</p> <p>Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	2

Description	Marks
<p>States some features of the chosen natural system. Limited or inaccurate information is provided on the ways in which the chosen natural system interacts with another natural system listed to influence the Earth's climate.</p> <p style="text-align: center;">or</p> <p>States some components of ecosystem structure and dynamics from the list provided with limited description or detail.</p> <p>There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.</p>	1
Subtotal	4
Total	8
<p>Marker information:</p> <p>Climate: Candidates should make a clear link between elements of the two natural systems and how they influence climate.</p> <p>Ecosystems: Each of the dot points is considered to be one key element as stated in the question.</p> <p>Answers could include: Natural system influence on world climate: e.g. heat budget and hydrological cycle</p> <ul style="list-style-type: none"> • energy required to heat and cause evaporation and transpiration, cooling required for condensation • heat surplus (high amounts of energy absorbed in equatorial regions) cause warmer oceans, more evaporation, and more precipitation. Opposite at poles • water vapour assists in natural greenhouse effect thus warming the atmosphere • clouds have an influence on temperatures by both reflecting and absorbing insolation • transfer of heat energy via condensation (latent heat). <p>e.g. hydrological cycle and atmospheric circulation</p> <ul style="list-style-type: none"> • low pressure systems and their associated rainfall partially formed by the upward movement of water vapour during evaporation, leading to condensation and precipitation • seasonal movement of pressure belts within the annual variations in atmospheric circulation influences location, timing and amounts of precipitation • prevailing winds associated with atmospheric circulation influence temperature and precipitation. 	
or	
<p>Ecosystem structure and dynamics: e.g. food chains and food webs</p> <ul style="list-style-type: none"> • definitions • description of producers (autotrophs), consumers (heterotrophs – herbivores, carnivores, omnivores), decomposers (detritivores) • flow of energy through chain and/or web. <p>e.g. trophic levels</p> <ul style="list-style-type: none"> • the position an organism occupies in a food chain • the bottom level or first trophic level is made up of primary producers or autotrophs • the next level are the primary consumers who consume organisms in the previous level 	

- high order consumers, typically predatory carnivores, make up the highest trophic level
- the number of organisms in each successive trophic level typically decrease in number.
- trophic levels may be shown in a trophic or ecological pyramid.

Note: Descriptions of 'flows of matter and energy' and 'biomass' may also make reference to trophic levels or ecological pyramids.

Accept other relevant answers.

(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)

Description	Marks
For each of two methods of adaptation (2 x 6)	
<p>A detailed and comprehensive discussion of a way in which human activity has adapted, or may be required to adapt, to global climate change or loss of biodiversity is presented. Detailed and accurate information is provided about the nature and effectiveness of the adaptive measure.</p> <p>A wide range of appropriate supporting evidence and examples are used to develop and strengthen the discussion. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>A discussion of a way in which human activity has adapted, or may be required to adapt, to global climate change or loss of biodiversity is presented. Relatively accurate information is provided about the nature and effectiveness of the adaptive measure.</p> <p>Some supporting evidence and examples are used to develop and strengthen the discussion. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>A basic description, with little discussion, of a way in which human activity has adapted, or may be required to adapt, to global climate change or loss of biodiversity is presented. Limited information is provided about the nature and effectiveness of the adaptive measure.</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12

Marker information:

Adaptation refers to alterations or adjustments in response to a changed environment (brought about, in this scenario, due to climate change **or** loss of biodiversity). They are measures taken to adapt to the 'new normal', not to reverse or stop the changes that have occurred. Candidates may discuss the measure by referring to its environmental, economic and social benefits and costs.

Answers could include:

Measures to adapt to climate change:

- decreasing/increasing rainfall affecting water supply or water management
- variations in rainfall affecting agricultural production
- increases in severe weather events
- increased temperatures affecting agricultural production
- increased temperatures affecting urban and rural populations
- rises in sea level affecting coastal zones and islands.

Measures to adapt to loss of biodiversity:

- loss of food sources (wild catch, farm production and fish stock)
- loss of energy sources (wood and charcoal)
- loss of fibres and organic based products used for clothing and shelter.

Accept other relevant answers.

**2019
Section 3
Question
33**

**Unit 3 –
Section 3
Questions**

(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

Description	Marks
For the effects of climate change on each of two biomes (2 x 4) or the effects of biodiversity loss on each of two elements in natural or human biomes (2 x 4)	
<p>A detailed description is given and accurate information is provided on the effects of climate change on land cover in the chosen biome.</p> <p style="text-align: center;">or</p> <p>A detailed description is given and accurate information is provided on the effects of biodiversity loss on the chosen element, in natural or human biomes.</p> <p>A wide range of appropriate supporting evidence and examples are used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	4
<p>An appropriate description is given and relatively accurate information is provided on the effects of climate change on land cover in the chosen biome.</p> <p style="text-align: center;">or</p> <p>An appropriate description is given and relatively accurate information is provided on the effects of biodiversity loss on the chosen element, in natural or human biomes.</p> <p>A range of appropriate supporting evidence and examples are used to develop and strengthen the description. Relevant geographical terminology and concepts help to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3
<p>An outline (limited description) is given and some generalised information is provided on the effects of climate change on land cover in the chosen biome.</p> <p style="text-align: center;">or</p> <p>An outline (limited description) is given and some generalised information is provided on the effects of biodiversity loss on the chosen element, in natural or human biomes.</p> <p>Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	2

Description	Marks
<p>States some features of climate change. Limited or inaccurate information is provided on the effects of climate change on land cover in the chosen biome.</p> <p style="text-align: center;">or</p> <p>States some features of biodiversity loss. Limited or inaccurate information is provided on the effects of biodiversity loss on the chosen element, in natural or human biomes.</p> <p>There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.</p>	1
Subtotal	4
Total	8
<p>Marker information:</p> <p>Climate change: Primary focus of candidates' answers should be on the effects of climate change on land cover over time and space, that is the changes to the spatial distribution of the land cover types, rather than the secondary impacts the changes to land cover may cause.</p> <p>Biodiversity loss: Candidates will need to demonstrate a clear understanding of the link between biodiversity loss and the two chosen elements.</p> <p>Accept other relevant answers.</p>	

(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)

Description	Marks
For each of two methods of mitigation (2 x 6)	
<p>A detailed and comprehensive discussion of a way human activity has mitigated, or may be required to mitigate, the adverse effects of global climate change or loss of biodiversity is presented. Detailed and accurate information is provided about the nature and effectiveness of the mitigation strategy.</p> <p>A wide range of appropriate supporting evidence and examples are used to develop and strengthen the discussion. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>A discussion of a way human activity has mitigated, or may be required to mitigate the adverse effects of global climate change or loss of biodiversity is presented. Relatively accurate information is provided about the nature and effectiveness of the mitigation strategy.</p> <p>Some supporting evidence and examples are used to develop and strengthen the discussion. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>A basic description, with little discussion, of a way human activity has mitigated, or may be required to mitigate the adverse effects of global climate change or loss of biodiversity is presented. Limited information is provided about the nature and effectiveness of the mitigation strategy.</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12
<p>Marker information: Mitigation refers to the ability, steps taken or strategies implemented to moderate (or even reverse) the impact of climate change or loss of biodiversity. Candidates may discuss the strategy by referring to its environmental, economic and social benefits and costs.</p> <p>Answers could include: Strategies to mitigate the adverse effects of climate change:</p> <ul style="list-style-type: none"> • carbon emission targets (at varying scales) • emission trading schemes • carbon taxes • alternative energy sources (at varying scales) • carbon capture schemes • alternative agricultural practices • alternative transportation methods • development of alternative fuels (transport). <p>Strategies to mitigate the adverse effects of loss of biodiversity:</p> <ul style="list-style-type: none"> • preservation strategies • conservation strategies • restoration and/or revegetation strategies • breeding programs • changes in primary industry practices • use of quotas, restrictive licencing and seasonal restrictions • gene and seed banks. 	
Accept other relevant answers/	

Unit 4 – Planning sustainable places

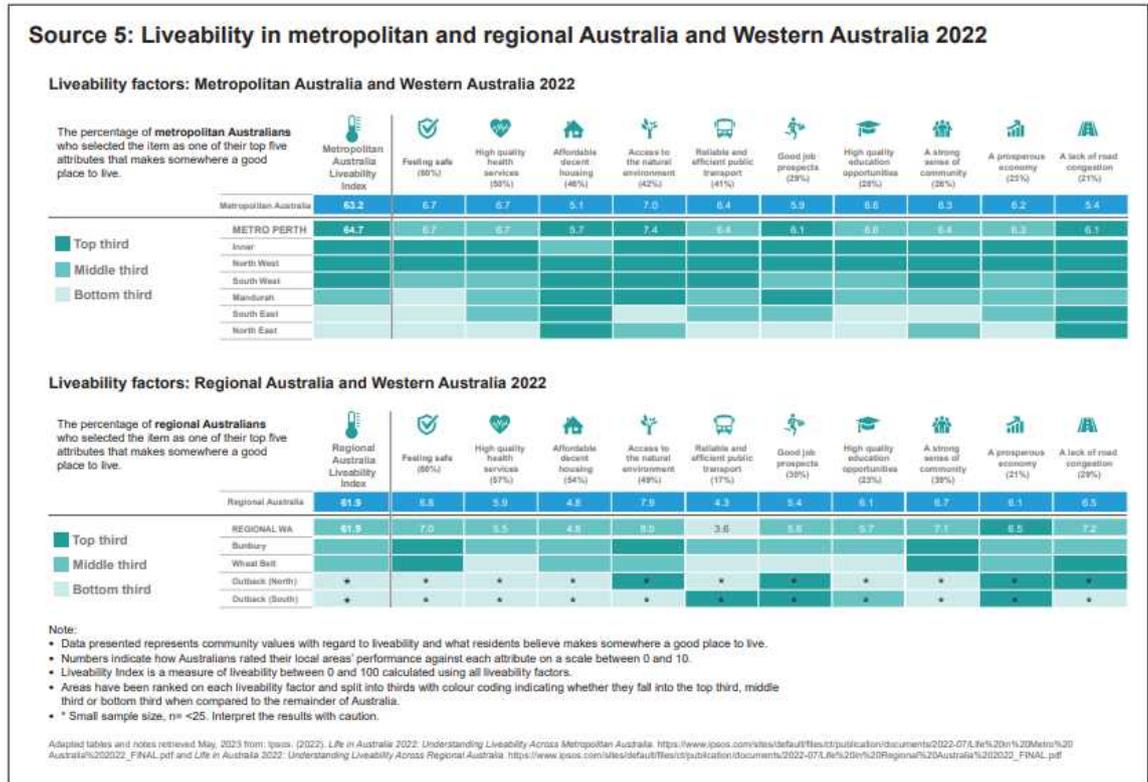
Unit 4 – Overview of Places and their challenges

Section 1

**2023
Section 1
Question
18**

**Places and
their
challenges**

Refer to **Source 5: Liveability in metropolitan and regional Australia and Western Australia 2022** to answer Question 18.



18. Which of the following statements is correct?

- (a) Liveability levels are higher in regional Australia than in metropolitan Australia.
- (b) Access to natural environment is valued more in metropolitan Australia than in regional Australia.
- (c) A lack of road congestion is valued less in metropolitan Australia than in regional Australia.
- (d) A prosperous economy is valued equally in metropolitan Australia and in regional Australia.

**2023
Section 1
Question
19**

**Places and
their
challenges**

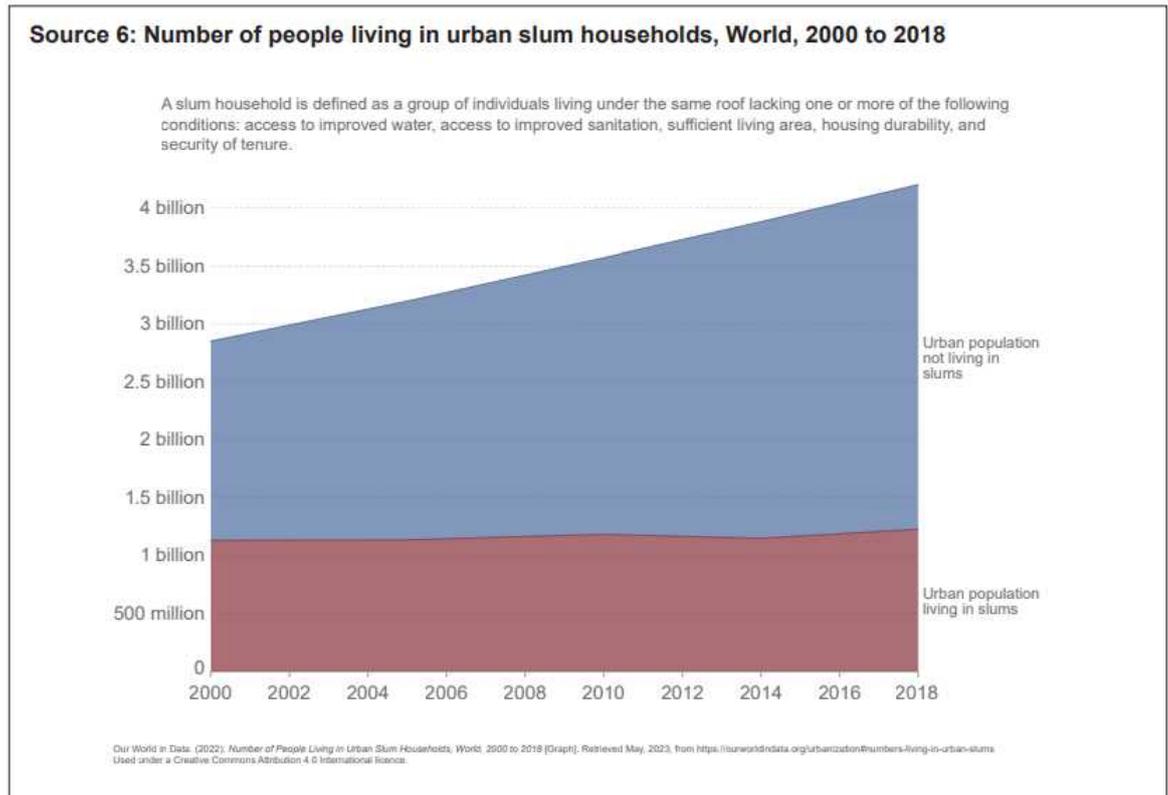
19. Urbanisation is defined as the

- (a) increasing proportion of a population living in urban areas of a country.
- (b) increase in the absolute size of the urban population of a country.
- (c) rapid growth of the largest towns and cities in a country.
- (d) movement of urban employment to rural areas as a result of technological advances.

2023
Section 1
Question
20

Places and
their
challenges

Refer to **Source 6**: Number of people living in urban slum households, World, 2000 to 2018 to answer Question 20.



20. Which of the following statements is correct?

- (a) In the year 2008, approximately 3.5 billion people were living in urban slums and 1 billion were not living in urban slums.
- (b) The proportion of the urban population living in slums has decreased from approximately 40% to 30%.
- (c) The proportion of the urban population not living in slums has decreased from approximately 40% to 30%.
- (d) The urban population not living in slums is stable whereas the urban population living in slums is unstable.

2022
Section 1
Question
19

Places and
their
challenges

The spatial distribution of urban and rural places in Australia is best described as the

- (a) arrangement of cities, towns, and remote settlements across Australia.
- (b) time period over which urban and rural places were developed in Australia.
- (c) distribution of social demographic characteristics within Australia.
- (d) dependence of rural and remote places on cities for the distribution of wealth.

2022
Section 1
Question
20

Places and
their
challenges

Invasion and succession is best defined as

- (a) the grouping together of different or related land use functions that benefit from each other.
- (b) a land use establishing in an area to become the dominant land use in that area.
- (c) the tendency of an activity to remain in a location when it is no longer economically viable.
- (d) the low-density outward growth of urban areas into the surrounding rural lands.

<p>2021 Section 1 Question 17</p> <p>Places and their challenges</p>	<p>Urban sprawl is best described as the</p> <p>(a) rapid expansion of the geographic extent of cities and towns, often characterised by low-density housing.</p> <p>(b) rapid increase in the population of urban areas at the expense of rural and remote areas.</p> <p>(c) building of urban transport routes such as freeways and commuter rail lines.</p> <p>(d) building of new residential, commercial and community-based developments in the existing urban area.</p>
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<p>2021 Section 1 Question 20</p> <p>Places and their challenges</p>	<p>Which statement best demonstrates the influence of land use competition in urban areas?</p> <p>(a) land use density decreases toward the central business district (CBD).</p> <p>(b) land use density is highest toward the rural-urban fringe.</p> <p>(c) land values increase toward the rural-urban fringe.</p> <p>(d) land values increase toward the CBD.</p>
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<p>2020 Section 1 Question 17</p> <p>Places and their challenges</p>	<p>Refer to Source 6: Urban population versus GDP per capita, 2016 to answer Questions 17 and 18.</p> <div style="border: 1px solid black; padding: 10px;"> <p>Source 6: Urban population versus GDP per capita, 2016</p> <p>Share of the total population living in urban areas versus gross domestic product (GDP) per capita.</p> <p>Legend</p> <ul style="list-style-type: none"> ● Africa ● Asia ● Europe ● North America ● Oceania ● South America </div> <p>17. Which of the following countries has an urbanisation level above 80 per cent and a GDP per capita greater than \$10 000?</p> <p>(a) Ireland (b) Japan (c) Libya (d) Sri Lanka</p>
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	<p>18. Which one of the following statements best describes a pattern demonstrated by Source 6?</p> <p>(a) Nations in Africa and South America typically have levels of urbanisation below 40 per cent and GDP per capita below \$10 000. (b) Nations in Asia and North America typically have levels of urbanisation below 60 per cent and GDP per capita below \$10 000. (c) Nations in Africa and Asia typically have levels of urbanisation above 40 per cent and GDP per capita above \$10 000. (d) Nations in Europe and North America typically have levels of urbanisation above 60 per cent and GDP per capita above \$10 000.</p>
<p>2020 Section 1 Question 19</p> <p>Places and their challenges</p>	<p>Environmental factors that have contributed to the spatial distribution of urban and rural places in Australia include</p> <p>(a) employment, infrastructure, ports and transport facilities. (b) location of and reason for first settlements, and establishment of capital cities. (c) high desire for home ownership, low-density housing and private car ownership. (d) patterns of reliable rainfall and water supply, fertile soils and moderate relief.</p>
<p>2020 Section 1 Question 20</p> <p>Places and their challenges</p>	<p>Inertia is best described as the process</p> <p>(a) whereby a land use remains in its original location even though the original reasons for locating there no longer apply. (b) of increasing the density of land use within a developed area to reduce the rate of expansion in the urban rural fringe. (c) of grouping similar functions and land uses together into distinct zones with similar characteristics. (d) whereby land is redeveloped from areas of blight and deterioration into areas of medium to high density housing and land use.</p>
<p>2019 Section 1 Question 19</p> <p>Places and their challenges</p>	<p>Which of the following sets of challenges are faced by both rural and remote places and Australian metropolitan and regional centres?</p> <p>(a) economic restructuring, employment, social inclusion and exclusion, and urban sprawl (b) economic restructuring, isolation and remoteness, population loss and housing (c) economic restructuring, employment, social inclusion and exclusion, and housing (d) economic restructuring, transport and congestion, urban sprawl and employment</p>

2019
Section 1
Question
20

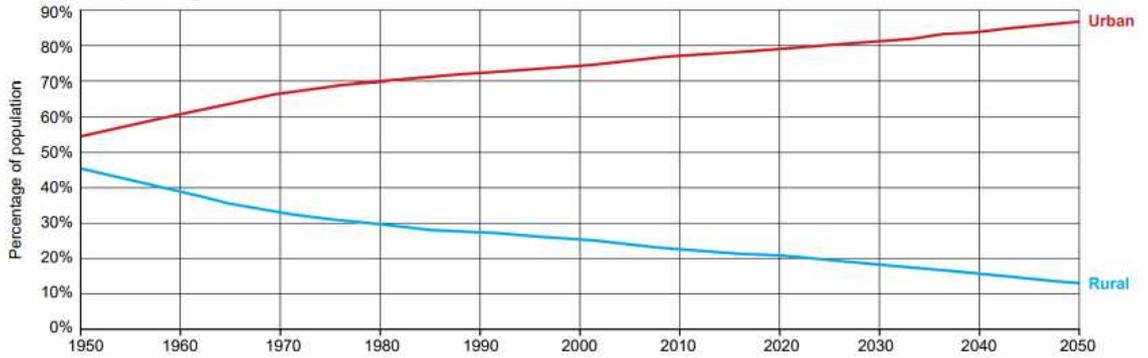
Places and
their
challenges

Refer to **Source 8**: Do more people live in urban or rural areas? to answer Question 20.

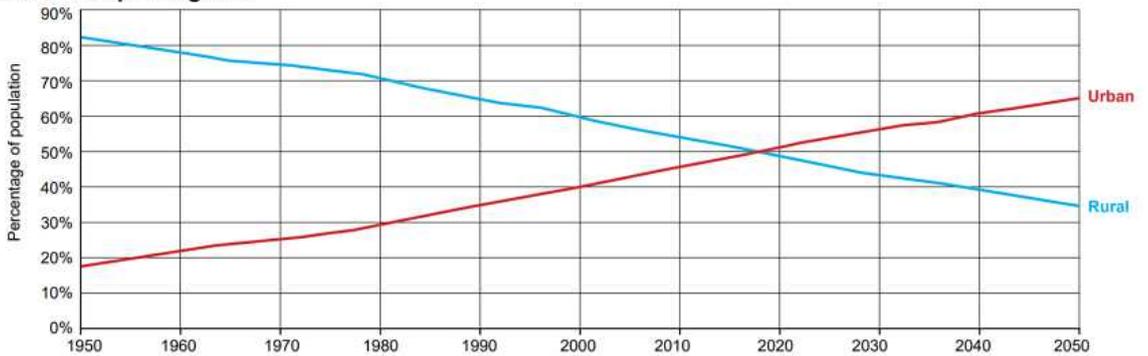
Source 8: Do more people live in urban or rural areas?

Adapted from: Ghosh, I. (2018). *Do more people live in urban or rural areas?* [Interactive chart]. Retrieved May, 2019, from <https://www.visualcapitalist.com/> [...] Used under Creative Commons Attribution 4.0 International Public Licence

More developed regions



Less developed regions



Approximately how many years after the world's More Developed Regions reached an urban population level of 60 per cent are the world's Less Developed Regions projected to reach this same level?

- (a) 20
- (b) 40
- (c) 60
- (d) 80

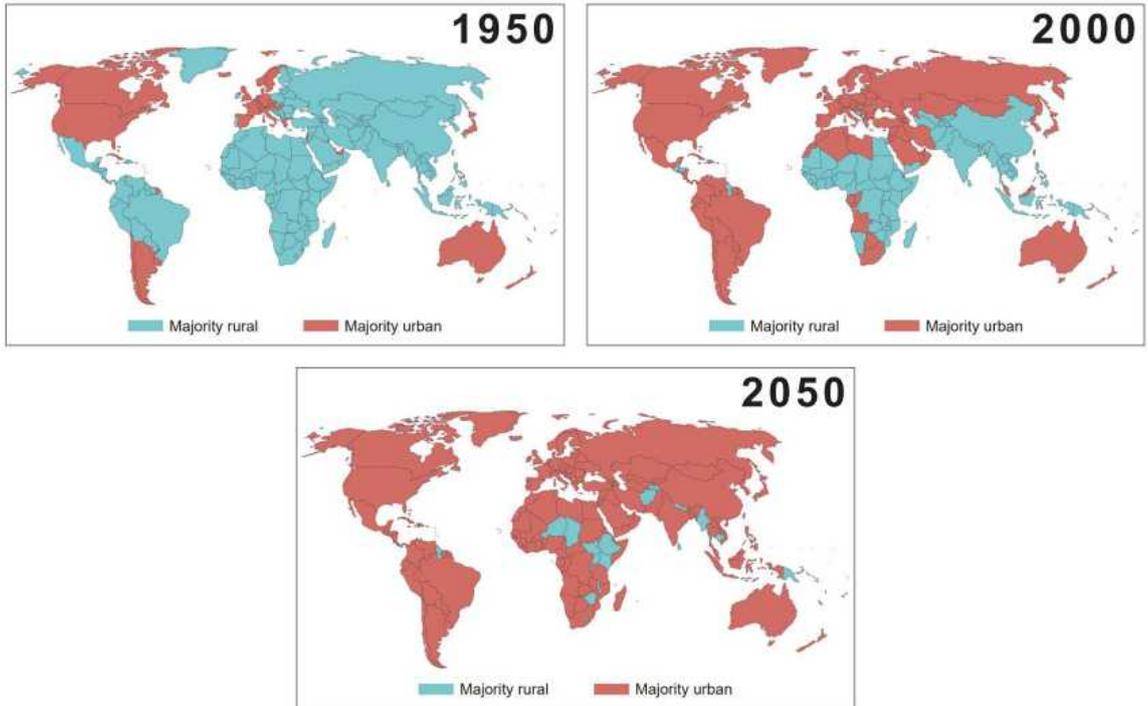
	Environmental factor:

2022
Section 2
Question
29

Places and
their
challenges

Refer to **Source 8**: Majority rural populations vs Majority urban populations 1950 to 2050 to answer Question 29.

Source 8: Majority rural populations vs Majority urban populations 1950 to 2050



Images retrieved from: Our World in Data. (2018). Do more people live in urban or rural areas? Retrieved May, 2022 from <https://ourworldindata.org/urbanization>.
Top left: 1950 [Map]. Top right: 2000 [Map]. Bottom: 2050 [Map]. Used under a Creative Commons Attribution 4.0 International license.

With specific reference to **Source 8**, describe two changes that have occurred, or are predicted to occur, in the world's urban and rural populations between 1950, 2000 and/or 2050. (4 marks)

One:

Two:

2020 Section 2 Question 29

Places and their challenges

Define the process of urbanisation. (2 marks)

2020 Section 2 Question 30

Places and their challenges

Refer to **Source 6: Urban population versus GDP per capita, 2016 to answer Question 30.**

Source 6: Urban population versus GDP per capita, 2016
Share of the total population living in urban areas versus gross domestic product (GDP) per capita.

The scatter plot shows a positive correlation between GDP per capita and the share of the population living in urban areas. Countries with lower GDP per capita (below \$10,000) generally have a lower share of their population in urban areas (around 20-60%). As GDP per capita increases (above \$10,000), the share of the population living in urban areas increases significantly, reaching 80-100% for high-income countries. China and India are notable outliers with high urban populations but lower GDP per capita.

Legend

- Africa (Blue)
- Asia (Red)
- Europe (Orange)
- North America (Green)
- Oceania (Purple)
- South America (Light Green)

Urban population versus GDP per capita, 2016
Source: Our World in Data based on UN World Urbanisation Prospects (2018), Maddison Project Database (2018). Retrieved January 6, 2020 <https://ourworldindata.org/grapher/urbanization-vs-gdp> CC BY

With specific reference to **Source 6**, identify the relationship between the level of urbanisation and the level of human wellbeing, as measured by GDP per capita. Provide an example to support your answer. (2 marks)

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<p>2020 Section 2 Question 32</p> <p>Places and their challenges</p>	<p>Explain the process of agglomeration. (3 marks)</p> <hr/>
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<p>2019 Section 1 Question 18</p> <p>Places and their challenges</p>	<p>Urban renewal is best described as the</p> <p>(a) building of new residential, commercial or community based developments on greenfield sites. (b) buying and renovation of houses in deteriorated urban neighbourhoods by upper or middle-income earners. (c) maintenance and preservation of historic buildings in inner city areas, often involving heritage listing. (d) planned rehabilitation of city areas by replacing and upgrading dilapidated buildings, infrastructure and facilities.</p>
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<p>2019 Section 2 Question 28</p> <p>Places and their challenges</p>	<p>Describe the process of invasion and succession occurring in urban areas. (2 marks)</p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
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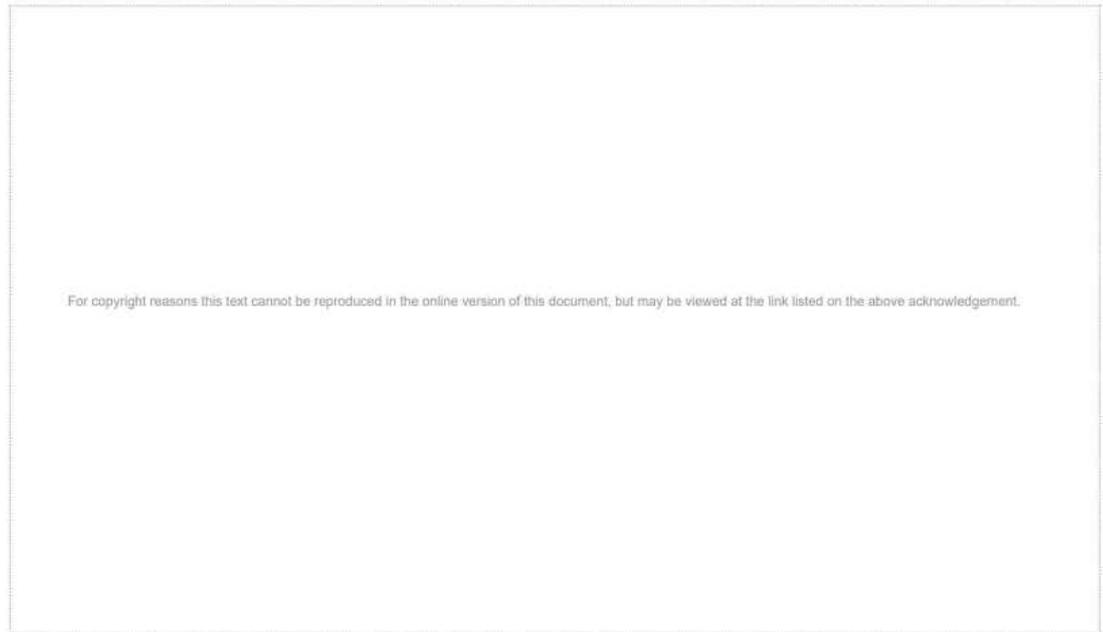
**2019
Section 2
Question
29**

**Places and
their
challenges**

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

Source 7: The growth of worldwide rural and urban population 1960–2016

Adapted from: Cinnéide, D. (2019). *Where do people live worldwide? 1960 – 2016*. Retrieved May, 2019, from <https://public.tableau.com/profile/docinsight#!/vizhome/TheRiseoftheCity/Dashboard1>



With specific reference to **Source 7**, describe **two** changes that have occurred as the process of urbanisation has taken place between 1960 and 2016.

One:

Two:

Marking Guide – Section 1

<p>2023 Section 1 Question 18</p> <p>Places and their challenges</p>	<p>Refer to Source 5: Liveability in metropolitan and regional Australia and Western Australia 2022 to answer Question 18.</p> <p>18. Which of the following statements is correct?</p> <p>(a) Liveability levels are higher in regional Australia than in metropolitan Australia. (b) Access to natural environment is valued more in metropolitan Australia than in regional Australia. (c) A lack of road congestion is valued less in metropolitan Australia than in regional Australia. – Answer (d) A prosperous economy is valued equally in metropolitan Australia and in regional Australia.</p>
<p>2023 Section 1 Question 19</p> <p>Places and their challenges</p>	<p>19. Urbanisation is defined as the</p> <p>(a) increasing proportion of a population living in urban areas of a country. – Answer (b) increase in the absolute size of the urban population of a country. (c) rapid growth of the largest towns and cities in a country. (d) movement of urban employment to rural areas as a result of technological advances.</p>
<p>2023 Section 1 Question 20</p> <p>Places and their challenges</p>	<p>Refer to Source 6: Number of people living in urban slum households, World, 2000 to 2018 to answer Question 20.</p> <p>20. Which of the following statements is correct?</p> <p>(a) In the year 2008, approximately 3.5 billion people were living in urban slums and 1 billion were not living in urban slums. (b) The proportion of the urban population living in slums has decreased from approximately 40% to 30%. – Answer (c) The proportion of the urban population not living in slums has decreased from approximately 40% to 30%. (d) The urban population not living in slums is stable whereas the urban population living in slums is unstable.</p>
<p>2022 Section 1 Question 19</p> <p>Places and their challenges</p>	<p>The spatial distribution of urban and rural places in Australia is best described as the</p> <p>(a) arrangement of cities, towns, and remote settlements across Australia. – Answer (b) time period over which urban and rural places were developed in Australia. (c) distribution of social demographic characteristics within Australia. (d) dependence of rural and remote places on cities for the distribution of wealth.</p>
<p>2022 Section 1 Question 20</p> <p>Places and their challenges</p>	<p>Invasion and succession is best defined as</p> <p>(a) the grouping together of different or related land use functions that benefit from each other. (b) a land use establishing in an area to become the dominant land use in that area. – Answer (c) the tendency of an activity to remain in a location when it is no longer economically viable. (d) the low-density outward growth of urban areas into the surrounding rural lands.</p>
<p>2021 Section 1 Question 17</p> <p>Places and their challenges</p>	<p>Urban sprawl is best described as the</p> <p>(a) rapid expansion of the geographic extent of cities and towns, often characterised by low-density housing. – Answer (b) rapid increase in the population of urban areas at the expense of rural and remote areas. (c) building of urban transport routes such as freeways and commuter rail lines. (d) building of new residential, commercial and community-based developments in the existing urban area.</p>

<p>2021 Section 1 Question 20</p> <p>Places and their challenges</p>	<p>Which statement best demonstrates the influence of land use competition in urban areas?</p> <p>(a) land use density decreases toward the central business district (CBD). (b) land use density is highest toward the rural-urban fringe. (c) land values increase toward the rural-urban fringe. (d) land values increase toward the CBD. – Answer</p>
<p>2020 Section 1 Question 17</p> <p>Places and their challenges</p>	<p>Refer to Source 6: Urban population versus GDP per capita, 2016 to answer Questions 17 and 18.</p> <p>17. Which of the following countries has an urbanisation level above 80 per cent and a GDP per capita greater than \$10 000?</p> <p>(a) Ireland (b) Japan – Answer (c) Libya (d) Sri Lanka</p> <p>18. Which one of the following statements best describes a pattern demonstrated by Source 6?</p> <p>(a) Nations in Africa and South America typically have levels of urbanisation below 40 per cent and GDP per capita below \$10 000. (b) Nations in Asia and North America typically have levels of urbanisation below 60 per cent and GDP per capita below \$10 000. (c) Nations in Africa and Asia typically have levels of urbanisation above 40 per cent and GDP per capita above \$10 000. (d) Nations in Europe and North America typically have levels of urbanisation above 60 per cent and GDP per capita above \$10 000. – Answer</p>
<p>2020 Section 1 Question 19</p> <p>Places and their challenges</p>	<p>Environmental factors that have contributed to the spatial distribution of urban and rural places in Australia include</p> <p>(a) employment, infrastructure, ports and transport facilities. (b) location of and reason for first settlements, and establishment of capital cities. (c) high desire for home ownership, low-density housing and private car ownership. (d) patterns of reliable rainfall and water supply, fertile soils and moderate relief. – Answer</p>
<p>2020 Section 1 Question 20</p> <p>Places and their challenges</p>	<p>Inertia is best described as the process</p> <p>(a) whereby a land use remains in its original location even though the original reasons for locating there no longer apply. – Answer (b) of increasing the density of land use within a developed area to reduce the rate of expansion in the urban rural fringe. (c) of grouping similar functions and land uses together into distinct zones with similar characteristics. (d) whereby land is redeveloped from areas of blight and deterioration into areas of medium to high density housing and land use.</p>
<p>2019 Section 1 Question 19</p> <p>Places and their challenges</p>	<p>Which of the following sets of challenges are faced by both rural and remote places and Australian metropolitan and regional centres?</p> <p>(a) economic restructuring, employment, social inclusion and exclusion, and urban sprawl (b) economic restructuring, isolation and remoteness, population loss and housing (c) economic restructuring, employment, social inclusion and exclusion, and housing – Answer (d) economic restructuring, transport and congestion, urban sprawl and employment</p>

2019 Section 1 Question 20 Places and their challenges	Refer to Source 8 : Do more people live in urban or rural areas? to answer Question 20. Approximately how many years after the world's More Developed Regions reached an urban population level of 60 per cent are the world's Less Developed Regions projected to reach this same level? (a) 20 (b) 40 (c) 60 (d) 80 – Answer
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Marking Guide – Section 2

<p>2023 Section 2 Question 27</p> <p>Places and their challenges</p>	Outline one changing age demographic characteristic and one changing gender demographic characteristic in urban or rural places in Australia. (4 marks)										
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Description</th> <th style="text-align: center;">Marks</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;">For each characteristic (2 x 2 marks)</td> </tr> <tr> <td>Outlines a changing age/gender demographic characteristic in urban or rural places in Australia</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Makes a generalised statement about an age/gender demographic characteristic in urban or rural places in Australia</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: center;">4</td> </tr> </tbody> </table>	Description	Marks	For each characteristic (2 x 2 marks)		Outlines a changing age/gender demographic characteristic in urban or rural places in Australia	2	Makes a generalised statement about an age/gender demographic characteristic in urban or rural places in Australia	1	Total	4
	Description	Marks									
	For each characteristic (2 x 2 marks)										
	Outlines a changing age/gender demographic characteristic in urban or rural places in Australia	2									
	Makes a generalised statement about an age/gender demographic characteristic in urban or rural places in Australia	1									
	Total	4									
	Answers could include:										
	Age:										
	<ul style="list-style-type: none"> • younger people aged 20 to 29 are subject to push/pull factors, such as education, employment and socio-cultural opportunities and, once established, they tend to stay in urban places • rural places are contracting in size with an imbalance of older people remaining • sea change/tree change towns are attracting a higher number of older retirees • urban places have more 20 to 44 year olds, while other age brackets are being attracted to smaller urban places and rural places • the median age for capital cities in Australia is 37 years of age while in regional Australia it is 42 years of age • capital cities had fewer people 55 years and over (26%) than in the remainder of Australia (34%). 										
Gender:											
<ul style="list-style-type: none"> • there is an increasing ratio of females aged 85 years and older in cities compared to males • there is an increasing ratio of males to females in rural places • capital cities have a ratio of 100 females to 98.2 men while the remainder of Australia has a higher ratio of men with 100 females to 99.2 males. 											
Accept other relevant answers.											
Note: variations and exceptions occur in each of these across Australia.											

<p>2023 Section 2 Question 28</p> <p>Places and their challenges</p>	Describe one historical and one environmental factor that has contributed to the spatial distribution of urban and rural places in Australia. Provide an example of each to support your answer. (6 marks)												
	<table border="1" style="width: 100%;"> <thead> <tr> <th style="text-align: center;">Description</th> <th style="text-align: center;">Marks</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;">For each factor (2 x 3 marks)</td> </tr> <tr> <td>Describes a factor that has contributed to the spatial distribution of urban and rural places in Australia. Provides a relevant example</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Outlines a factor that has contributed to the spatial distribution of urban and/or rural places in Australia. Provides a general example</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Makes a generalised statement about a factor that has contributed to the spatial distribution of urban and/or rural places in Australia. Uses limited or no examples</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: center;">6</td> </tr> </tbody> </table>	Description	Marks	For each factor (2 x 3 marks)		Describes a factor that has contributed to the spatial distribution of urban and rural places in Australia. Provides a relevant example	3	Outlines a factor that has contributed to the spatial distribution of urban and/or rural places in Australia. Provides a general example	2	Makes a generalised statement about a factor that has contributed to the spatial distribution of urban and/or rural places in Australia. Uses limited or no examples	1	Total	6
	Description	Marks											
	For each factor (2 x 3 marks)												
	Describes a factor that has contributed to the spatial distribution of urban and rural places in Australia. Provides a relevant example	3											
	Outlines a factor that has contributed to the spatial distribution of urban and/or rural places in Australia. Provides a general example	2											
	Makes a generalised statement about a factor that has contributed to the spatial distribution of urban and/or rural places in Australia. Uses limited or no examples	1											
	Total	6											
	Answers could include:												
	<ul style="list-style-type: none"> • environmental factors include – site, water availability, precipitation patterns • historical factors – British agricultural systems, capital cities built on rivers that were used for transport; early settlers didn't have the skills to live outside cities; cities were export distribution points. 												
Accept other relevant answers.													
Note: the description of each factor can treat urban and rural places either collectively or separately.													

**2022
Section 2
Question
29**

**Places and
their
challenges**

Refer to **Source 8**: Majority rural populations vs Majority urban populations 1950 to 2050 to answer Question 29.

With specific reference to **Source 8**, describe two changes that have occurred, or are predicted to occur, in the world's urban and rural populations between 1950, 2000 and/or 2050. (4 marks)

Description	Marks
For each change (2 x 2 marks)	
Describes a change/pattern between 1950, 2000, and/or 2050 and uses a specific example from Source 8.	2
States a pattern in 1950, 2000, and/or 2050.	1
Total	4
<p>Marker information:</p> <p>Candidates may refer to countries, regions or continents.</p> <p>Answers could include:</p> <ul style="list-style-type: none"> • Brazil had a majority rural population in 1950, however by 2000 this had changed to majority urban. • In 1950 100% of Africa had a majority rural population, however it is forecast that by 2050 most African countries will be majority urban population. <p>Accept other relevant answers.</p>	

**2022
Section 2
Question
30**

**Places and
their
challenges**

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

Description	Marks
For one economic example	
Explains the economic interdependence of urban and rural places. The example given clearly demonstrates an understanding that the term interdependence is two-way.	3
Describes the economic interdependence of urban and rural places. The example given implies an understanding that the term interdependence is two-way.	2
States the economic interdependence of urban and rural places. The example given fails to demonstrate an understanding that the term interdependence is two-way.	1
Subtotal	3
For one environmental example	
Explains the environmental interdependence of urban and rural places. The example given clearly demonstrates an understanding that the term interdependence is two-way.	3
Describes the environmental interdependence of urban and rural places. The example given implies an understanding that the term interdependence is two-way.	2
States the environmental interdependence of urban and rural places. The example given fails to demonstrate an understanding that the term interdependence is two-way.	1
Subtotal	3
Total	6
<p>Marker information:</p> <p>Rural urban interdependence is the interaction between these places. It is the two-way exchange of people (labour), resources, capital and/or information.</p> <p>Economic interdependence:</p> <ul style="list-style-type: none"> Rural places generally produce primary resources through mining and agriculture activities, typically requiring labour and capital inputs from urban places, while urban places receive these primary resources to process and redistribute into rural places. Urban places generate large revenues through tax which are then redistributed into rural places to facilitate economic development. Rural economic activities return royalties and taxes to urban places. <p>Environmental interdependence:</p> <ul style="list-style-type: none"> Rural places often contain significant environmental features such as National Parks which provide a recreational function for urban populations. Urban places often send waste materials to rural places for disposal. Urban places produce large quantities of waste which flows to rural areas, while rural areas contain large places of biomass which provides ecosystem services to urban populations. <p>Accept other relevant answers.</p>	

**2021
Section 2
Question
29**

**Places and
their
challenges**

Refer to **Source 7**: Percentage of the world's population living in urban areas to answer Question 29

With specific reference to the trends shown in **Source 7**, describe the implications of the process of urbanisation for human wellbeing. (4 marks)

Description	Marks
Describes the implications of the process of urbanisation for human wellbeing. Makes specific and appropriate reference to Source 7.	4
Describes in general terms the implications of the process of urbanisation for human wellbeing. Makes some reference to Source 7.	3
Outlines the implications of the process of urbanisation for human wellbeing. Makes minimal reference to Source 7.	2
States an implication of the process of urbanisation for human wellbeing. Makes no reference to Source 7.	1
Total	4

Marker information:

In making reference to the trends shown in Source 7, a good answer may note that:

- the changes in urbanisation levels are greatest in Asia and Africa
- the implications of urbanisation for human wellbeing are therefore likely to be greatest in these areas.

Examples of the implications of urbanisation for human wellbeing could include:

- better access to employment
- more educational opportunities
- greater access to health services
- more housing options
- deterioration in human health due to poorer air quality
- creation of slums and associated issues
- greater vulnerability to infectious diseases.

**2021
Section 2
Question
30**

**Places and
their
challenges**

Refer to **Source 8**: Australia's population distribution (Map 1 and Map 2) to answer Question 30.

Explain how **two** of the factors below have contributed to the spatial distribution of urban and rural places in Australia: (6 marks)

- historical
- cultural
- economic
- environmental.

Description	Marks
For each factor (2 x 3 marks each)	
Explains how the factor has contributed to the spatial distribution of urban and rural places in Australia. Uses appropriate examples.	3
Describes how the factor has contributed to the spatial distribution of urban and/or rural places in Australia. May use appropriate examples.	2
States a factor that has contributed to the spatial distribution of urban and/or rural places in Australia. No examples included.	1
Subtotal	3
Total	6

Marker Information:

Each factor is very broad and several explanations can therefore be provided.

For example: economic factors include – employment opportunities, exploitation of natural resources, distribution of infrastructure.

For example: environmental factors include – site, water availability, precipitation patterns.

The explanation of each factor can treat urban and rural places either collectively or separately. To obtain high marks, the response must demonstrate how the factor has had an impact on the spatial distribution of both urban and rural places.

2021 Section 2 Question 31 Places and their challenges	From the list below, explain how one of these challenges affects rural and remote places in Australia, including Indigenous communities. (3 marks)										
	<ul style="list-style-type: none"> • Population loss • Economic restructuring • Employment • Housing • Service and water provision • Fly-in/fly-out work patterns • Transportation • Land use conflicts • Isolation and remoteness • Concentrations of socially vulnerable populations 										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;">Description</th> <th style="width: 20%;">Marks</th> </tr> </thead> <tbody> <tr> <td>Explains how the challenge affects rural and remote places in Australia. Clearly demonstrates cause and effect or a clear relationship between the challenge and its impact on these places. Uses appropriate examples.</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Describes how the challenge affects rural and remote places in Australia. Demonstrates a relationship between the challenge and its impact on these places in a general manner. May use some examples.</td> <td style="text-align: center;">2</td> </tr> <tr> <td>States how the challenge affects rural and remote places in Australia. May attempt to demonstrate a relationship between the challenge and its impact. Limited or no reference is made to examples.</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: center;">3</td> </tr> </tbody> </table>		Description	Marks	Explains how the challenge affects rural and remote places in Australia. Clearly demonstrates cause and effect or a clear relationship between the challenge and its impact on these places. Uses appropriate examples.	3	Describes how the challenge affects rural and remote places in Australia. Demonstrates a relationship between the challenge and its impact on these places in a general manner. May use some examples.	2	States how the challenge affects rural and remote places in Australia. May attempt to demonstrate a relationship between the challenge and its impact. Limited or no reference is made to examples.	1	Total	3
Description	Marks										
Explains how the challenge affects rural and remote places in Australia. Clearly demonstrates cause and effect or a clear relationship between the challenge and its impact on these places. Uses appropriate examples.	3										
Describes how the challenge affects rural and remote places in Australia. Demonstrates a relationship between the challenge and its impact on these places in a general manner. May use some examples.	2										
States how the challenge affects rural and remote places in Australia. May attempt to demonstrate a relationship between the challenge and its impact. Limited or no reference is made to examples.	1										
Total	3										
<p>Marker information:</p> <p>Some challenges (e.g. concentrations of socially vulnerable populations) have more relevance for Indigenous communities than others (e.g. fly-in/fly-out work patterns).</p> <p>Specific reference to Indigenous communities, may therefore be relevant and appropriate in many cases, but it is not an essential requirement of any given response.</p>											

2020 Section 2 Question 29 Places and their challenges	Define the process of urbanisation. (2 marks)							
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;">Description</th> <th style="width: 20%;">Marks</th> </tr> </thead> <tbody> <tr> <td>Correctly defines the process of urbanisation, clearly referring to an increase in the percentage or proportion of people living in urban areas</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Defines urbanisation; with no reference to process</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: center;">2</td> </tr> </tbody> </table>	Description	Marks	Correctly defines the process of urbanisation, clearly referring to an increase in the percentage or proportion of people living in urban areas	2	Defines urbanisation; with no reference to process	1	Total
Description	Marks							
Correctly defines the process of urbanisation, clearly referring to an increase in the percentage or proportion of people living in urban areas	2							
Defines urbanisation; with no reference to process	1							
Total	2							
<p>Marker information:</p> <p>The process of urbanisation refers to the increasing percentage or proportion of a population living in urban areas of a country. This typically involves the movement or shift of people from rural to urban areas or a large influx of migrants into urban areas at a greater rate than into rural areas.</p> <p>Note: answer must refer to an increase or movement to be defining the process of urbanisation, rather than only stating the percentage or proportion of, which is the level of urbanisation.</p>								

**2020
Section 2
Question
30**

**Places and
their
challenges**

Refer to **Source 6**: Urban population versus GDP per capita, 2016 to answer Question 30.

With specific reference to **Source 6**, identify the relationship between the level of urbanisation and the level of human wellbeing, as measured by GDP per capita. Provide an example to support your answer. (2 marks)

Description	Marks
Correctly identifies the positive relationship or correlation between the level of urbanisation and human wellbeing. Quotes directly from the source to support their answer	2
Identifies the positive relationship or correlation between the level of urbanisation and human wellbeing. No specific reference to the source is made	1
Total	2
<p>Answers could include:</p> <ul style="list-style-type: none"> • statement of strong positive correlation or relationship • in general, the higher the level of urbanisation the higher the level of human wellbeing as measured by GDP per capita – specific examples: Qatar, Singapore, Netherlands, Belgium, USA, Sweden. • in general, the lower the level of urbanisation the lower the level of human wellbeing as measured by GDP per capita – specific examples: Burundi, Niger, Rwanda, Ethiopia, Burkina Faso, Afghanistan. 	
Accept other relevant answers.	

**2020
Section 2
Question
31**

**Places and
their
challenges**

Refer to **Source 7**: The economic and environmental interdependence of urban and rural places to answer Question 31.

Choose **two** of the interconnections shown on Source 7 and use these to demonstrate the interdependence of urban and rural places. Include specific examples to support your answer. (6 marks)

Description	Marks
For each of the two interconnections chosen (2 x 3 marks each)	
Demonstrates (uses specific examples) the interdependence of urban and rural places. The two-way nature of the interdependence through the chosen type of interconnection is shown. Specific examples are provided to support their answer	3
Demonstrates the interdependence of urban and rural places. The two-way nature of the interdependence through the chosen type of interconnection is shown. Limited or poor examples are provided to support their answer. (Alternatively, relevant examples are provided (demonstrates), but the relationship is only demonstrated in one direction)	2
Briefly states that urban and rural places are interdependent. Limited details on how this is demonstrated due to the chosen type of interconnection	1
Subtotal	3
Total	6
<p>Marker information:</p> <ul style="list-style-type: none"> as the question is heavily scaffolded, more than a simple restating of the words on the source is needed. Details via examples will support a good answer the term interdependence implies a two-way interaction or relationship between urban and rural places. A good answer will demonstrate both directions of these interconnections (as indicated by the arrow on each end of the flow lines in the diagram). <p>Answers could include:</p> <ul style="list-style-type: none"> Population – creation of jobs, therefore people movements, in both rural and urban areas (especially linked to mining). Labour and professional services from urban to rural. Education and job opportunities in urban places Investments – royalties and taxes to urban areas, reinvested into rural areas. Capital for exploration, new ventures in rural areas Goods – agricultural produce, forest produce, minerals to urban areas. Processing, packaging and distribution of final products back to rural areas. Specialist services found in urban places. Raw materials for energy production for urban areas often from rural areas Environmental – aesthetic qualities of rural areas for recreation, relocation. Flow of wastes from urban to rural for disposal. Rural areas provide ecosystem services, such as regulation, to urban areas Government – incentives and schemes to open up rural areas for agriculture and settlement. Royalties and taxes to urban areas. Government supplies infrastructure and amenities to rural areas. <p>Accept other relevant answers.</p>	

<p>2020 Section 2 Question 32</p> <p>Places and their challenges</p>	Explain the process of agglomeration. (3 marks)	
	Description	Marks
	Correctly explains the process of agglomeration. Clear reference to the advantages of agglomeration. Correct example(s) are provided to support their answer	3
	Describes the process of agglomeration. Makes general reference to the advantages of agglomeration. Limited or poor examples are provided to support their answer	2
	States what the process of agglomeration is. No examples are provided to support their answer	1
	Total	3
	<p>Marker information:</p> <ul style="list-style-type: none"> a group of similar, but not necessarily the same, functions or land uses that locate in the same area due to benefits such as: sharing common infrastructure, the provision of goods and services from each other or the access to increased customer flows good answers will explain (state why) agglomeration occurs and brings about the perceived benefits. <p>Accept other relevant answers.</p>	

<p>2019 Section 1 Question 18</p> <p>Places and their challenges</p>	Urban renewal is best described as the
	<p>(a) building of new residential, commercial or community based developments on greenfield sites.</p> <p>(b) buying and renovation of houses in deteriorated urban neighbourhoods by upper or middle-income earners.</p> <p>(c) maintenance and preservation of historic buildings in inner city areas, often involving heritage listing.</p> <p>(d) planned rehabilitation of city areas by replacing and upgrading dilapidated buildings, infrastructure and facilities. – Answer</p>

<p>2019 Section 2 Question 28</p> <p>Places and their challenges</p>	Describe the process of invasion and succession occurring in urban areas. (2 marks)	
	Description	Marks
	Correctly describes the process of invasion and succession occurring in urban areas	2
	Identifies in general terms the process of invasion and succession occurring in urban areas	1
	Total	2
<p>Marker information:</p> <p>Candidates should refer to both the gradual nature of invasion and the almost complete transformation in land use in urban areas associated with succession.</p>		

**2019
Section 2
Question
29**

**Places and
their
challenges**

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

With specific reference to **Source 7**, describe **two** changes that have occurred as the process of urbanisation has taken place between 1960 and 2016.

Description	Marks
For each of two changes (2 x 2)	
Correctly describes a change that has occurred as the process of urbanisation has taken place between 1960 and 2016, referring to data from the source	2
Correctly identifies a change that has occurred as the process of urbanisation has taken place between 1960 and 2016	1
Subtotal	2
Total	4
<p>Marker information: Changes may include description of overall trends, comparison between urban and rural populations and variations within urban and rural populations over time.</p> <p>Answers could include:</p> <ul style="list-style-type: none"> • urban population has grown steadily over the whole period • rural population has experienced a reduction in the rate of growth over the period shown • rural population has declined as a proportion of the total population • urban population has increased as a proportion of the total population • in (insert year) urban population was (relevant figure) whilst in (insert year) urban population had increased to (relevant figure). <p>Accept other relevant answers.</p>	

<p>2019 Section 2 Question 30</p> <p>Places and their challenges</p>	<p>Explain one implication of changes in the level of urbanisation for world population growth and one implication for human wellbeing. (6 marks)</p>																					
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Correctly explains one implication of changes in the level of urbanisation for world population growth. Demonstrates a clear relationship between the changes in the level of urbanisation and the implication for world population growth</td> <td>3</td> </tr> <tr> <td>Correctly describes one implication of changes in the level of urbanisation for world population growth</td> <td>2</td> </tr> <tr> <td>States an implication of changes in the level of urbanisation for world population growth</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>3</td> </tr> <tr> <td>Correctly explains one implication of changes in the level of urbanisation for human wellbeing. Demonstrates a clear relationship between the changes in the level of urbanisation and the implication for human wellbeing</td> <td>3</td> </tr> <tr> <td>Correctly describes one implication of changes in the level or urbanisation for human wellbeing</td> <td>2</td> </tr> <tr> <td>States an implication of changes in the level of urbanisation for human wellbeing</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>3</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>6</td> </tr> </tbody> </table>		Description	Marks	Correctly explains one implication of changes in the level of urbanisation for world population growth. Demonstrates a clear relationship between the changes in the level of urbanisation and the implication for world population growth	3	Correctly describes one implication of changes in the level of urbanisation for world population growth	2	States an implication of changes in the level of urbanisation for world population growth	1	Subtotal	3	Correctly explains one implication of changes in the level of urbanisation for human wellbeing. Demonstrates a clear relationship between the changes in the level of urbanisation and the implication for human wellbeing	3	Correctly describes one implication of changes in the level or urbanisation for human wellbeing	2	States an implication of changes in the level of urbanisation for human wellbeing	1	Subtotal	3	Total	6
	Description	Marks																				
	Correctly explains one implication of changes in the level of urbanisation for world population growth. Demonstrates a clear relationship between the changes in the level of urbanisation and the implication for world population growth	3																				
	Correctly describes one implication of changes in the level of urbanisation for world population growth	2																				
	States an implication of changes in the level of urbanisation for world population growth	1																				
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	Correctly explains one implication of changes in the level of urbanisation for human wellbeing. Demonstrates a clear relationship between the changes in the level of urbanisation and the implication for human wellbeing	3																				
	Correctly describes one implication of changes in the level or urbanisation for human wellbeing	2																				
	States an implication of changes in the level of urbanisation for human wellbeing	1																				
	Subtotal	3																				
	Total	6																				
	<p>Marker information: Candidates may make reference to relevant sources on the broadsheet, however, should not be penalised for not doing so. Candidates may refer to either positive or negative implications.</p>																					
	<p>Answers could include: World population growth: As the level of urbanisation increases the rate of world population growth slows as:</p> <ul style="list-style-type: none"> • birth rates typically decline • childbirth typically occurs later in life for adults • family size typically declines. 																					
<p>Human wellbeing:</p> <ul style="list-style-type: none"> • greater access to health facilities • greater access to education • access to a wider range of employment opportunities • lack of access to amenities, infrastructure • lowered standard of living • poor sanitation • access to a wider range of social and cultural opportunities. 																						
<p>Accept other relevant answers.</p>																						

Unit 4 – Depth study one

Section 1

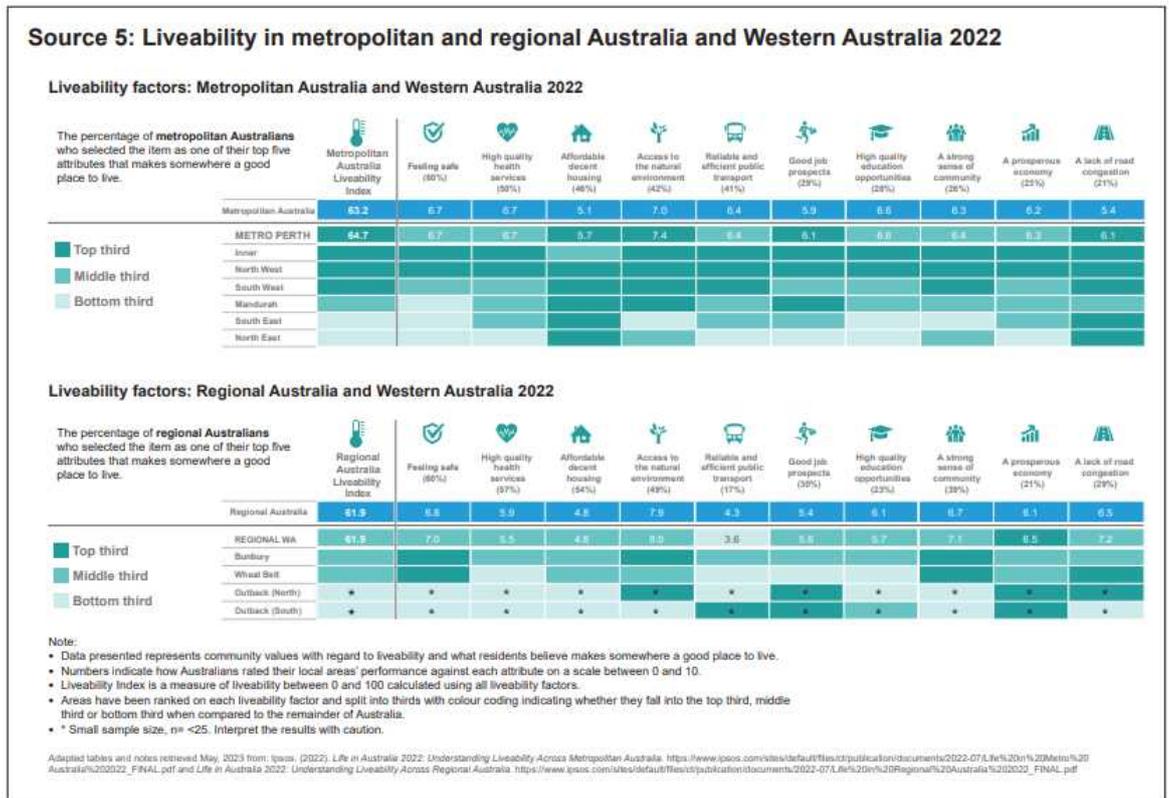
There have been no questions on this topic for this section in the exams of recent years.

Section 2

2023
Section 2
Question 29

Unit 4 –
Depth
study one

Refer to **Source 5: Liveability in metropolitan and regional Australia and Western Australia 2022** to answer Question 29.



Identify one liveability factor and describe the patterns of its performance within both metropolitan Perth and regional Western Australia. (4 marks)

Liveability factor:

Metropolitan Perth

Marking Guide – Section 1

There have been no questions on this topic for this section in the exams of recent years.

Marking Guide – Section 2

<p style="text-align: center;">2023 Section 2 Question 29</p> <p style="text-align: center;">Unit 4 – Depth study one</p>	<p>Refer to Source 5: Liveability in metropolitan and regional Australia and Western Australia 2022 to answer Question 29.</p> <p>Identify one liveability factor and describe the patterns of its performance within both metropolitan Perth and regional Western Australia. (4 marks)</p>										
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 80%;">Description</th> <th style="width: 20%;">Marks</th> </tr> </thead> <tbody> <tr> <td colspan="2" style="text-align: center;">For each of metropolitan Perth and regional Western Australia (2 x 2 marks)</td> </tr> <tr> <td>Describes the patterns of the liveability factor's performance within the area</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Makes a generalised statement about the patterns of the liveability factor's performance</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td style="text-align: center;">4</td> </tr> </tbody> </table>	Description	Marks	For each of metropolitan Perth and regional Western Australia (2 x 2 marks)		Describes the patterns of the liveability factor's performance within the area	2	Makes a generalised statement about the patterns of the liveability factor's performance	1	Total	4
	Description	Marks									
	For each of metropolitan Perth and regional Western Australia (2 x 2 marks)										
	Describes the patterns of the liveability factor's performance within the area	2									
	Makes a generalised statement about the patterns of the liveability factor's performance	1									
	Total	4									
	<p>Answers could include:</p> <p>Affordable decent housing</p> <p>Metropolitan Perth Affordable decent housing in metropolitan Perth performs in the top third of Australian Metropolitan areas with a score of 5.7 compared to Australian Metropolitan areas with a score of 5.1. Except for the inner areas, all regions within Perth fall within the top third, while the inner area ranks in the middle third for affordable decent housing.</p> <p>Regional Western Australia Affordable decent housing in regional Western Australia performs in the bottom two thirds of Australian Metropolitan areas for affordable decent housing when compared to Australia. No region performs in the top third, although the overall score of 4.8 is equal to that of regional Australia. Bunbury and the Wheatbelt perform in the middle third, while outback areas in the north and south perform in the bottom third; however, a small sample size renders this data unreliable.</p> <p>Reliable and efficient public transport</p> <p>Metropolitan Perth Reliable and efficient public transport in metropolitan Perth performs in the middle third with a score of 6.4 which is equal to the Metropolitan Australian score. The Inner areas as well as North-West and South West areas perform in the top third for reliable and efficient public transport; however, the South Eastern area and Mandurah perform in the middle third, while the North-Eastern area performs in the bottom third.</p> <p>Regional Western Australia Reliable and efficient public transport in regional Western Australia performs in the bottom third and performs lower (3.6) than regional Australia (4.3). The Bunbury region performs in the middle third, while the Wheatbelt region performs in the bottom third. Outback regions in the south performed in the top third; however, a small sample size renders this data unreliable.</p>										
	<p>Accept other relevant answers.</p>										

<p>2022 Section 2 Question 31</p> <p>Unit 4 – Depth study one</p>	<p>From the list below, explain how two of these challenges affect Australian metropolitan or regional centres.</p> <ul style="list-style-type: none"> • Housing • Economic restructuring • Employment • Transportation • Congestion • Environmental degradation • Waste management • Personal safety • Land abandonment • Urban sprawl • Socio-spatial inequality • Social inclusion and exclusion • Changing demographics 											
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td colspan="2">For each challenge (2 x 3 marks)</td> </tr> <tr> <td>Explains how the challenge affects Australian metropolitan or regional centres. Clearly demonstrates cause and effect or a clear relationship between the challenge and its effect on these places. Uses appropriate examples.</td> <td>3</td> </tr> <tr> <td>Describes how the challenge affects Australian metropolitan or regional centres. Demonstrates a clear relationship between the challenge and its effect on these places. May use some examples.</td> <td>2</td> </tr> <tr> <td>States how the challenge affects Australian metropolitan or regional centres. May attempt to demonstrate a relationship between the challenge and its effect. Limited or no reference is made to examples.</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>6</td> </tr> </tbody> </table> <p>Marker information:</p> <p>Only accept the challenges listed in the question.</p>	Description	Marks	For each challenge (2 x 3 marks)		Explains how the challenge affects Australian metropolitan or regional centres. Clearly demonstrates cause and effect or a clear relationship between the challenge and its effect on these places. Uses appropriate examples.	3	Describes how the challenge affects Australian metropolitan or regional centres. Demonstrates a clear relationship between the challenge and its effect on these places. May use some examples.	2	States how the challenge affects Australian metropolitan or regional centres. May attempt to demonstrate a relationship between the challenge and its effect. Limited or no reference is made to examples.	1	Total
Description	Marks											
For each challenge (2 x 3 marks)												
Explains how the challenge affects Australian metropolitan or regional centres. Clearly demonstrates cause and effect or a clear relationship between the challenge and its effect on these places. Uses appropriate examples.	3											
Describes how the challenge affects Australian metropolitan or regional centres. Demonstrates a clear relationship between the challenge and its effect on these places. May use some examples.	2											
States how the challenge affects Australian metropolitan or regional centres. May attempt to demonstrate a relationship between the challenge and its effect. Limited or no reference is made to examples.	1											
Total	6											

<p>2019 Section 2 Question 24</p> <p>Unit 4 – Depth study one</p>	<p>Refer to Source 5: The results of change due to human activity on ecosystems and climate to answer Question 24.</p> <p>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. (6 marks)</p>													
	<table border="1"> <thead> <tr> <th>Description</th> <th>Mark</th> </tr> </thead> <tbody> <tr> <td colspan="2">For each of the two identified changes (2 x 3)</td> </tr> <tr> <td>Correctly explains one of the changes that result from the negative impacts of human behaviour/activities on ecosystems and/or climate. Clearly demonstrates cause and effect or the relationship between the negative impacts and the changes. Specifically refers to the source to support the explanation</td> <td>3</td> </tr> <tr> <td>Describes one of the changes that result from the negative impacts of human behaviour/activities on ecosystems and/or climate. Demonstrates a simple cause and effect or relationship between the negative impacts and the changes. Makes a general reference to the source</td> <td>2</td> </tr> <tr> <td>States one of the changes that result from the negative impacts of human behaviour/activities on ecosystems and/or climate. Limited reference to the source</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>3</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>6</td> </tr> </tbody> </table> <p>Marker information:</p> <p>Candidates should explain two of the following:</p> <ul style="list-style-type: none"> • direct and indirect impacts of climate change • loss of ecosystem services • degradation of ecosystems causes further climate change • climate change causes further biodiversity loss. 	Description	Mark	For each of the two identified changes (2 x 3)		Correctly explains one of the changes that result from the negative impacts of human behaviour/activities on ecosystems and/or climate. Clearly demonstrates cause and effect or the relationship between the negative impacts and the changes. Specifically refers to the source to support the explanation	3	Describes one of the changes that result from the negative impacts of human behaviour/activities on ecosystems and/or climate. Demonstrates a simple cause and effect or relationship between the negative impacts and the changes. Makes a general reference to the source	2	States one of the changes that result from the negative impacts of human behaviour/activities on ecosystems and/or climate. Limited reference to the source	1	Subtotal	3	Total
Description	Mark													
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States one of the changes that result from the negative impacts of human behaviour/activities on ecosystems and/or climate. Limited reference to the source	1													
Subtotal	3													
Total	6													

Marking Guide – Section 3

<p>2023 Section 3 Question 32</p> <p>Unit 4 – Section 3 Questions</p>	(a) Explain the causes and impacts of one challenge facing metropolitan Perth or a regional urban centre in Western Australia. (8 marks)	
	Description	Marks
	Explains the causes and impacts of one challenge facing metropolitan Perth or a regional urban centre in Western Australia	7–8
	Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the explanation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response	
	Explains briefly the causes and impacts of one challenge facing metropolitan Perth or a regional urban centre in Western Australia	5–6
	Presents a range of appropriate supporting evidence and examples to develop and strengthen the explanation. Applies relevant geographical terminology and concepts to develop a cohesive response	
	Describes the causes and/or impacts of one challenge facing metropolitan Perth or a regional urban centre in Western Australia	3–4
Presents some relevant evidence and examples to support the description. Uses some relevant geographical terminology and concepts		
Makes generalised statements about the causes and/or impacts of one challenge facing metropolitan Perth or a regional urban centre in Western Australia	1–2	
Limited or no use of geographical terminology and concepts, in a largely unstructured response		
Total		8
<p>Answers could include:</p> <p>Only accept the following challenges:</p> <ul style="list-style-type: none"> • housing • economic restructuring • employment • transportation • environmental degradation • waste management • land abandonment • urban sprawl • socio-spatial inequality • social exclusions • water supply. <p>Transportation:</p> <p>Causes</p> <ul style="list-style-type: none"> • historical land use planning policies • parking policies • community preferences for private vehicles • lack of provision of accessible public transport. <p>Impacts</p> <ul style="list-style-type: none"> • car dependence • segregated land uses with provisions of large car parks • sprawled city boundaries • congestion. 		

<p>Environmental degradation:</p> <p>Causes</p> <ul style="list-style-type: none"> chemicals/nutrients in runoff hard surfaces in urban areas inappropriate waste disposal. <p>Impacts</p> <ul style="list-style-type: none"> degradation/nitrification of water systems changes to hydrological processes due to flooding/sedimentation increased landcover change for landfill sites. <p>Accept other relevant answers.</p>

(b) Evaluate one planning strategy used to address **one** challenge facing a megacity, using the concept of sustainability. (12 marks)

Description	Marks
<p>Evaluates one planning strategy used to address one challenge facing a megacity using all aspects of the concept of sustainability</p> <p>Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the evaluation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response</p>	11–12
<p>Evaluates briefly one planning strategy used to address one challenge facing a megacity using all aspects of the concept of sustainability</p> <p>Presents a range of appropriate supporting evidence and examples to develop and strengthen the evaluation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response</p>	9–10
<p>Explains one planning strategy used to address one challenge facing a megacity using all aspects of the concept of sustainability</p> <p>Presents some appropriate supporting evidence and examples to develop the explanation. Uses relevant geographical terminology and concepts to develop a cohesive answer</p>	7–8
<p>Explains briefly one planning strategy used to address one challenge facing a megacity using some aspects of the concept of sustainability</p> <p>Presents some relevant evidence and examples to support the explanation. The use of some geographical terminology and concepts help to develop a mostly articulate answer</p>	5–6
<p>Describes one planning strategy used to address one challenge facing a megacity using at least some aspects of the concept of sustainability</p> <p>Presents limited evidence and/or generalised examples to support the description. There is limited use of geographical terminology and concepts</p>	3–4
<p>Makes generalised statements about one planning strategy used to address one challenge facing a megacity using at least some aspects of the concept of sustainability</p> <p>Limited or no evidence to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response</p>	1–2
Total	12
<p>Answers could include:</p> <p>Sustainability refers to meeting the needs of current and future generations through simultaneous environmental, social and economic adaptation and improvement.</p> <p>Only accept the following challenges:</p> <ul style="list-style-type: none"> housing economic restructuring employment transportation environmental degradation waste management land abandonment 	

	<ul style="list-style-type: none"> • urban sprawl • socio-spatial inequality • social exclusions • water supply. <p>Environmental evaluations</p> <ul style="list-style-type: none"> • reduced or increased waste and/or pollution • reduced or increased total carbon emissions • reduced or increased carbon sequestration • reduced or increased heat island effect • creates more, or less appealing inclusive urban environments • safe or more dangerous environmental hazards. <p>Social evaluations</p> <ul style="list-style-type: none"> • increased or decreased employment opportunities • increased or decreased connectedness with a diverse community • increased or decreased in local economic activity and resilience • increases or decreases social capacity building and active participation in civic activities • improvements or decline in mental health and wellbeing • improvements or decline in physical activity and physical health. <p>Economic evaluations</p> <ul style="list-style-type: none"> • increases or decreases the costs associated with the challenge • increased or decreased personal financial stress • increased or decreased government financial security • increases or decreases in economic opportunities or potential, such as land value capture • increases or decreases in cities competitiveness and/or growth • decreases or increases in the provision of welfare services in an area. <p>Accept other relevant answers.</p>
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2023
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Unit 4 –
Section 3
Questions

(a) Explain the causes and impacts of **one** challenge facing a megacity. (8 marks)

Description	Marks
Explains the causes and impacts of one challenge facing a megacity	7–8
Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the explanation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response	
Explains briefly the causes and impacts of one challenge facing a megacity	5–6
Presents a range of appropriate supporting evidence and examples to develop and strengthen the explanation. Applies relevant geographical terminology and concepts to develop a cohesive response	
Describes the causes and/or impacts of one challenge facing a megacity	3–4
Presents some relevant evidence and examples to support the description. Uses some relevant geographical terminology and concepts	
Makes generalised statements about the causes and/or impacts of one challenge facing a megacity	1–2
Limited or no use of geographical terminology and concepts, in a largely unstructured response	
Total	8
<p>Answers could include:</p> <p>Only accept the following challenges:</p> <ul style="list-style-type: none"> • housing • economic restructuring • employment • transportation • environmental degradation • waste management • land abandonment • urban sprawl • socio-spatial inequality • social exclusions • water supply. <p>Transportation:</p> <p>Causes</p> <ul style="list-style-type: none"> • site limitations, i.e. number of access points to a city • cost of housing in central areas • population size/location of employment and workers • lack of provision/quality of accessible public transport. <p>Impacts</p> <ul style="list-style-type: none"> • economic efficiency costs associated with congestion • congested roads and public transport systems • social, emotional, economic toll on commuters. <p>Waste management:</p> <p>Causes</p> <ul style="list-style-type: none"> • size/density of population • high volume of waste generated per resident • limited land to dispose of waste • difficulty in moving waste through streets or rivers to remove it from the city. <p>Impacts</p> <ul style="list-style-type: none"> • economic cost of moving waste • congestion caused by trucks • build up of rubbish in streets • pollution/rodent management. <p>Accept other relevant answers.</p>	

(b) Evaluate **one** planning strategy used to address **one** challenge facing metropolitan Perth or a regional urban centre in Western Australia, using the concept of sustainability. (12 marks)

Description	Marks
<p>Evaluates one planning strategy used to address one challenge facing metropolitan Perth or a regional urban centre in Western Australia using all aspects of the concept of sustainability</p> <p>Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the evaluation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response</p>	11–12
<p>Evaluates briefly one planning strategy used to address one challenge facing metropolitan Perth or a regional urban centre in Western Australia using all aspects of the concept of sustainability</p> <p>Presents a range of appropriate supporting evidence and examples to develop and strengthen the evaluation. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response</p>	9–10
<p>Explains one planning strategy used to address one challenge facing metropolitan Perth or a regional urban centre in Western Australia using all aspects of the concept of sustainability</p> <p>Presents appropriate supporting evidence and examples to develop the explanation. Uses relevant geographical terminology and concepts to develop a cohesive answer</p>	7–8
<p>Explains briefly one planning strategy used to address one challenge facing metropolitan Perth or a regional urban centre in Western Australia using some aspects of the concept of sustainability</p> <p>Presents some relevant evidence and examples to support the explanation. The use of some geographical terminology and concepts help to develop a mostly articulate answer</p>	5–6
<p>Describes one planning strategy used to address one challenge facing metropolitan Perth or a regional urban centre in Western Australia using at least some aspects of the concept of sustainability</p> <p>Presents limited evidence and/or generalised examples to support the description. There is limited use of geographical terminology and concepts</p>	3–4
<p>Makes generalised statements about one planning strategy used to address one challenge facing metropolitan Perth or a regional urban centre in Western Australia using at least some aspects of the concept of sustainability</p> <p>Limited or no evidence is used to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response</p>	1–2
Total	12

Answers could include:

Only accept the following challenges:

- housing
- economic restructuring
- employment
- transportation
- environmental degradation
- waste management
- land abandonment
- urban sprawl
- socio-spatial inequality
- social exclusions
- water supply.

Environmental evaluations

- reduced or increased waste and/or pollution
- reduced or increased total carbon emissions
- reduced or increased carbon sequestration
- reduced or increased heat island effect
- creates more, or less appealing inclusive urban environments
- safe or more dangerous environmental hazards.

Social evaluations

- increased or decreased employment opportunities
- increased or decreased connectedness with a diverse community
- increased or decreased in local economic activity and resilience
- increases or decreases social capacity building and active participation in civic activities
- improvements or decline in mental health and wellbeing
- improvements or decline in physical activity and physical health.

Economic evaluations

- increases or decreases the costs associated with the challenge
- increased or decreased personal financial stress
- increased or decreased government financial security
- increases or decreases in economic opportunities or potential, such as land value capture
- increases or decreases in cities competitiveness and/or growth
- decreases or increases in the provision of welfare services in an area.

Accept other relevant answers.

**2022
Section 3
Question
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**Unit 4 –
Section 3
Questions**

(a) Describe two demographic characteristics of either metropolitan Perth or a regional urban centre in Western Australia. (8 marks)

Description	Marks
For each of two demographic characteristics (2 x 4 marks)	
Describes in detail the patterns exhibited by the characteristic in metropolitan Perth or a regional urban centre in Western Australia. Presents a wide range of appropriate supporting evidence and examples to strengthen the description. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	4
Describes the patterns exhibited by the characteristic in metropolitan Perth or a regional urban centre in Western Australia. Uses a range of appropriate supporting evidence and examples to develop and strengthen the description. Applies relevant geographical terminology and concepts to develop a cohesive response.	3
Identifies the patterns exhibited by the characteristic in metropolitan Perth or a regional urban centre in Western Australia. Uses limited evidence and examples to support statements and generalisations. Limited use of geographical terminology and concepts.	2
Provides a generalised statement about the characteristic in metropolitan Perth or a regional urban centre in Western Australia. Limited or no use of geographical terminology and concepts, in a largely unstructured response. Information might be in dot point form.	1
Total	8
<p>Marker information:</p> <p>Characteristics should include a description of spatial variations in demographic patterns including the relative location.</p> <p>Relative location refers to CBD or other functional zone or area of significance, suburbs, precincts, and areal extent.</p> <p>Characteristics include highest/lowest and/or max/min (i.e. range) such as:</p> <ul style="list-style-type: none"> • age – Inner suburbs typically have an older population compared to newer suburbs in outer areas e.g. City of South Perth has a median age of 37 compared to City of Wanneroo has a median age of 33. City of Perth has a lower rate (5.2%) of 0–14-year old's compared to City of Cockburn which in comparison has a rate 20% • gender – inner suburban areas often have a higher ratio of females to males compared to outer suburban areas, e.g. Como (53.5%) and Attadale (53.1%) have a higher ratio of females compared to the City of Armadale (50.3%). <p>Accept other relevant answers.</p>	

(b) Select one significant challenge facing a megacity and discuss how two planning strategies are being, or have been, used to address the challenge. (12 marks)

Description	Marks
For each of two strategies (2 x 6 marks)	
Discusses the positive and/or negative factors which pertain to the planning strategy. Accurately relates how the strategy aims to address the challenge. Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the discussion. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	5–6
Explains how the program aims to address the challenge. Uses some supporting evidence and examples to develop and strengthen the explanation. Applies relevant geographical terminology and concepts to develop a cohesive response.	3–4
States some general information pertaining to the planning strategy. Provides little evidence of the relationship between the strategy and the challenge. Limited evidence is used to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response.	1–2
Total	12
<p>Marker information:</p> <p>Answers based on planning strategies that have been proposed but not yet implemented may be accepted.</p> <p>A good answer should include both positives and negatives in the discussion; however, a good answer that does not address both is still able to be awarded full marks if this is an accurate reflection of the selected planning strategy.</p> <p>Only accept the following challenges: Housing, economic restructuring, employment, transportation congestion, environmental degradation, waste management, personal safety, land abandonment, urban sprawl, socio-spatial inequality, social inclusion and exclusion, changing demographics.</p>	

2022
Section 3
Question
35

Unit 4 –
Section 3
Questions

(a) Describe two demographic characteristics of a megacity you have studied. (8 marks)

Description	Marks
For each of two characteristics (2 x 4 marks)	
Describes in detail the patterns exhibited by the characteristic in a megacity. Presents a wide range of appropriate supporting evidence and examples to strengthen the description. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	4
Describes the patterns exhibited by the characteristic in a megacity. Uses a range of appropriate supporting evidence and examples to develop and strengthen the description. Applies relevant geographical terminology and concepts to develop a cohesive response.	3
Identifies the patterns exhibited by the characteristic in a megacity. Uses limited evidence and examples to support statements and generalisations. Limited use of geographical terminology and concepts.	2
Provides a generalised statement about the characteristic in a megacity. Limited or no use of geographical terminology and concepts, in a largely unstructured response. Information might be in dot point form.	1
Total	8
<p>Marker information:</p> <p>Characteristics should include a description of spatial variations in demographic patterns including the relative location.</p> <p>Relative location refers to CBD or other functional zone or area of significance, suburbs, precincts and areal extent.</p> <p>Characteristics include qualities such as:</p> <ul style="list-style-type: none"> • age – Manhattan borough has a median age of 38, while the Bronx has a median age of 35. Manhattan borough has a lower rate (9%) of 0–9-year-olds compared to the Bronx borough 14%. • Income – Manhattan borough has a higher income US\$79k per capita compared to outer boroughs such as Queens which has a US\$34k per capita income. • Race/ ethnicity – Staten Island borough has a 60% white population compared to the Bronx borough (9%). <p>Accept other relevant answers.</p>	

(b) Select one significant challenge facing either metropolitan Perth or a regional urban centre in Western Australia and discuss how two planning strategies are being, or have been, used to address the challenge. (12 marks)

Description	Marks
For each of two strategies (2 x 6 marks)	
Discusses the positive and/or negative factors which pertain to the planning strategy. Accurately relates how the strategy aims to address the challenge. Presents a wide range of appropriate supporting evidence and examples to develop and strengthen the discussion. Applies accurate and relevant geographical terminology and concepts to develop a cohesive and concise response.	5–6
Explains how the program aims to address the challenge. Uses some supporting evidence and examples to develop and strengthen the explanation. Applies relevant geographical terminology and concepts to develop a cohesive response.	3–4
States some general information pertaining to the planning strategy. Provides little evidence of the relationship between the strategy and the challenge. Limited evidence is used to support statements and generalisations. Limited or no use of geographical terminology and concepts in a largely unstructured response.	1–2
Total	12
<p>Marker information:</p> <p>Answers based on strategies that have been proposed but not yet implemented may be accepted.</p> <p>A good answer should include both positives and negatives in the discussion; however, a good answer that does not address both is still able to be awarded full marks if this is an accurate reflection of the selected planning strategy.</p> <p>Only accept the following challenges: Housing, economic restructuring, employment, transportation congestion, environmental degradation, waste management, personal safety, land abandonment, urban sprawl, socio-spatial inequality, social inclusion and exclusion, changing demographics.</p>	

**2021
Section 3
Question
34**

**Unit 4 –
Section 3
Questions**

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

Description	Marks
<p>For either metropolitan Perth or a regional centre in Western Australia:</p> <p>Describes in detail accurate information on both the site and the external morphology of the chosen place. The locations, nature and extent of features are described. The answer may be supported by maps.</p> <p>A wide range of supporting evidence and examples is used to develop and strengthen the description. Uses accurate and relevant geographical terminology and concepts to develop a cohesive answer, with well-developed sentences and paragraphs in an extended answer format.</p>	7–8
<p>For either metropolitan Perth or a regional centre in Western Australia:</p> <p>Describes relatively accurate information on both the site and the external morphology of the chosen place. The locations, nature and extent of features are broadly described. The answer may be supported by maps.</p> <p>A range of supporting evidence and examples is used to develop and strengthen the description. Relevant geographical terminology and concepts helps to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>For either metropolitan Perth or a regional centre in Western Australia:</p> <p>Outlines generalised information on the site and/or the external morphology of the chosen place. Elements of the locations, nature and extent of features are described. The answer may be supported by maps.</p> <p>Limited supporting evidence and examples are used to support outline. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	3–4
<p>For either metropolitan Perth or a regional centre in Western Australia:</p> <p>Provides generalised statements on either the site or the external morphology of the chosen place.</p> <p>Few elements of the locations, nature and extent of features are described. There is limited or no use of geographical terminology and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Total	
8	
<p>Marker information:</p> <p>Site features may include physical characteristics of the land on which a feature is located e.g. relief, landforms, drainage features, soils, natural vegetation.</p> <p>External morphology is the overall shape and extent of the boundary of an urban area.</p>	

(b) Describe the implications of a major challenge facing a megacity you have studied and assess the extent to which one strategy, adopted to address this challenge, has enhanced the sustainability and liveability of the megacity. (12 marks)

Description	Marks
<p>Describes, in detail, the implications of the selected challenge. Provides a detailed and balanced assessment of the extent to which the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses a wide range of appropriate supporting evidence and examples to develop and strengthen the response. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer with well-developed sentences and paragraphs in an extended answer format.</p>	11–12
<p>Describes the implications of the selected challenge. Provides an assessment of the extent to which the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses a range of supporting evidence and examples to illustrate the response. The use of relevant geographical terminology and concepts helps to develop a cohesive, and concise answer with well-developed sentences and paragraphs in an extended answer format.</p>	9–10
<p>Describes the implications of the selected challenge. Provides an explanation of how the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses some supporting evidence and examples to illustrate the response. The use of some relevant geographical terminology and concepts helps to develop a cohesive answer with well-developed sentences and paragraphs in an extended answer format.</p>	7–8
<p>Outlines the implications of the selected challenge. Provides a description of how the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses some evidence and examples to support the outline. There is some use of geographical terminology and concepts. Sentences and paragraphs are simplistic and lack structure and clarity.</p>	5–6
<p>Provides a very limited description of the implications of the selected challenge. Provides an outline of how the chosen strategy has enhanced either the sustainability or the liveability of the place.</p> <p>Some evidence and examples may be used to support statements and generalisations. There is little or no use of geographical terminology and concepts and the response is largely unstructured.</p>	3–4
<p>Provides generalised statements of the selected challenge for the megacity. Provides generalised statements of how the chosen strategy has enhanced either the sustainability or the liveability of the place.</p> <p>A basic description with little detail. Information may be in dot point form. Limited evidence is used, and the response may contain many generalisations. Limited use of geographical terms. Poor literacy skills reduce the ability of the marker to understand the response.</p>	1–2
Total	12
<p>Marker information: The syllabus uses the term strategy as opposed to plan or scheme.</p> <p>Therefore, candidates may interpret this term as referring to a large-scale plan such as ONENYC, a specific strategy within such a plan or a more local initiative.</p> <p>All of these approaches are to be accepted and marked on the merit of the candidates' response to the question.</p>	

2021
Section 3
Question
35

Unit 4 –
Section 3
Questions

(a) Describe the site and internal morphology of a megacity you have studied. (8 marks)

Description	Marks
<p>For the selected megacity:</p> <p>Describes in detail accurate information on both the site and the internal morphology of the chosen place. The locations, nature and extent of features are described. The answer may be supported by maps.</p> <p>A wide range of supporting evidence and examples is used to develop and strengthen the description. Uses accurate and relevant geographical terminology and concepts to develop a cohesive answer, with well-developed sentences and paragraphs in an extended answer format.</p>	7–8
<p>For the selected megacity:</p> <p>Describes relatively accurate information on both the site and the internal morphology of the chosen place. The locations, nature and extent of features are broadly described. The answer may be supported by maps.</p> <p>A range of supporting evidence and examples is used to develop and strengthen the description. Relevant geographical terminology and concepts helps to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>For the selected megacity:</p> <p>Outlines generalised information on the site and/or the internal morphology of the chosen place. Elements of the locations, nature and extent of features are described. The answer may be supported by maps.</p> <p>Limited supporting evidence and examples are used to support outline. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	3–4
<p>For the selected megacity:</p> <p>Provides generalised statements on either the site or the internal morphology of the chosen place. Few elements of the locations, nature and extent of features are described.</p> <p>There is limited or no use of geographical terminology and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Total	8
<p>Marker information:</p> <p>Site features may include physical characteristics of the land on which a feature is located e.g. relief, landforms, drainage features, soils, natural vegetation.</p> <p>Internal morphology of a settlement is the land use and transport patterns within an urban area.</p>	

(b) Describe the implications of a major challenge facing metropolitan Perth or a regional urban centre in Western Australia and assess the extent to which one strategy, adopted to address this challenge, has enhanced the sustainability and liveability of the place. (12 marks)

Description	Marks
<p>Describes, in detail, the implications of the selected challenge. Provides a detailed and balanced assessment of the extent to which the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses a wide range of appropriate supporting evidence and examples to develop and strengthen the response. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer with well-developed sentences and paragraphs in an extended answer format.</p>	11–12
<p>Describes the implications of the selected challenge. Provides an assessment of the extent to which the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses a range of supporting evidence and examples to illustrate the response. The use of relevant geographical terminology and concepts helps to develop a cohesive, and concise answer with well-developed sentences and paragraphs in an extended answer format.</p>	9–10
<p>Describes the implications of the selected challenge. Provides an explanation of how the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses some supporting evidence and examples to illustrate the response. The use of some relevant geographical terminology and concepts helps to develop a cohesive answer with well-developed sentences and paragraphs in an extended answer format.</p>	7–8
<p>Outlines the implications of the selected challenge. Provides a description of how the chosen strategy has enhanced both the sustainability and the liveability of the place.</p> <p>Uses some evidence and examples to support the outline. There is some use of geographical terminology and concepts. Sentences and paragraphs are simplistic and lack structure and clarity.</p>	5–6
<p>Provides a very limited description of the implications of the selected challenge. Provides an outline of how the chosen strategy has enhanced either the sustainability or the liveability of the place.</p> <p>Some evidence and examples may be used to support statements and generalisations. There is little or no use of geographical terminology and concepts and the response is largely unstructured.</p>	3–4
<p>Provides generalised statements of the selected challenge. Provides generalised statements of how the chosen strategy has enhanced either the sustainability or the liveability of the place.</p> <p>A basic description with little detail. Information may be in dot point form. Limited evidence is used, and the response may contain many generalisations. Limited use of geographical terms. Poor literacy skills reduce the ability of the marker to understand the response.</p>	1–2
Total	12
<p>Marker information: The syllabus uses the term strategy as opposed to plan or scheme.</p> <p>Therefore, candidates may interpret this term as referring to a large-scale plan such as, Perth and Peel@3.5 million, a specific strategy within such a plan or a more local initiative.</p> <p>All of these approaches are to be accepted and marked on the merit of the candidates' response to the question.</p>	

**2020
Section 3
Question
36**

**Unit 4 –
Section 3
Questions**

(a) Describe the nature and causes of one significant challenge facing a megacity you have studied. (8 marks)

Description	Marks
<p>For the selected megacity: A detailed and comprehensive description is given, and accurate information is provided on both the nature and the causes of the selected challenge.</p> <p>A wide range of appropriate supporting evidence and examples is used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts help to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	7–8
<p>For the selected megacity: An appropriate description is given, and relatively accurate information is provided on both the nature and the causes of the selected challenge.</p> <p>A range of appropriate supporting evidence and examples is used to develop and strengthen the description. Relevant geographical terminology and concepts help to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>For the selected megacity: An outline (limited description) is given and generalised information is provided on both the nature and causes of the selected challenge.</p> <p>Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.</p>	3–4
<p>For the selected megacity: Provides some information on either the nature or the causes of the selected challenge.</p> <p>There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Total	8
<p>Marker information: Nature refers to the characteristics and impacts of the selected challenge, usually by providing a definition and a description of the general features of the challenge. Causes refers to the factors and conditions that have brought about the challenge. Note: An answer which only describes the nature of, or only describes the cause of should not be awarded more than four marks.</p> <p>Example Congestion Nature:</p> <ul style="list-style-type: none"> • the movement of vehicles along transport arteries becomes excessive resulting in slow movement of vehicles, increased trip times and vehicle queuing • good answer will continue on to describe, with examples, the aspects of the challenge that cause disadvantage and disruption to daily urban living. <p>Causes: Underlying conditions which have caused the challenge to occur, such as:</p> <ul style="list-style-type: none"> • high daily influx of workers into CBD • imbalance between residential and employment locations • am and pm peaks in transport demand. • inadequate road and rail links into central areas • high dependence on private motor vehicle use • desire for low density, privately owned housing in outer suburbs. 	
Accept other relevant answers.	

(b) Select a significant challenge facing metropolitan Perth or a regional urban centre in Western Australia and explain the views and attitudes of two major stakeholder groups in relation to this challenge. (12 marks)

Description	Marks
For each major stakeholder group selected (2 x 6 marks each)	
<p>A detailed and comprehensive explanation is presented of why the major stakeholder group holds the views and attitudes that it does in relation to the selected challenge. Detailed and accurate information is provided on how the selected challenge causes the stakeholder group to hold these views and attitudes in relation to it.</p> <p>A wide range of appropriate supporting evidence and examples is used to develop and strengthen the evaluation. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>An explanation is presented of why the major stakeholder group holds the views and attitudes that it does in relation to the selected challenge. Relatively accurate information is provided on how the selected challenge causes the stakeholder group to hold these views and attitudes in relation to it.</p> <p>Some supporting evidence and examples are used to develop and strengthen the explanation. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>A basic description, with little explanation of why the major stakeholder group holds the views and attitudes that it does in relation to the selected challenge. Limited information is provided on how the selected challenge causes the stakeholder group to hold these views and attitudes in relation to it.</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12
<p>Marker information:</p> <p>Aspects of the description of a challenge are included in previous marker information.</p> <p>The question uses the term 'major stakeholder group'. While these groups can be formal (e.g. RACWA or Bunbury City Council) or informal (e.g. interest groups such as environmentalists or land developers), they must be major. The views and attitudes of, for example, individuals, (nuclear) families or the residents of a single street do not constitute those of a major stakeholder group.</p> <p>Nevertheless, in the case of the smaller regional urban centres in Western Australia, some challenges have a highly local focus. Markers may therefore need to use their professional discretion in assessing what constitutes a major stakeholder group in such contexts.</p> <p>Views and attitudes: In explaining views and attitudes candidates should state the stakeholder groups' role in, or connection to the challenge. Discussion should include their views and attitudes in relation to the challenge and the reason why authorities and groups in society may respond to the challenge in the ways that they do.</p>	

**2019
Section 3
Question
34**

**Unit 4 –
Section 3
Questions**

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

Description	Marks
For either metropolitan Perth or a regional urban centre in Western Australia: A detailed and comprehensive description is given and accurate information is provided on both the internal and external morphology of the chosen centre. The locations, nature and extent of features are described. The answer may be supported by maps. A wide range of appropriate supporting evidence and examples are used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.	7–8
For either metropolitan Perth or a regional urban centre in Western Australia: An appropriate description is given and relatively accurate information is provided on both the internal and external morphology of the chosen centre. The locations, nature and extent of features are broadly described. The answer may be supported by maps. A range of appropriate supporting evidence and examples are used to develop and strengthen the description. Relevant geographical terminology and concepts helps to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.	5–6
For either metropolitan Perth or a regional urban centre in Western Australia: An outline (limited description) is given and generalised information is provided on both the internal and external morphology of the chosen centre. Elements of the location, nature and extent of features are described. The answer may be supported by maps, however, a map with no accompanying written description should not be awarded more than 50%. Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.	3–4
For either metropolitan Perth or a regional urban centre in Western Australia: States some information on either the internal or external morphology of the chosen centre. Few elements of the location, nature and extent of features may be stated. There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.	1–2
Total	8
<p>Marker information: Internal morphology refers to the layout, extent and nature of land uses (functional zones) and transport patterns within an urban area. External morphology refers to the overall shape and extent of the boundary of an urban area. Equal weighting should be given to the descriptions of both internal and external morphology. If only one of these is addressed the maximum score awarded should not exceed 4 out of 8.</p>	
<p>Answers could include:</p> <p>Internal morphology:</p> <ul style="list-style-type: none"> • identification of functional (land use) zones • description of location and extent of land use zones • description of characteristics of land use zones • description of the nature and extent of transport links. <p>External morphology:</p> <ul style="list-style-type: none"> • description of the overall shape of the urban area • description of the extent and size of the urban area (north/south, east/west and area). 	
Accept other relevant answers.	

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. (12 marks)

Description	Marks
For each (one for metropolitan Perth or a regional urban centre in Western Australia and one for a megacity) of the planning strategies assessed (2 x 6)	
<p>A detailed and comprehensive assessment of the extent to which the strategy has enhanced the sustainability and liveability of the place is presented. Detailed and accurate information is provided about the nature of the strategy and the extent to which it has enhanced the sustainability and identified measures of liveability.</p> <p>A wide range of appropriate supporting evidence and examples are used to develop and strengthen the evaluation. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>An assessment of the extent to which the strategy has enhanced the sustainability and liveability of the place is presented. Relatively accurate information is provided about the nature of the strategy and the extent to which it has enhanced the sustainability and some identified measures of liveability.</p> <p>Some supporting evidence and examples are used to develop and strengthen the evaluation. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>A basic description, with little assessment of the extent to which the strategy has enhanced the sustainability and liveability of the place is presented. Limited information is provided about the nature of the strategy. The extent to which it has enhanced the sustainability and some identified measures of liveability is limited.</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12
<p>Marker information:</p> <p>Sustainability refers to meeting the needs of current and future generations through simultaneous environmental, social and economic adaption and improvement.</p> <p>Liveability refers to the quality of space and the built environment. The concept of liveability has been linked to a range of factors, for example, quality of life, health, sense of safety, access to services, cost of living, comfortable living standards, mobility and transport, air quality and social participation.</p> <p>If only one of the above elements is addressed the maximum score awarded for that urban centre should not exceed 3 out of 6.</p> <p>The syllabus uses the term strategy as opposed to plan or scheme. Therefore candidates may interpret this term as referring to a large scale plan such as ONENYC, a specific strategy within such a plan or a more local initiative. All of these approaches are to be accepted and assessed on the merit of their evaluation against the three pillars of sustainability.</p> <p>Accept other relevant answers.</p>	

2019
Section 3
Question
35

Unit 4 –
Section 3
Questions

(a) Describe the internal and external morphology of a megacity. (8 marks)

Description	Marks
For the selected megacity: A detailed and comprehensive description is given and accurate information is provided on both the internal and external morphology of the chosen centre. The locations, nature and extent of features are described. The answer may be supported by maps. A wide range of appropriate supporting evidence and examples are used to develop and strengthen the description. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.	7–8
For the selected megacity: An appropriate description is given and relatively accurate information is provided on both the internal and external morphology of the chosen centre. The locations, nature and extent of features are described. The answer may be supported by maps. A range of appropriate supporting evidence and examples are used to develop and strengthen the description. Relevant geographical terminology and concepts helps to develop a cohesive and detailed answer, with well-developed sentences and paragraphs in an extended answer format.	5–6
For the selected megacity: An outline (limited description) is given and generalised information is provided on both the internal and external morphology of the chosen centre. Elements of the location, nature and extent of features are described. The answer may be supported by maps, however, a map with no accompanying written description should not be awarded more than 50%. Limited evidence and examples are used to support statements and generalisations. There is limited use of geographical terminology and concepts in a largely unstructured response.	3–4
For the selected megacity: States some information on either the internal or external morphology of the chosen centre. Few elements of the location, nature and extent of features may be stated. There is limited or no use of geographical terminology and concepts, and poor literacy skills may contribute to a response that is difficult to understand.	1–2
Total	8
<p>Marker information: Internal morphology refers to the layout, extent and nature of land uses (functional zones) and transport patterns within an urban area. External morphology refers to the overall shape and extent of the boundary of an urban area. Equal weighting should be given to the descriptions of both internal and external morphology. If only one of these is addressed the maximum score awarded should not exceed 4 out of 8.</p> <p>Answers could include: Internal morphology:</p> <ul style="list-style-type: none"> • identification of functional (land use) zones • description of location and extent of land use zones • description of characteristics of land use zones • description of the nature and extent of transport links. 	
<p>External morphology:</p> <ul style="list-style-type: none"> • description of the overall shape of the urban area • description of the extent and size of the urban area (north/south, east/west and area). 	
Accept other relevant answers.	

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)

Description	Marks
For each (one for metropolitan Perth or a regional urban centre in Western Australia and one for a megacity) of the planning strategies evaluated (2 x 6)	
<p>A detailed and comprehensive evaluation of the extent to which the strategy has been, or could be, informed by the concept of sustainability is presented. Detailed and accurate information is provided about the nature of the strategy and the extent to which environmental, economic and social benefits and costs have informed its development and implementation.</p> <p>A wide range of appropriate supporting evidence and examples are used to develop and strengthen the evaluation. The accurate use of relevant geographical terminology and concepts helps to develop a cohesive, concise and articulate answer, with well-developed sentences and paragraphs in an extended answer format.</p>	5–6
<p>An evaluation of the extent to which the strategy has been, or could be, informed by the concept of sustainability is presented. Relatively accurate information is provided about the nature of the strategy and the extent to which environmental, economic and social benefits and costs have informed its development and implementation.</p> <p>Some supporting evidence and examples are used to develop and strengthen the evaluation. Relevant geographical terminology and concepts help to develop a cohesive and concise answer, with well-developed sentences and paragraphs in an extended answer format.</p>	3–4
<p>A basic description, with little evaluation, of the extent to which the strategy has been, or could be, informed by the concept of sustainability is presented. Limited information is provided about the nature of the strategy. The extent to which environmental, economic and social benefits and costs have informed its development and implementation is not addressed.</p> <p>Insufficient evidence is used to support statements and generalisations. There is limited or no use of geographical terminology and concepts and poor literacy skills may contribute to a response that is difficult to understand.</p>	1–2
Subtotal	6
Total	12
<p>Marker information:</p> <p>Sustainability refers to meeting the needs of current and future generations through simultaneous environmental, social and economic adaption and improvement.</p> <p>The syllabus uses the term strategy as opposed to plan or scheme. Therefore candidates may interpret this term as referring to a large scale plan such as ONENYC, a specific strategy within such a plan or a more local initiative. All of these approaches are to be accepted and assessed on the merit of their evaluation against the three pillars of sustainability.</p> <p>Accept other relevant answers.</p>	

Unit 3 and 4 – Geographical skills

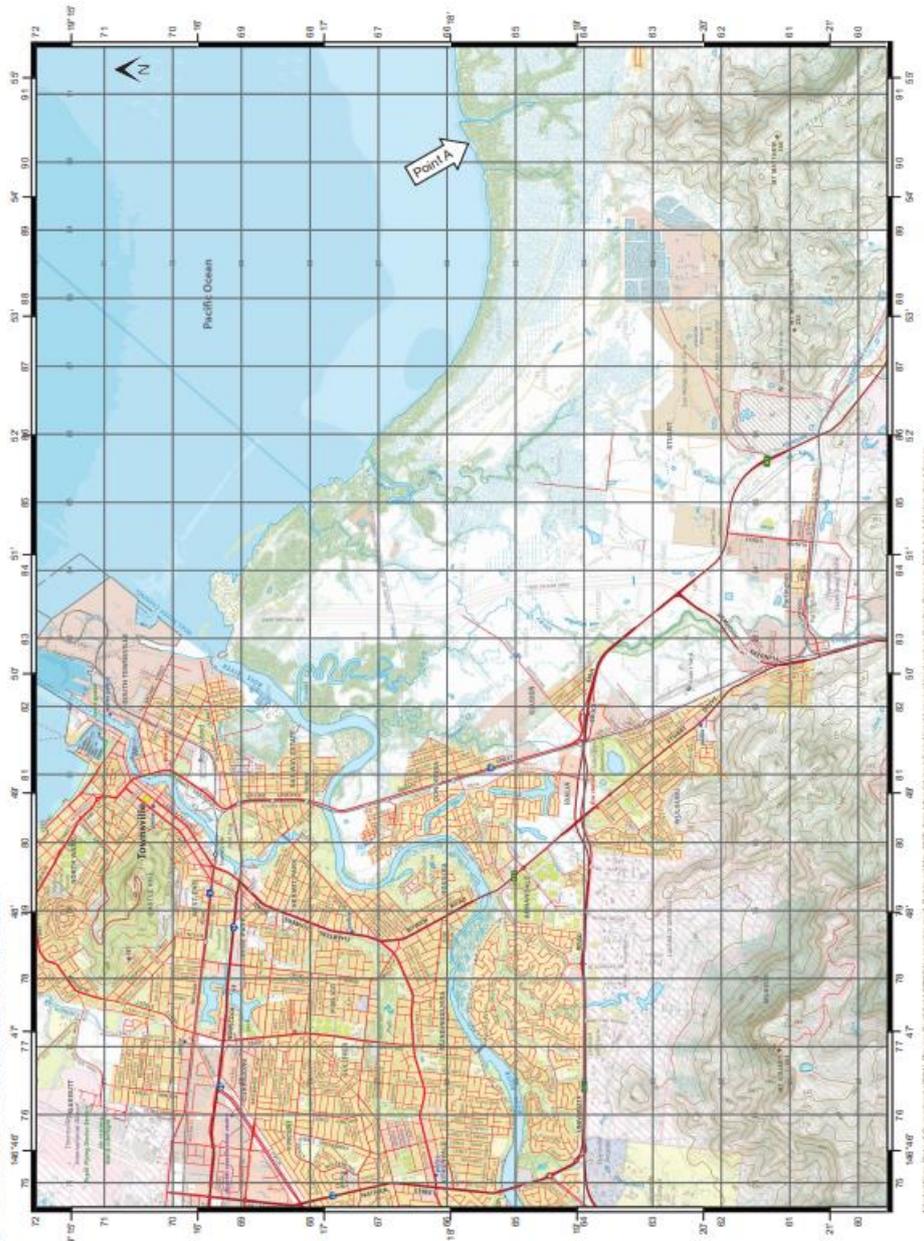
Section 1

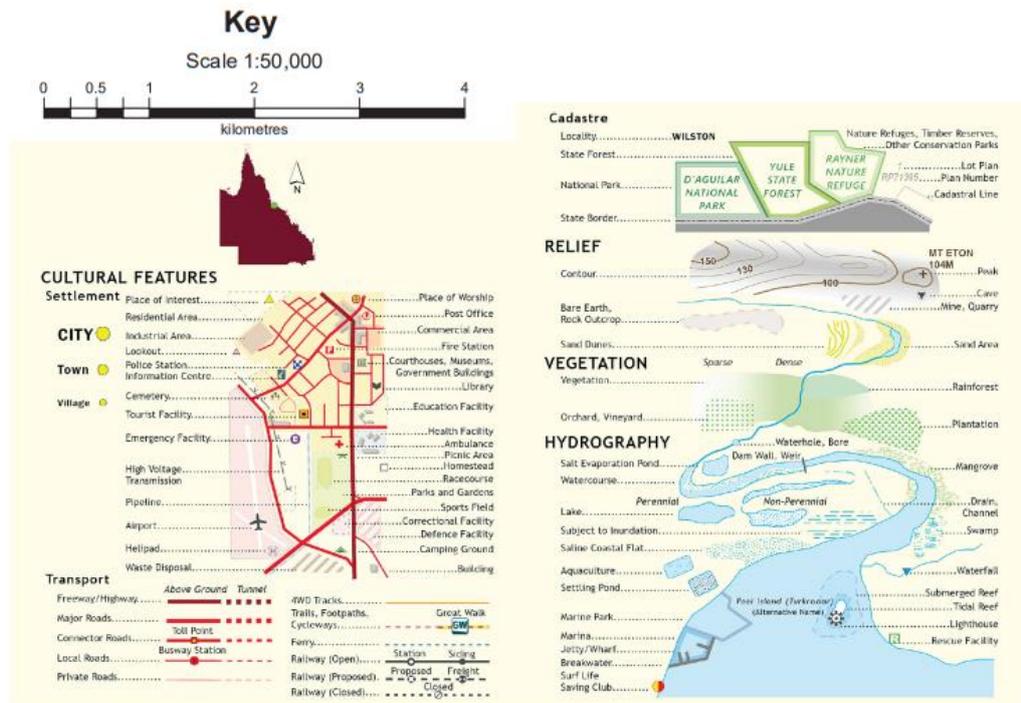
2023
Section 1
Questions
1-11

Unit 3 and 4
– Geo Skills

Refer to **Source 1: Townsville topographic map 2021** to answer Questions 1 to 11.

Source 1: Townsville topographic map 2021





1. The scale of the Townsville topographic map, as a written statement, is one centimetre represents

- (a) 500 metres.
- (b) 50 000 metres.
- (c) 1.0 kilometre.
- (d) 2.0 kilometres.

2. The length of Ingham Road from Crowder Street (GR 761698) east to Sturt Street is closest to

- (a) 1.8 kilometres.
- (b) 3.4 kilometres.
- (c) 6.8 kilometres.
- (d) 14 kilometres.

3. The bearing of the railway line from the closed railway station at GR 815640 to the bridge at GR 805678 is

- (a) 14 degrees.
- (b) 166 degrees.
- (c) 196 degrees.
- (d) 346 degrees.

4. The landform feature located at GR 869615 is a

- (a) cliff.
- (b) hill.
- (c) ridge.
- (d) valley.

5. Identify the hydrological feature located at GR 870650.

- (a) subject to inundation
- (b) swamp
- (c) non-perennial river
- (d) settling pond

6. The cultural feature located at GR 805638 is a

- (a) pond.
- (b) roundabout.
- (c) racecourse.
- (d) fire station.

7. The average gradient from the peak of Mt Matthew (AR 9061) to Point A at the coastline is closest to

- (a) 1:6.
- (b) 1:9.
- (c) 1:15.
- (d) 1:30.

8. Which of the following represents the latitude and longitude of the caravan park at GR 828640?

- (a) 146°50'E 19°19'S
- (b) 19°19'S 146°50'E
- (c) 146°51'E 19°18'S
- (d) 19°64'S 146°83'E

9. The area of the AMH Townsville Abattoir (AR 8461 and AR 8462) is closest to

- (a) 0.4 square kilometres.
- (b) 0.8 square kilometres.
- (c) 1.5 square kilometres.
- (d) 3 square kilometres.

10. How long would it take a freight train moving at an average speed of 45 km/h to travel from the closed station at GR 806690 to the closed station at GR 851606?

- (a) 8 minutes
- (b) 11 minutes
- (c) 15 minutes
- (d) 45 minutes

11. Cluden Park racecourse located at AR 8163 is situated

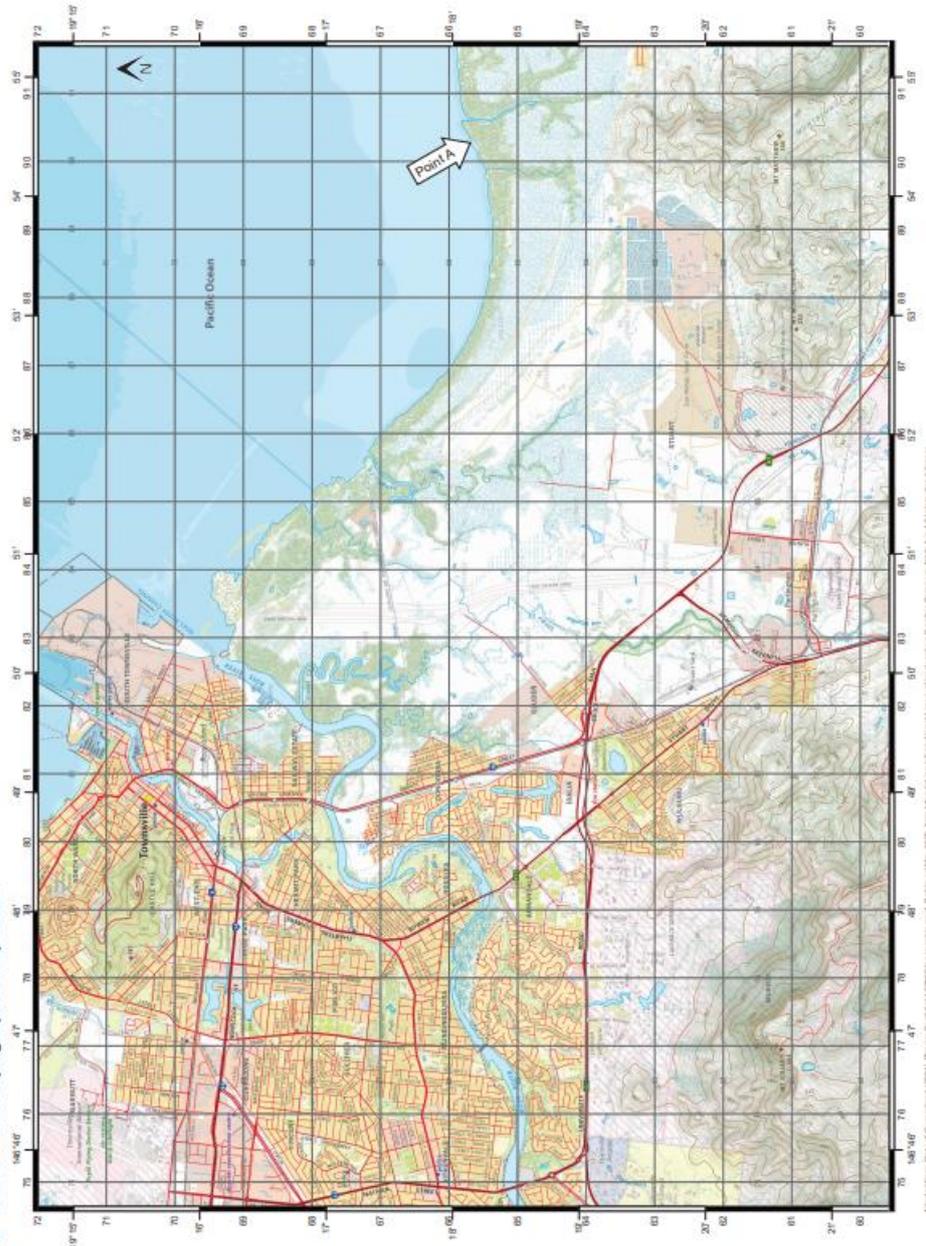
- (a) at 19°20'S 146°50'E.
- (b) at the intersection of Stuart Drive and Flinders Highway.
- (c) on relatively steep land.
- (d) 5 km north-east of Mt Stuart.

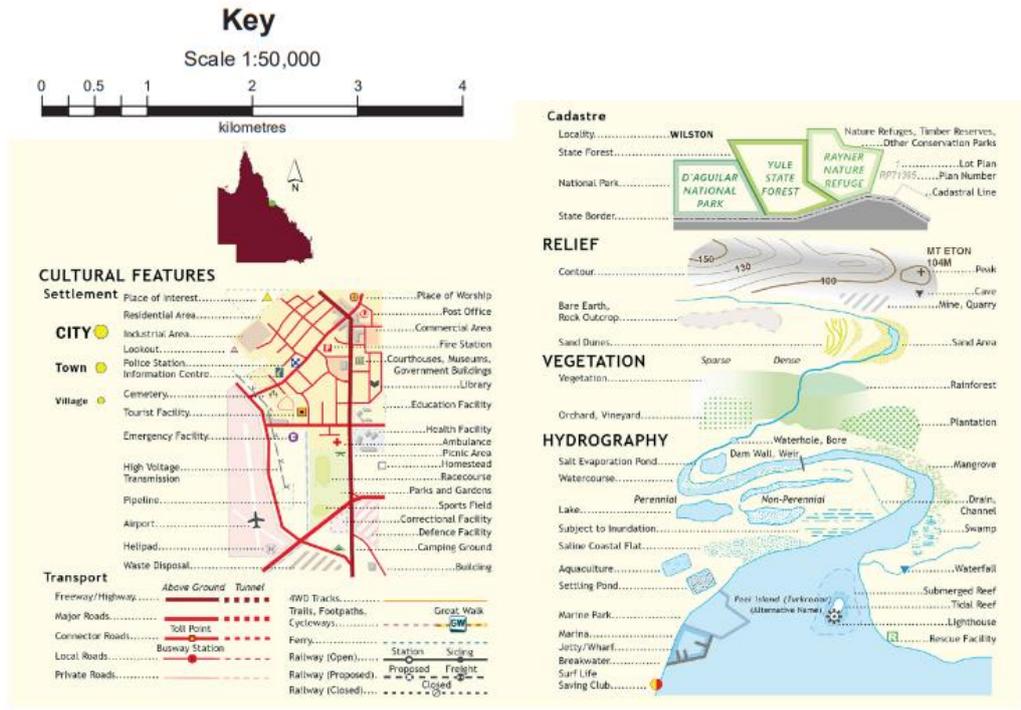
2023
Section 1
Questions
12-14

Unit 3 and 4
– Geo Skills

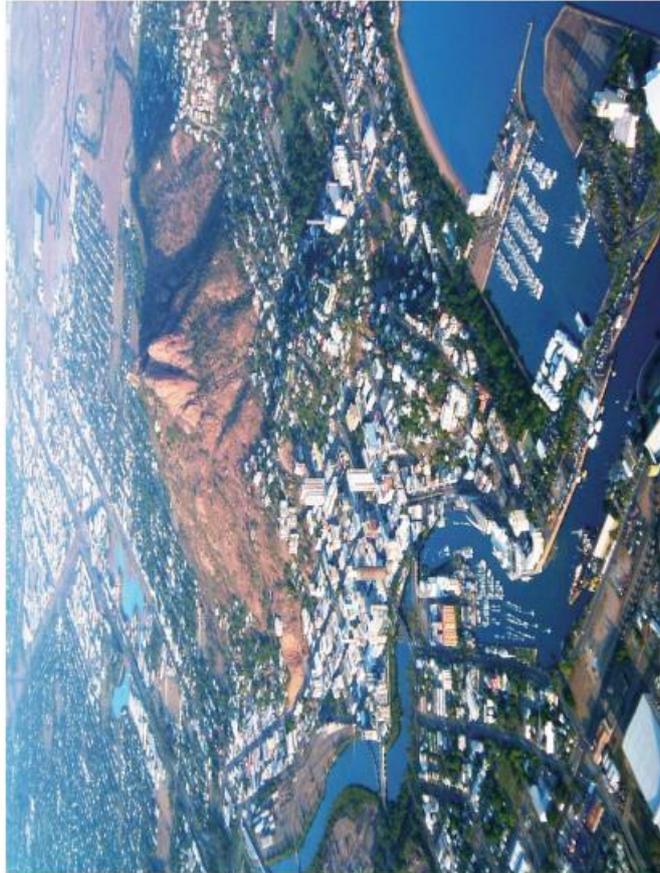
Refer to **Source 1: Townsville topographic map 2021** and **Source 2: Townsville Central Business District photograph 2005** to answer Questions 12 to 14.

Source 1: Townsville topographic map 2021





Source 2: Townsville Central Business District photograph 2005



Zuniga, D. (2005). Townsville (Photograph). Retrieved May, 2023, from https://commons.wikimedia.org/wiki/File:Aerial_view_of_Townsville.jpg

12. In which direction was the drone camera facing when taking the photograph?

- (a) west south-west
- (b) east north-east
- (c) south south-west
- (d) north north-east

13. Source 2: Townsville Central Business District photograph 2005 is an example of

- (a) a ground level photograph.
- (b) a satellite image.
- (c) an oblique aerial photograph.
- (d) a vertical aerial photograph.

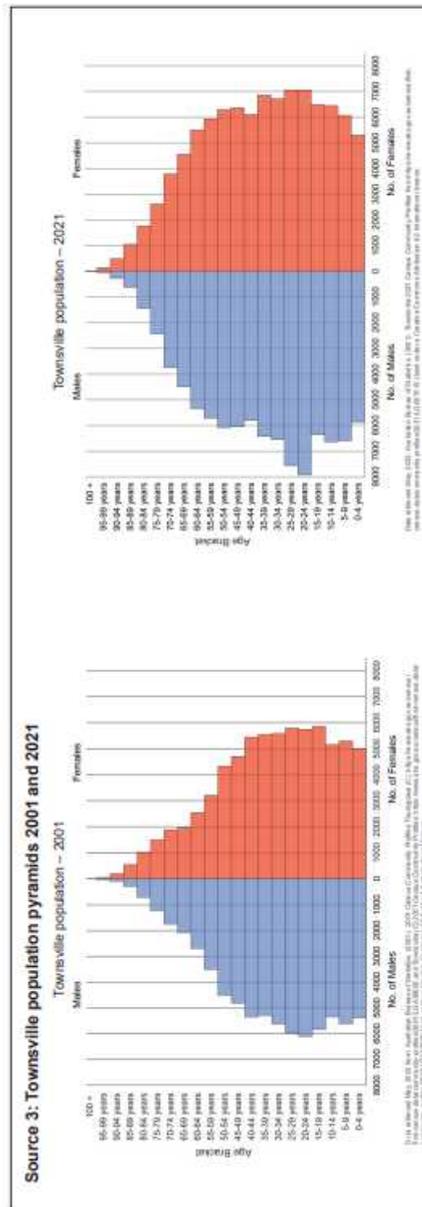
14. Which statement correctly describes a site feature of the Townsville Central Business District?

- (a) on the lower slopes of Castle Hill on flat to gently sloping land between 0 m to 50 m asl
- (b) on a steep and undulating riverbank with rainforest between 0 m to 250 m asl
- (c) opposite a beach facing the Pacific Ocean
- (d) between the small boat harbour and the river mouth

**2023
Section 1
Question
15**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 3: Townsville population pyramids 2001 and 2021** to answer Question 15.



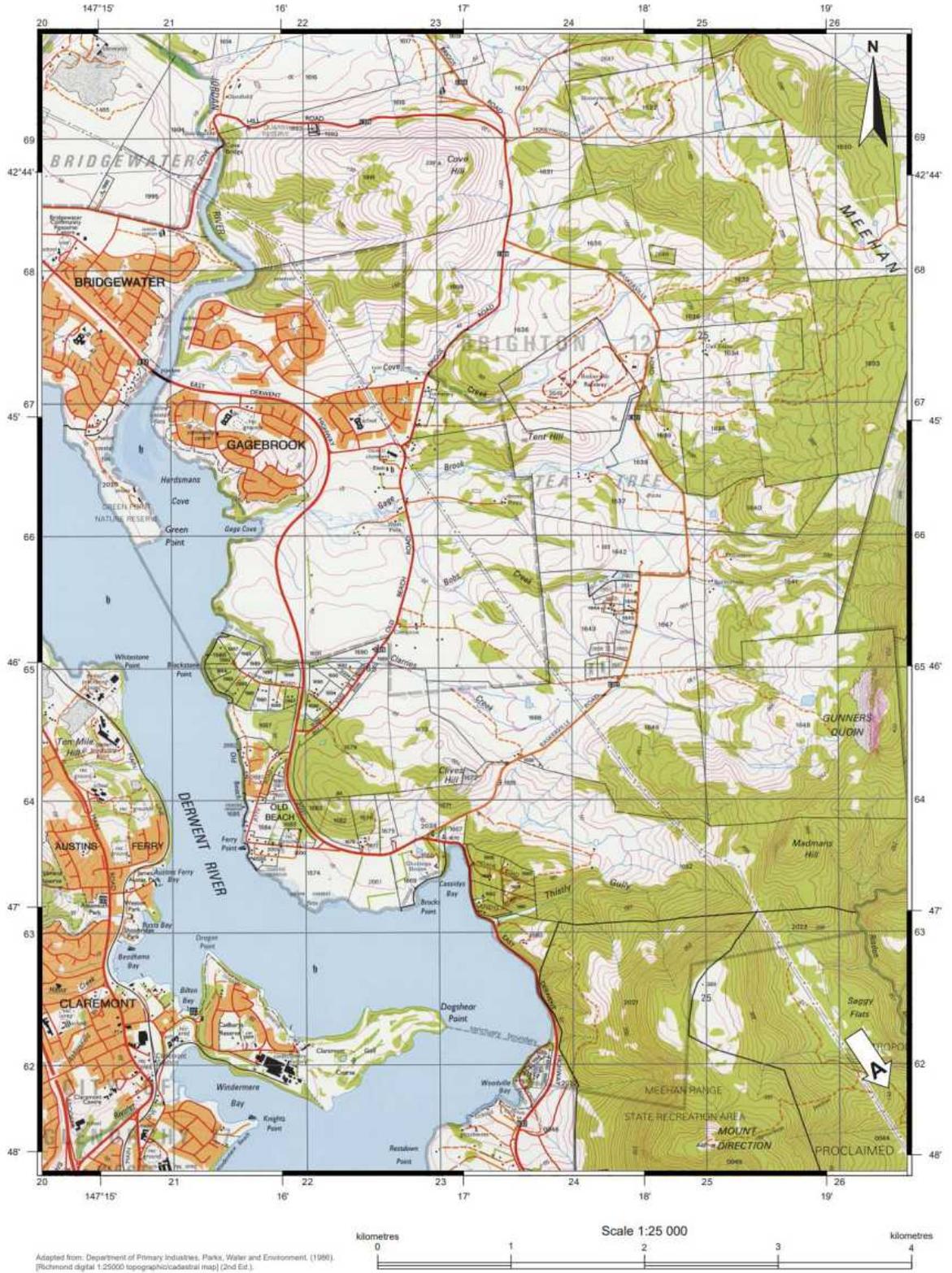
15. Between 2001 and 2021, the population of Townsville
- (a) decreased and showed a decline in numbers of 65 to 79 year olds.
 - (b) increased but showed a decline in numbers of 70 to 74 year olds.
 - (c) decreased but showed an increase in the numbers of 0 to 14 year olds.
 - (d) increased and showed an increase in the numbers of 20 to 34 year olds.

**2022
Section 1
Questions
1-12**

**Unit 3 and 4
– Geo Skills**

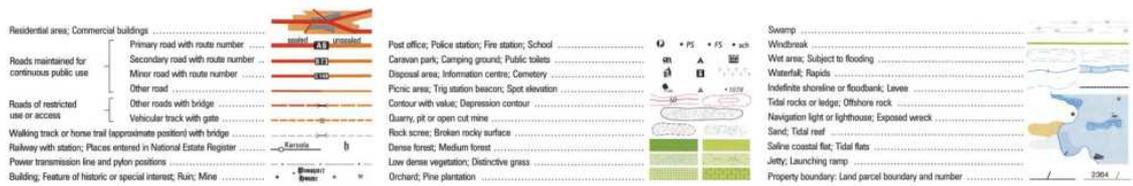
Refer to **Source 1: Derwent River Valley topographic map 1986** to answer Questions 1 to 12.

Source 1: Derwent River Valley topographic map 1986



Adapted from: Department of Primary Industries, Parks, Water and Environment, (1986).
[Revised digital 1:25000 topographic/aerial map] (2nd Ed.)

Source 1: Key



- The scale of the topographic map, as a written statement, is one centimetre represents
 - 250 metres.
 - 750 metres.
 - 25 000 metres.
 - 7.5 kilometres.
- The length of East Derwent Highway from Grid Reference (GR) 210672 to northing 66 is closest to
 - 1.0 kilometre.
 - 1.3 kilometres.
 - 2.1 kilometres.
 - 8.5 kilometres.
- Cove Bridge is located at GR
 - 689214.
 - 209672.
 - 213685.
 - 214689.
- The cultural feature located southwest of the intersection of Briggs Road and Old Beach Road at GR 226666 is
 - Gage Brook.
 - a school.
 - the council chambers.
 - a cemetery
- The contour interval of the topographic map is
 - 10 metres.
 - 25 metres.
 - 50 metres.
 - 100 metres.
- Which of the following best represents the landform located between GR 227680 and GR 230684?
 - spur
 - valley
 - hill
 - saddle

7. Which one of the following represents the latitude and longitude of Claremont Centre (AR 2061)?

- (a) 20°05'E 61°08'S
- (b) 42°48'S 147°15'E
- (c) 61°08'S 20°05'E
- (d) 147°15'E 42°48'S

8. The compass bearing of the powerline from its intersection with Baskerville Road (AR 2464) to its intersection with Old Beach Road (AR 2266) is closest to

- (a) 56°.
- (b) 146°.
- (c) 236°.
- (d) 326°.

9. The area of Baskerville Raceway (GR 240672), which is defined by land parcel boundary 2649, is closest to

- (a) 0.75 hectares.
- (b) 7.5 hectares.
- (c) 75 hectares.
- (d) 750 hectares.

Note: One hectare is 10 000 m².

10. The average gradient for a person walking in a straight line from Point A (AR 2661) to the highest point of Mount Direction (AR 2561) is closest to

- (a) 1:2.
- (b) 1:5.
- (c) 1:20.
- (d) 1:50.

11. The hydrological feature located at GR 208667 is a

- (a) cove with offshore rocks.
- (b) saline coastal flat listed on the National Estate Register.
- (c) tidal reef with an exposed wreck.
- (d) tidal flat listed on the National Estate Register.

12. Which of the following correctly describes a site feature of Gunners Quoin (AR 2664)?

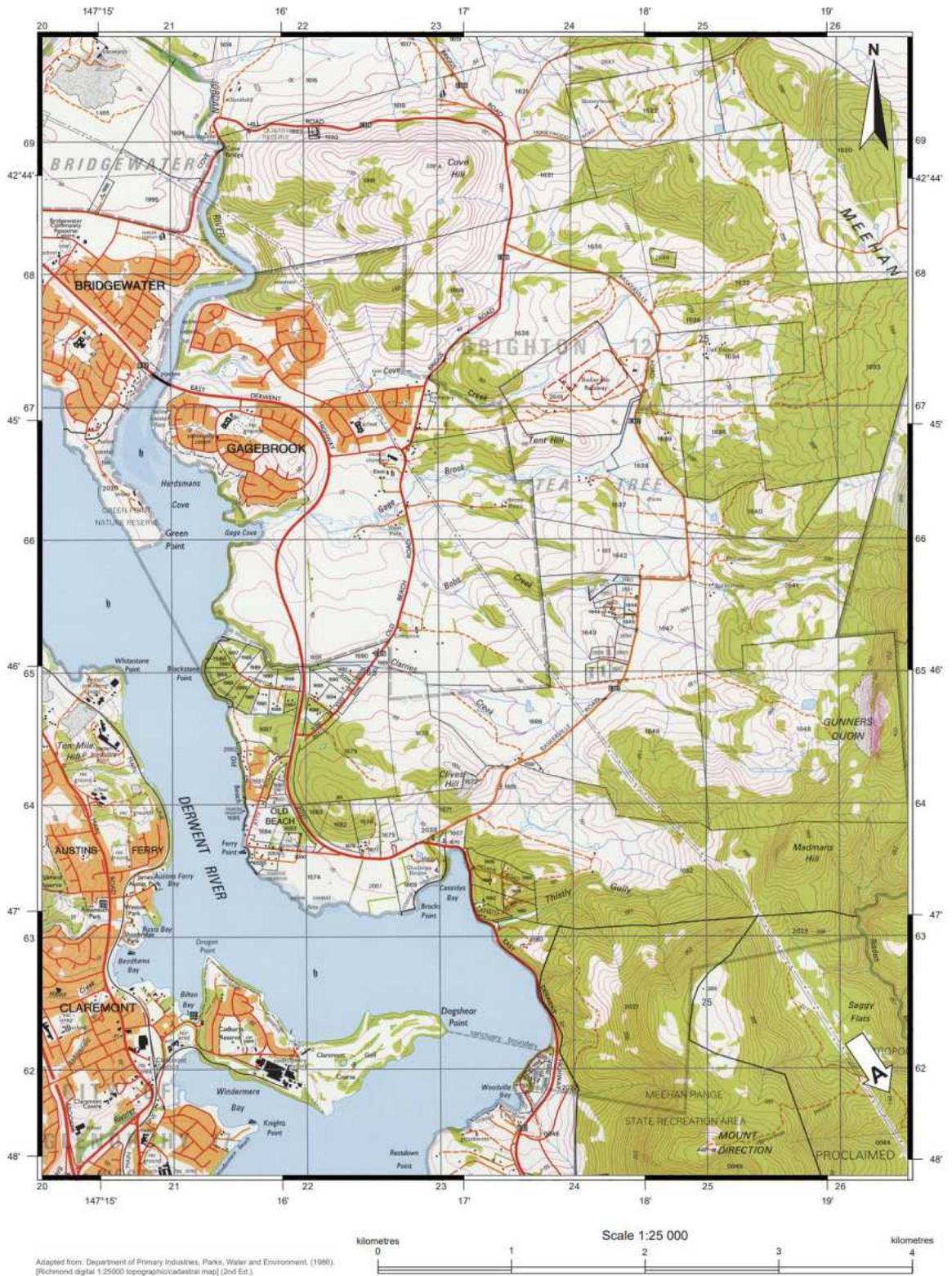
- (a) a western-facing slope ranging from 240 metres to 320 metres.
- (b) a depression contour 4.5 kilometres east of Baskerville Road.
- (c) a steep hill 1 kilometre north-east of Madmans Hill.
- (d) an eastern-facing slope ranging from 240 metres to 420 metres.

**2022
Section 1
Question
13**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1: Derwent River Valley topographic map 1986** and **Source 3: Derwent River Valley oblique photograph 2017** to answer Question 13.

Source 1: Derwent River Valley topographic map 1986



Adapted from: Department of Primary Industries, Parks, Water and Environment. (1986). [Richmond digital 1:25000 topographic/cadastral map] (2nd Ed.).

Source 1: Key

Residential area; Commercial buildings		Post office; Police station; Fire station; School		Swamp	
Roads maintained for continuous public use	Primary road with route number	Caravan park; Camping ground; Public toilets		Wet area; Subject to flooding	
Minor road with route number		Disposal area; Information centre; Cemetery		Wasteland; Rapids	
Other road		Pitons; area; Trig station beacon; Spot elevation		Indefinite shoreline or floodbank; Levee	
Roads of restricted use or access	Other roads with bridge	Contour with value; Depression contour		Tidal rocks or ledge; Offshore rock	
	Vehicular track with gate	Quarry; pit or open cut mine		Navigation light or lighthouse; Exposed wreck	
Walking track or horse trail (approximate position) with bridge		Rock scree; Broken rocky surface		Sand; Tidal reef	
Railway with station; Places entered in National Estate Register		Dense forest; Medium forest		Saline coastal flat; Tidal flats	
Power transmission line and pylon positions		Low dense vegetation; Distinctive grass		Jetty; Launching ramp	
Building; Feature of historic or special interest; Ruin; Mine		Orchard; Pine plantation		Property boundary; Land parcel boundary and number	

Source 3: Derwent River Valley oblique photograph 2017



Ross, S. (2017). [Photograph of Cadbury factory in Claremont, Hobart]. Retrieved April, 2022, from <https://www.abc.net.au/news/2017-06-28/cadbury-chocolate-factory-targeted-in-ransomware-attack/8658222>

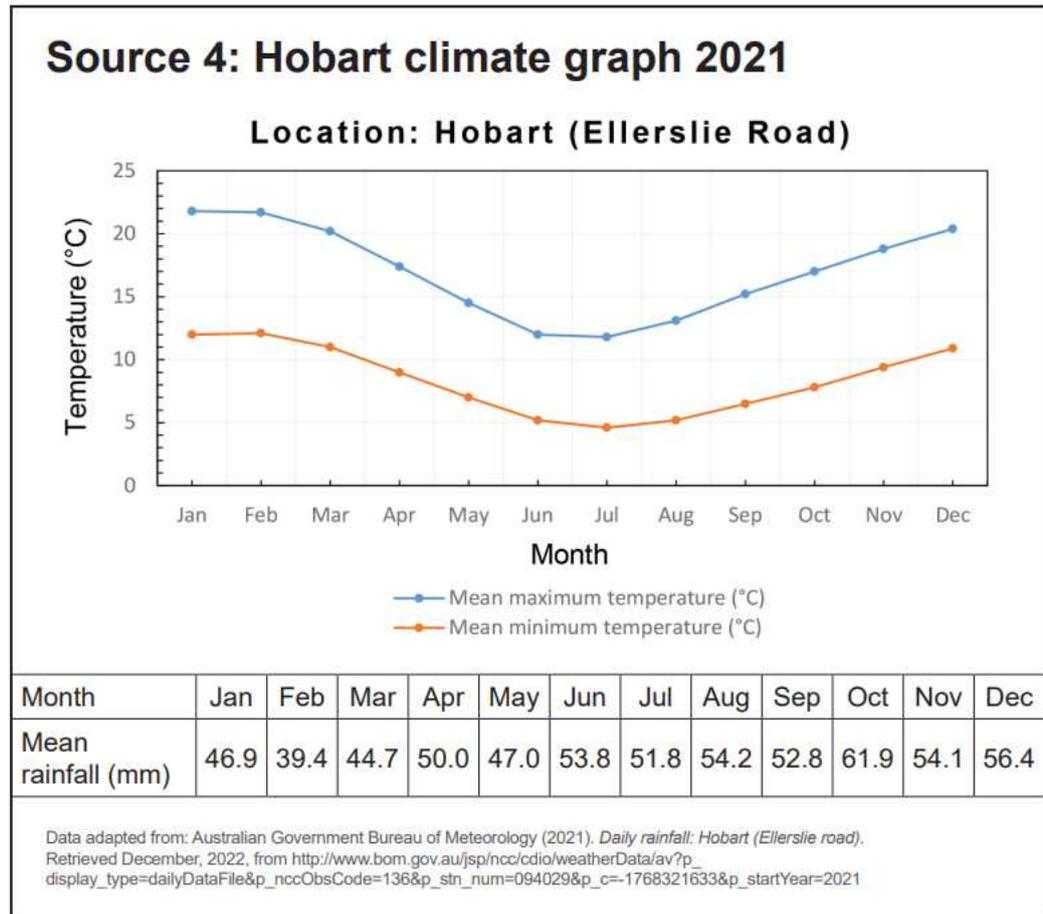
13. In which direction was the photographer facing when taking the photograph?

- (a) west-north-west
- (b) south-east
- (c) north-west
- (d) east-south-east

2022
Section 1
Question
14

Unit 3 and 4
– Geo Skills

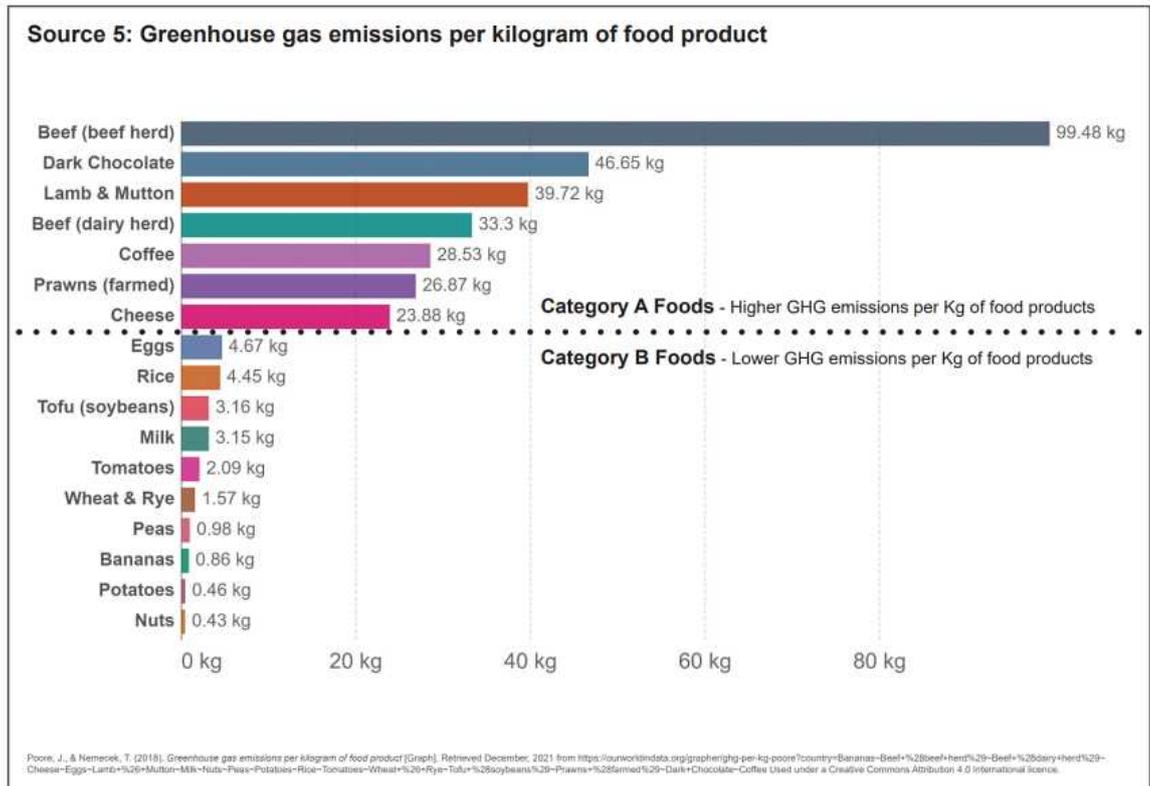
Refer to **Source 4**: Hobart climate graph 2021 to answer Question 14.



14. Which of the following statements correctly describes the temperature range in January for Hobart?

- (a) 47°C.
- (b) 10°C.
- (c) 22°C.
- (d) 12°C.

Refer to **Source 5**: Greenhouse gas emissions per kilogram of food product to answer Question 15.



Increases in greenhouse gas (GHG) emissions from food production are most likely to occur due to an increase in demand for

- (a) Category A Foods resulting from decreasing affluence.
- (b) Category A Foods resulting from increasing affluence.
- (c) Category B Foods resulting from decreasing affluence.
- (d) Category B Foods resulting from increasing affluence.

Refer to **Source 7a**: Weekly income by age for Old Beach, Tasmania and Australia, 2016 to answer Question 17.

Source 7a: Weekly income by age for Old Beach, Tasmania and Australia 2016

Old Beach	15–19 Yrs	20–34 Yrs	35–54 Yrs	55–74 Yrs	75 Yrs and over	Total
Negative to \$149	46%	13%	15%	24%	0%	98%
\$150–\$399	7%	15%	20%	43%	17%	101%
\$400–\$649	3%	23%	23%	32%	19%	101%
\$650–\$999	2%	30%	39%	27%	3%	101%
\$1000–\$1499	0%	31%	48%	21%	0%	101%
\$1500–\$1999	0%	23%	57%	21%	0%	101%
\$2000 or more	0%	14%	59%	24%	0%	97%

Tasmania	15–19 Yrs	20–34 Yrs	35–54 Yrs	55–74 Yrs	75 Yrs and over	Total
Negative to \$149	42%	18%	17%	21%	3%	100%
\$150–\$399	6%	18%	21%	40%	15%	100%
\$400–\$649	3%	19%	24%	35%	18%	100%
\$650–\$999	1%	29%	36%	27%	6%	100%
\$1000–\$1499	0%	26%	45%	26%	3%	100%
\$1500–\$1999	0%	18%	54%	26%	2%	100%
\$2000 or more	0%	11%	56%	29%	3%	100%

Australia	15–19 Yrs	20–34 Yrs	35–54 Yrs	55–74 Yrs	75 Yrs and over	Total
Negative to \$149	36%	24%	19%	18%	3%	100%
\$150–\$399	7%	21%	21%	35%	16%	100%
\$400–\$649	3%	23%	25%	32%	17%	100%
\$650–\$999	1%	34%	36%	24%	5%	100%
\$1000–\$1499	0%	33%	42%	22%	2%	100%
\$1500–\$1999	0%	26%	51%	21%	2%	100%
\$2000 or more	0%	17%	59%	22%	2%	100%

Numbers may not add up to 100 percent due to rounding.

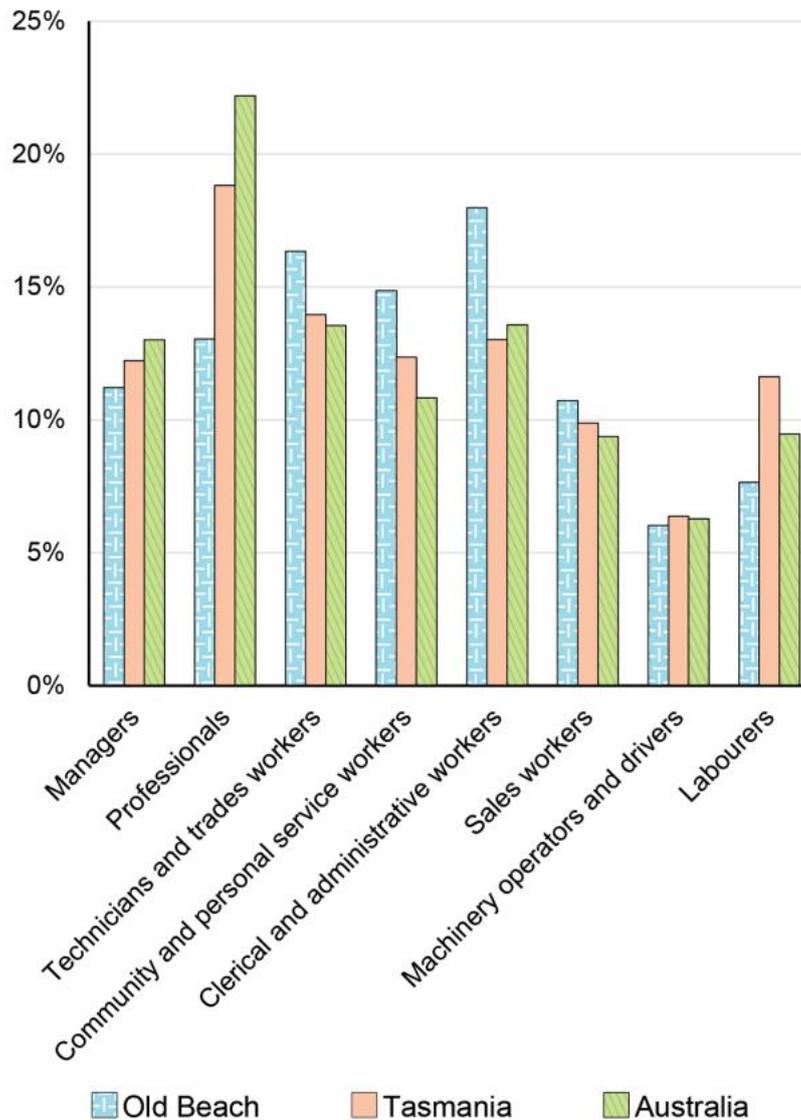
Table data retrieved May, 2022 from: Australian Bureau of Statistics. (2016). *2016 Census of community profiles: General: community profile Old Beach (Table G 17b)* from <https://www.abs.gov.au/census/find-census-data/community-profiles/2016/SSC60470> *Tasmania (Table G 17b)* from <https://www.abs.gov.au/census/find-census-data/community-profiles/2016/6> *Australia (Table G 17b)* from <https://www.abs.gov.au/census/find-census-data/community-profiles/2016/0> Used under a Creative Commons Attribution 4.0 International licence.

Which statement correctly describes the proportional weekly income of 35–54 year-old workers?

- (a) Australia has a higher proportion earning over \$1500 compared to Old Beach.
- (b) Old Beach has a lower proportion earning over \$1500 compared to Tasmania.
- (c) Old Beach has a lower proportion earning over \$1500 compared to Australia.
- (d) Old Beach has a higher proportion earning over \$1500 compared to Australia.

Refer to **Source 7b**: Occupation as a % of workforce for Old Beach, Tasmania and Australia, 2016 to answer Question 18.

Source 7b: Occupation as a % of workforce for Old Beach, Tasmania and Australia, 2016



Graph data retrieved May, 2022, from: Australian Bureau of Statistics. (2016). *2016 census community profiles: General community profile Old Beach (Table G 53)* from <https://www.abs.gov.au/census/find-census-data/community-profiles/2016/SSC60470> *Tasmania (Table G 53)* from <https://www.abs.gov.au/census/find-census-data/community-profiles/2016/6> *Australia (Table G53)* from <https://www.abs.gov.au/census/find-census-data/community-profiles/2016/0> Used under a Creative Commons Attribution 4.0 International licence.

Which statement correctly describes the occupational characteristics of Old Beach, Tasmania and Australia? Proportionately,

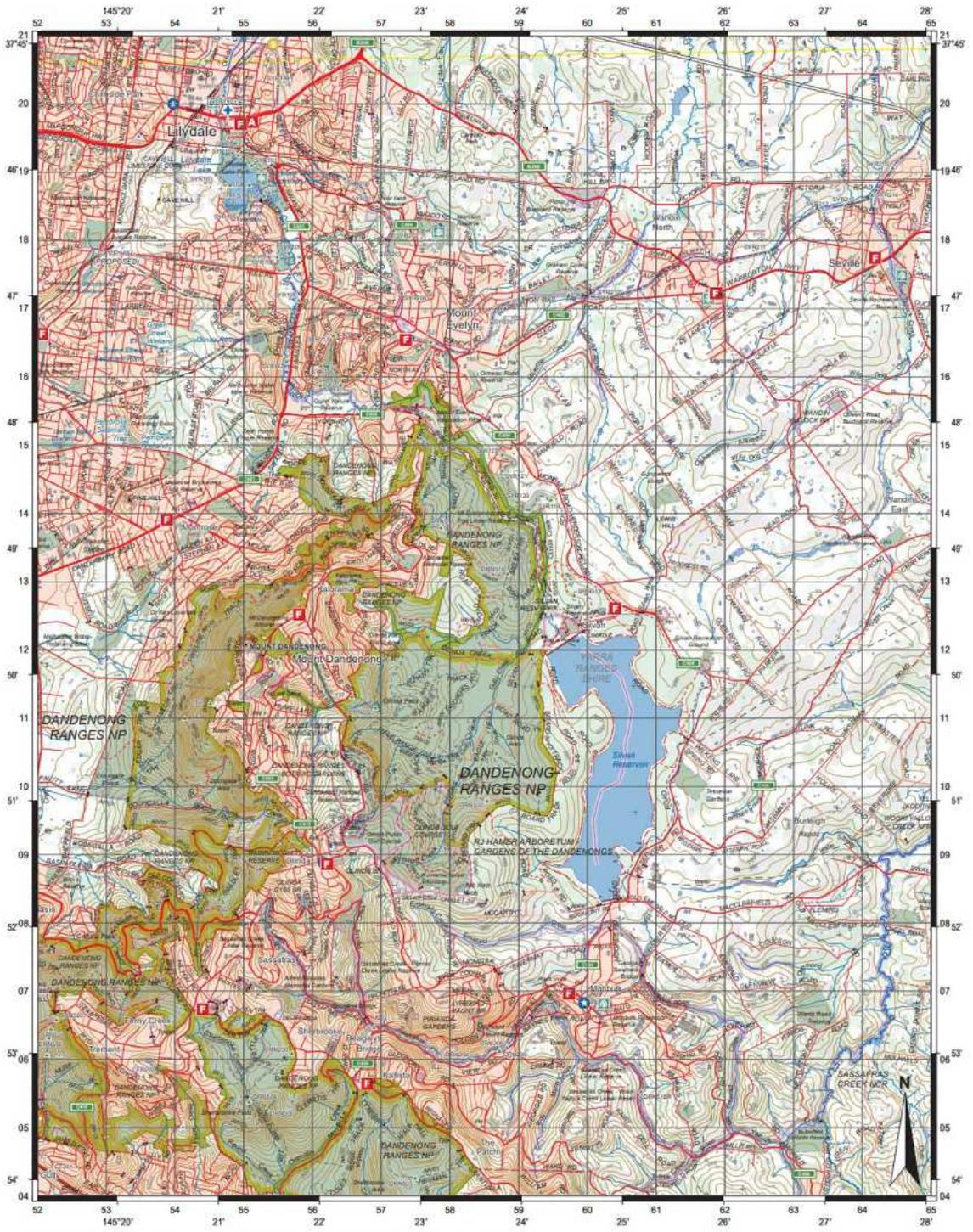
- (a) Tasmania has 4.5% more clerical and administrative workers than Old Beach.
- (b) Australia has 5% more community and personal service workers than Tasmania.
- (c) Old Beach has 4.5% more clerical and administrative workers than Australia.
- (d) Old Beach has 10% more professionals than Australia.

2021
Section 1
Questions
1-8

Unit 3 and 4
– Geo Skills

Refer to **Source 1: Lilydale topographic map 2019** to answer Questions 1 to 8.

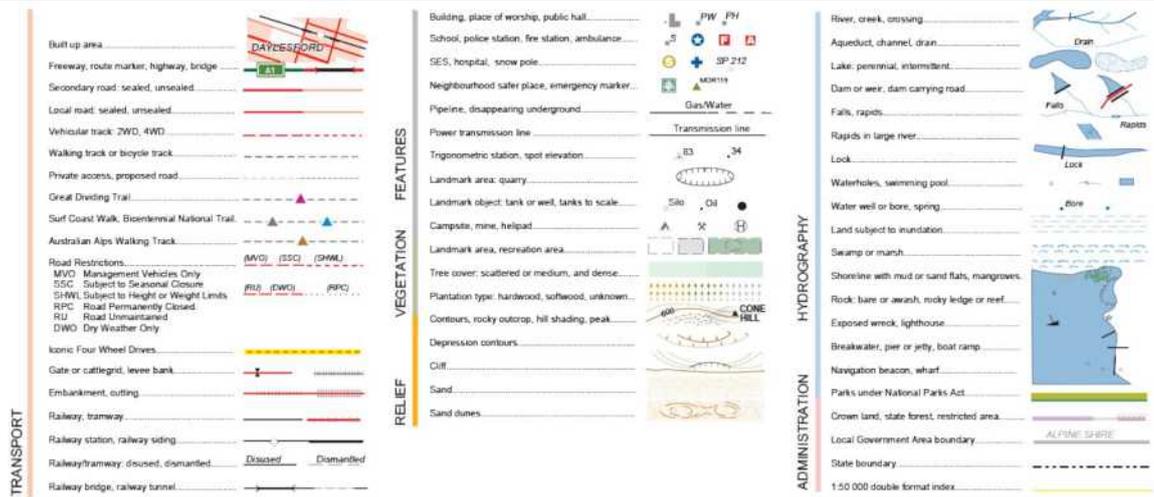
Source 1: Lilydale topographic map 2019



State of Victoria (Department of Environment, Land, Water and Planning). (n.d.). [Lilydale topographic map]. Retrieved December, 2020, from <https://vicmaptopo.land.vic.gov.au/#/discover-map>

Contour Interval 20 metres





1. Lewis Hill is located at Grid Reference (GR)

- (a) 140613.
- (b) 201584.
- (c) 584201.
- (d) 613139.

2. The linear feature extending in a south-westerly direction from the edge of the map at GR 650126 to GR 613108 is

- (a) the Great Dividing Trail.
- (b) a railway tunnel.
- (c) an underground pipeline.
- (d) a power transmission line.

3. The cultural feature located at GR 597070 is

- (a) a fire station.
- (b) a police station.
- (c) Monbulk Recreational Reserve.
- (d) a Neighbourhood Safer Place.

4. The eastern end of Macclesfield Road, at GR 634085, is at a height closest to

- (a) 220 metres.
- (b) 230 metres.
- (c) 240 metres.
- (d) 250 metres.

5. Travelling along Queens Road, from the intersection of Queens Road and Lewis Road at GR 616140 to the intersection at GR 642158, you would be following a bearing of

- (a) 35 degrees.
- (b) 55 degrees.
- (c) 215 degrees.
- (d) 235 degrees.

6. If travelling directly south from GR 645120 to GR 645110, the landform you cross is a

- (a) hill.
- (b) plain.
- (c) ridge.
- (d) valley.

7. The total area of the Silvan Reservoir, located adjacent to the Dandenong Ranges National Park, is closest to

- (a) 2 square kilometres.
- (b) 4 square kilometres.
- (c) 8 square kilometres.
- (d) 10 square kilometres.

8. The gradient of the section of Chalet Road that is permanently closed between the gate at GR 585083 and the gate at GR 591084 is closest to

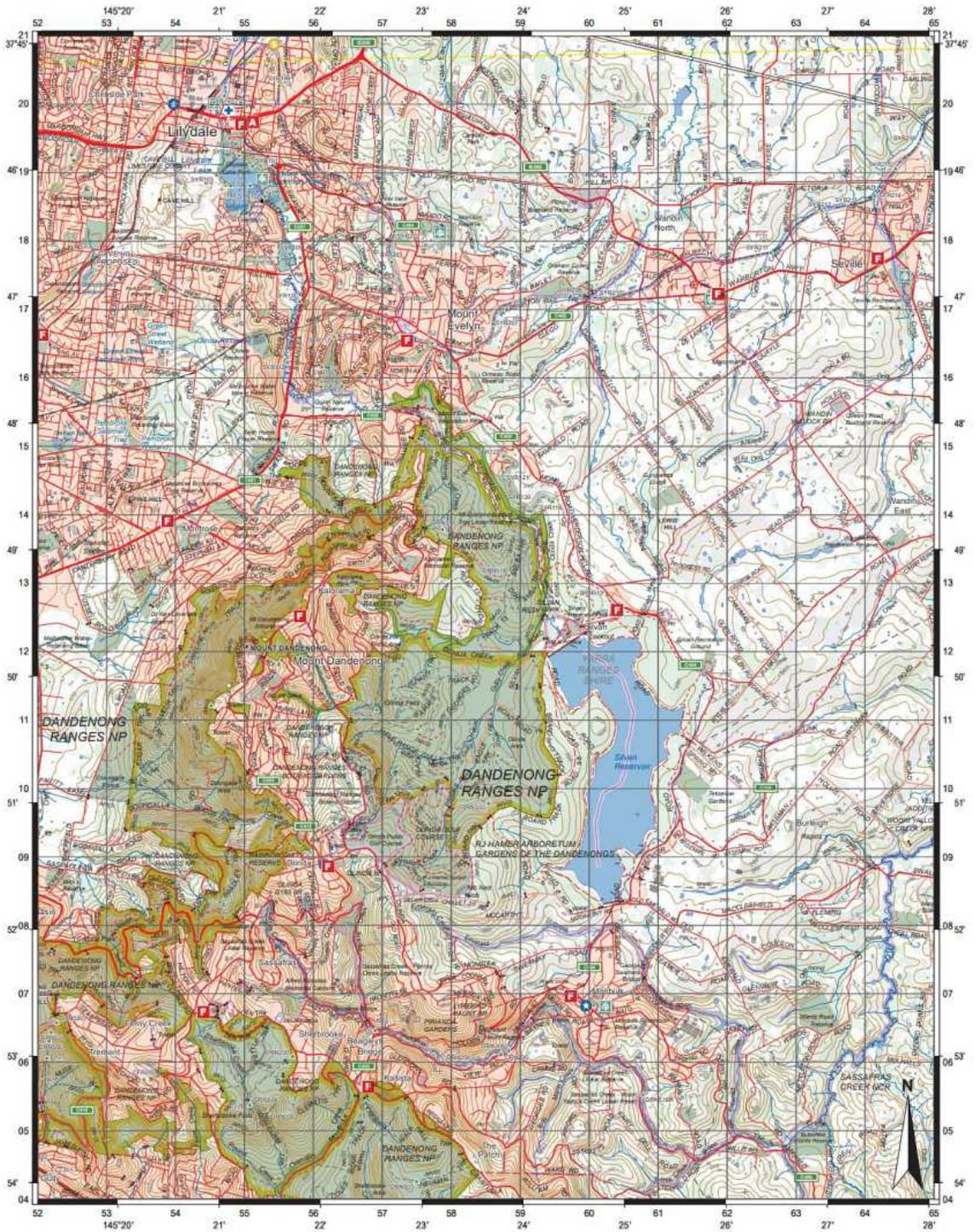
- (a) 1:8.
- (b) 1:6.
- (c) 1:4.
- (d) 1:2.

2021
Section 1
Questions
9-12

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Lilydale topographic map 2019 and **Source 4**: Warburton Highway aerial photograph 2018 to answer Questions 9 to 12.

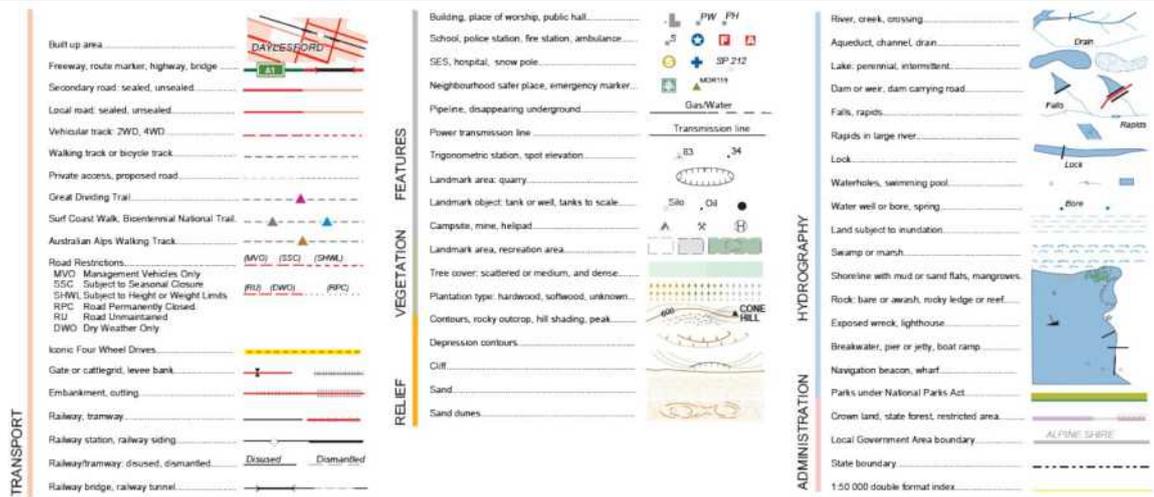
Source 1: Lilydale topographic map 2019



State of Victoria (Department of Environment, Land, Water and Planning). (n.d.). [Lilydale topographic map]. Retrieved December, 2020, from <https://vicmaptopo.land.vic.gov.au/#/discover-map>

Contour Interval 20 metres





Source 4: Warburton Highway aerial photograph 2018



Adapted from: DigitalGlobe. (2018). [Wandin North aerial photograph]. Retrieved December, 2020, from Google Earth Pro.

9. Which one of the following statements is correct?

- (a) The scale of Source 1 is larger than the scale of Source 4.
- (b) The scale of Source 1 is smaller than the scale of Source 4.
- (c) The scale of Source 1 is the same as the scale of Source 4.
- (d) The scale of Source 1 is three times smaller than the scale of Source 4.

10. The length of Warburton Highway shown on **Source 4** is closest to

- (a) 3.5 kilometres.
- (b) 7.0 kilometres.
- (c) 10.5 kilometres.
- (d) 14.0 kilometres.

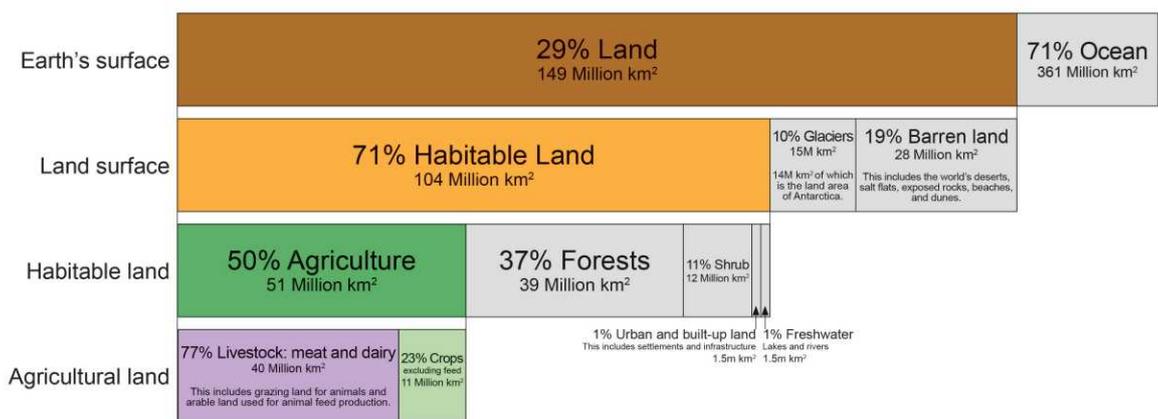
	<p>11. The feature indicated at Point A on Source 4 is a</p> <p>(a) lake. (b) oval. (c) quarry. (d) swamp.</p> <p>12. The dominant non-urban land use in the area shown in Source 4 is</p> <p>(a) agricultural. (b) industrial. (c) plantations. (d) recreational.</p>
--	--

2021
Section 1
Question
14

Unit 3 and 4
– Geo Skills

Refer to **Source 5**: Global land cover to answer Question 14.

Source 5: Global land cover



Adapted from: Ritchie, H., & Roser, M. (2019). Global land use for food production. In *Environmental impacts of food production*. Retrieved April, 2021, from <https://ourworldindata.org/environmental-impacts-of-food>
 Used under Creative Commons Attribution 4.0 International licence.

Which one of the following correctly lists the area of global land cover from largest to smallest?

- (a) shrub, glaciers, freshwater, urban and built-up land
- (b) livestock: meat and dairy, agriculture, forests, crops
- (c) forests, livestock: meat and dairy, barren land, shrub
- (d) agriculture, forests, glaciers, urban and built-up land

**2021
Section 1
Question
15**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 6**: Regional breakdown of threats to biodiversity to answer Question 15.

Source 6: Regional breakdown of threats to biodiversity



When comparing the five regions shown, which of the following statements is correct?

- (a) The threat to biodiversity due to changes in land and sea use is greatest in Africa.
- (b) The threat to biodiversity due to species overexploitation is greatest in Asia Pacific.
- (c) The threat to biodiversity due to climate change is greatest in North America.
- (d) The threat to biodiversity due to pollution is greatest in Asia Pacific.

**2021
Section 1
Question
18**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 7: Percentage of the world's population living in urban areas** to answer Question 18.

Source 7: Percentage of the world's population living in urban areas



Which region is predicted to experience the greatest increase in the percentage of the population living in urban areas between 1990 and 2050?

- (a) North America
- (b) Latin America
- (c) Asia
- (d) Africa

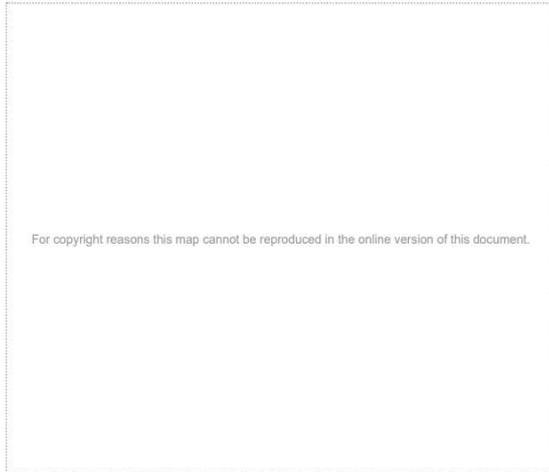
**2021
Section 1
Question
19**

**Unit 3 and 4
– Geo Skills**

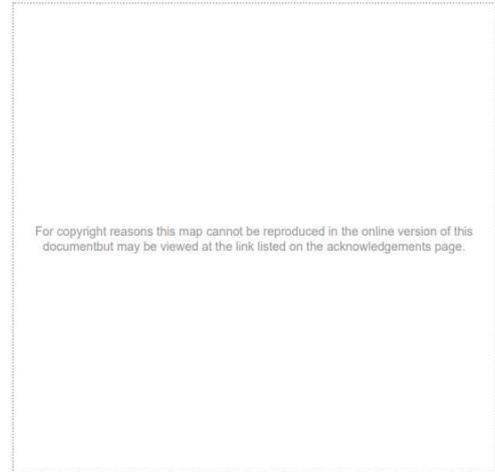
Refer to **Source 8: Australia's population distribution** (Map 1 and Map 2) to answer Question 19.

Source 8: Australia's population distribution

Map 1



Map 2



Which of the following states' or territories' population distribution differs most from the national population distribution pattern?

- (a) New South Wales
- (b) Northern Territory
- (c) South Australia
- (d) Western Australia

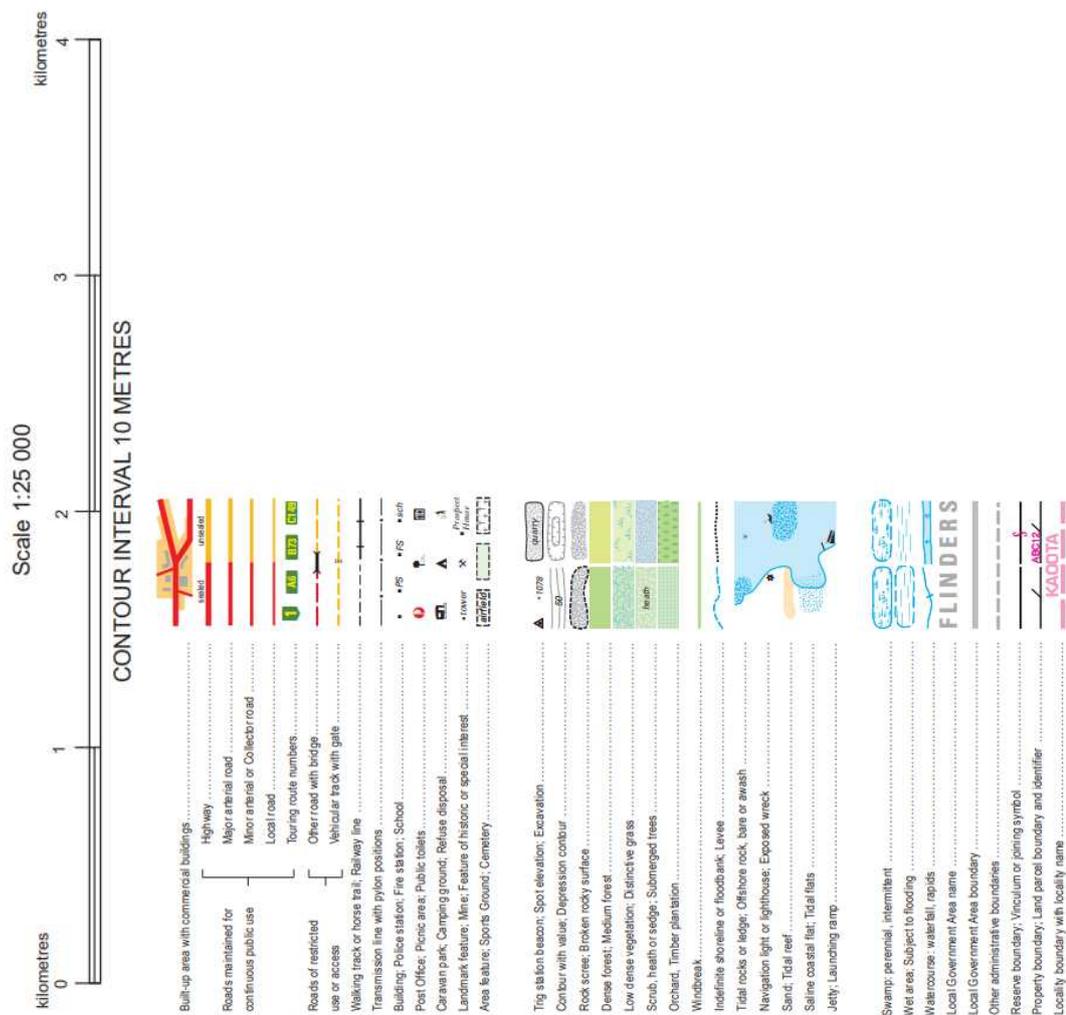
2020
Section 1
Questions
1-10

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Ulverstone Tasmania topographic map 1986 to answer Questions 1 to 10.

Source 1: Ulverstone Tasmania topographic map 1986





1:25 000 Topographic/Cadastral Map – Ulverstone 4244. Department of Primary Industries, Parks, Water and Environment, Tasmanian Government. TASMAP eShop. <https://www.tasmap.tas.gov.au>

- The height at the top of Heazlewoods Hill at GR 311422 is closest to
 - 75 metres.
 - 80 metres.
 - 85 metres.
 - 90 metres.
- Identify the cultural feature that is located along northing 430, between eastings 30 and 33.
 - Buttons Creek
 - oval
 - school
 - Ulverstone Station
- The scale of the Ulverstone topographic map, as a written statement, is one centimetre represents
 - 2.5 kilometres.
 - 25 kilometres.
 - 250 metres.
 - 250 kilometres.

4. What is the compass bearing to be followed when travelling along Forth Road from the intersection of Bass Highway GR 349426 to the intersection of Turners Beach Road GR 355419?

- (a) 40°
- (b) 80°
- (c) 140°
- (d) 190°

5. The landform feature found at GR 338421 is a

- (a) cliff.
- (b) plain.
- (c) ridge.
- (d) saddle.

6. The straight line distance between Goat Island GR 276457 and Seagull Islet GR 297454 is closest to

- (a) 200 metres.
- (b) 2 kilometres.
- (c) 800 metres.
- (d) 8 kilometres.

7. Which of the following **best** describes the site of Dial Street Reserve, located in AR 3043?

- (a) sited on flat land, on a coastal plain, adjacent to tidal flats
- (b) sited on flat land, on a coastal plain, surrounded by medium forest
- (c) sited one kilometre north-east of Nicholsons Point
- (d) sited on undulating land, north-east of a caravan park, with a picnic area

8. Which of the following best describes the situation of the Gawler Post Office GR 295403?

- (a) situated on the east side of Preston Road, 25 kilometres west-south-west of Claytons Bay
- (b) situated on undulating, cleared land east of Masons Creek
- (c) situated four kilometres, north-north-west of West Ulverstone School, at latitude 41° 09'S, longitude 146° 09'E
- (d) situated three kilometres south-south-west of Ulverstone Station, at latitude 41° 11'S longitude 146° 10'E

9. The area of the property numbered 0817 located across AR 3440 and AR 3441 is closest to

- (a) 25 hectares.
- (b) 40 hectares.
- (c) 250 hectares.
- (d) 400 hectares.

Note: One hectare is 10 000 m².

10. A train travelling at an average speed of 30 km/h from the intersection of the railway line and Castra Road at GR 308434 and the intersection of the railway line and Maskells Road at GR 342434 would complete the journey in approximately

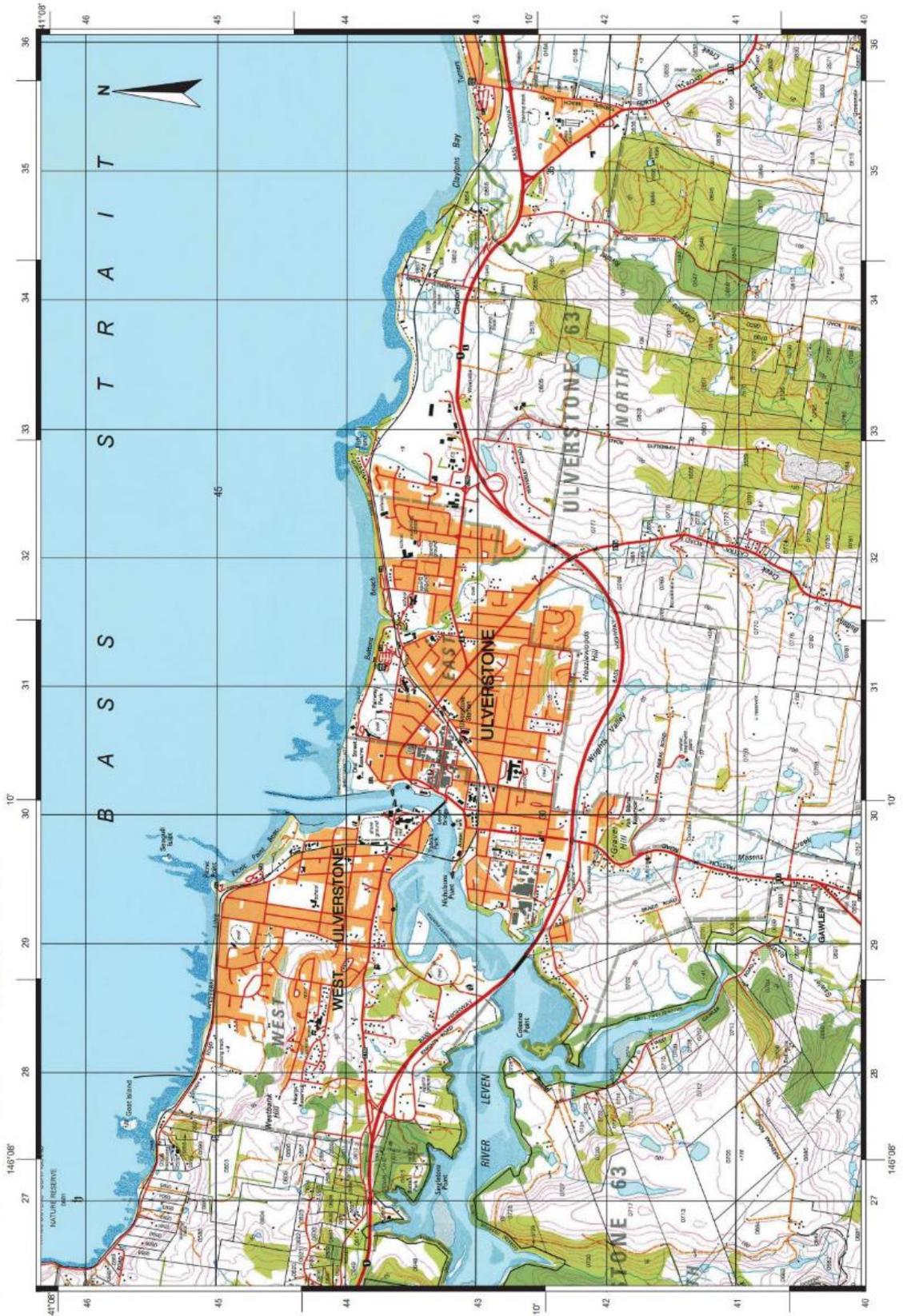
- (a) 3 minutes.
- (b) 7 minutes.
- (c) 14 minutes.
- (d) 30 minutes.

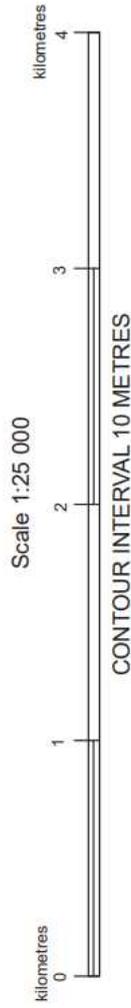
2020
Section 1
Questions
11-12

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Ulverstone Tasmania topographic map 1986 and **Source 2**: Ulverstone aerial photograph 2019 to answer Questions 11 and 12.

Source 1: Ulverstone Tasmania topographic map 1986



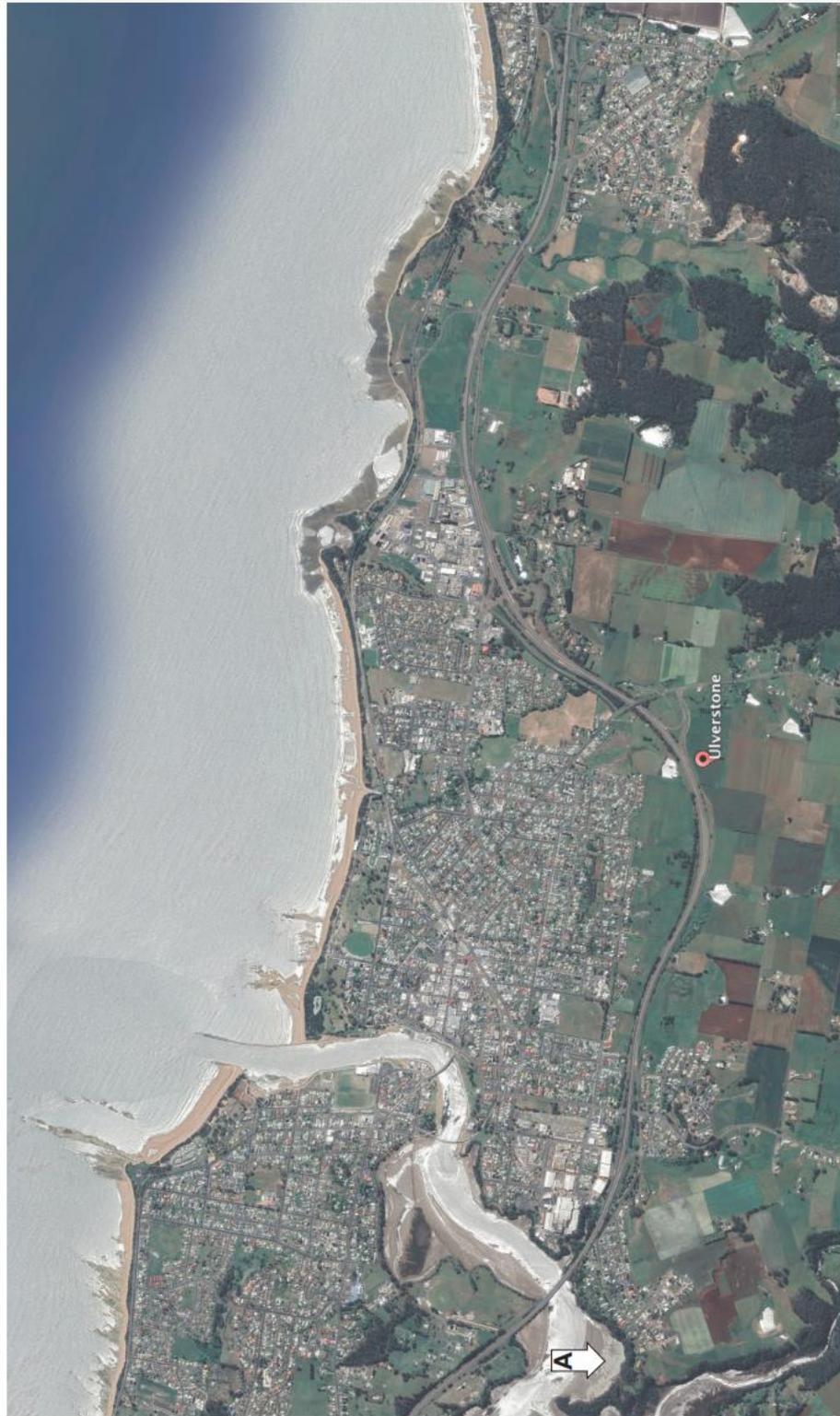


Build-up area with commercial buildings	
Roads maintained for continuous public use	<ul style="list-style-type: none"> Highway Major arterial road Minor arterial or Collector road Local road
Roads of restricted use or access	<ul style="list-style-type: none"> Touring route numbers Other road with bridge Vehicular track with gate Walking track or horse trail; Railway line Transmission line with pylon positions
Building; Police station; Fire station; School	
Post Office; Picnic area; Public toilets	
Caravan park; Camping ground; Refuse disposal	
Landmark feature; Mine; Feature of historic or special interest	
Area feature; Sports Ground; Cemetery	
Tig station beacon; Spot elevation; Excavation	
Contour with value; Depression contour	
Rock scree; Broken rocky surface	
Dense forest; Medium forest	
Low dense vegetation; Distinctive grass	
Scrub; Heath or sedge; Submerged trees	
Orchard; Timber plantation	
Windbreak	
Indefinite shoreline or floodbank; Levee	
Tidal rocks or ledges; Offshore rock, bare or awash	
Navigation light or lighthouse; Exposed wreck	
Sand; Tidal reef	
Saline coastal flat; Tidal flats	
Jetty; Launching ramp	
Swamp; perennial, intermittent	
Wet area; Subject to flooding	
Watercourse; water fall, rapids	
Local Government Area name	
Local Government Area boundary	
Other administrative boundaries	
Reserve boundary; Vicinity or joining symbol	
Property boundary; Land parcel boundary and identifier	
Locally boundary with locally name	

1:25 000 Topographic/Cadastral Map – Ulverstone 4244. Department of Primary Industries, Parks, Water and Environment, Tasmanian Government. TASMAP eShop. <https://www.tasmap.tas.gov.au>

Source: Google Earth Pro. © 2019 Google. Image © 08/01/2020 Global Digital. Retrieved January 2020. Reproduced under the aegis of Google Earth's general use policy for educational purposes.

Source 2: Ulverstone aerial photograph 2019



11. Identify the natural feature located at the point marked A on **Source 2**.

- (a) tidal flats
- (b) Dial Street Reserve
- (c) intermittent swamp
- (d) jetty

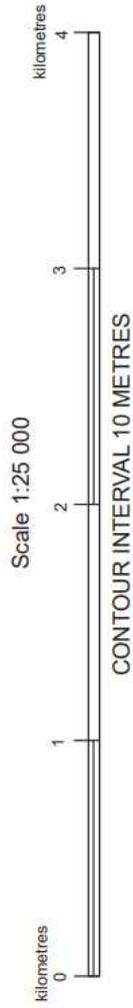
12. The scale of **Source 2** compared to that of Source 1 is

- (a) indefinable.
- (b) larger.
- (c) smaller.
- (d) the same.

Source 3: Ulverstone oblique aerial photograph



Screenshot taken from Central Coast Council website, homepage.
Retrieved January 7, 2020 <https://www.centralcoast.tas.gov.au/>



- Build-up area with commercial buildings.....
- Highway.....
- Roads maintained for continuous public use
 - Major arterial road.....
 - Minor arterial or Collector road.....
 - Local road.....
- Roads of restricted use or access
 - Touring route numbers.....
 - Other road with bridge.....
 - Vehicular track with gate.....
 - Walking track or horse trail; Railway line.....
 - Transmission line with pylon positions.....
 - Building; Police station; Fire station; School.....
 - Post Office; Picnic area; Public toilets.....
 - Caravan park; Camping ground; Refuse disposal.....
 - Landmark feature; Mine; Feature of historic or special interest.....
 - Area feature; Sports Ground; Cemetery.....

- Tig station beacon; Spot elevation; Excavation.....
- Contour with value; Depression contour.....
- Rock scree; Broken rocky surface.....
- Dense forest; Medium forest.....
- Low dense vegetation; Distinctive grass.....
- Scrub; Heath or sedge; Submerged trees.....
- Orchard; Timber plantation.....
- Windbreak.....
- Indefinite shoreline or floodbank; Levee.....
- Tidal rocks or ledges; Offshore rock, barn or awash.....
- Navigation light or lighthouse; Exposed wreck.....
- Sand; Tidal reef.....
- Saline coastal flat; Tidal flats.....
- Jetty; Launching ramp.....

- Swamp; perennial, intermittent.....
- Wet area; Subject to flooding.....
- Watercourse; water fall, rapids.....
- Local Government Area name.....
- Local Government Area boundary.....
- Other administrative boundaries.....
- Reserve boundary; Vicinity or joining symbol.....
- Property boundary; Land parcel boundary and identifier.....
- Locally boundary with locally name.....

1:25 000 Topographic/Cadastral Map — Ulverstone 4244. Department of Primary Industries, Parks, Water and Environment, Tasmanian Government. TASMAP eShop. <https://www.tasmap.tas.gov.au/>

	<p>What type of land use has replaced the sawmill at GR 299435?</p> <ul style="list-style-type: none">(a) agricultural(b) plantation(c) recreational(d) residential
--	--

<p>2020 Section 1 Question 15</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 4: Factors influencing land cover change to answer Question 15.</p> <p>Source 4: Factors influencing land cover change</p> <div style="border: 1px dashed gray; padding: 20px; text-align: center;"><p>For copyright reasons this text cannot be reproduced in the online version of this document, but may be viewed at the link listed on the below acknowledgement.</p></div> <p><small>http://energyskeptic.com/2018/biodiversity-lost-has-gone-beyond-the-planetary-boundaries/biodiversity-loss/ Source: Tanja Folnovic, June 23, 2015 'Loss of Biodiversity'. Retrieved January 6, 2020 http://blog.agrivi.com/post/loss-of-biodiversity</small></p> <p>According to Source 4, world population growth, growing affluence and advances in technology are best represented as</p> <ul style="list-style-type: none">(a) causal factors.(b) indirect drivers.(c) direct pressures.(d) ecosystem services.
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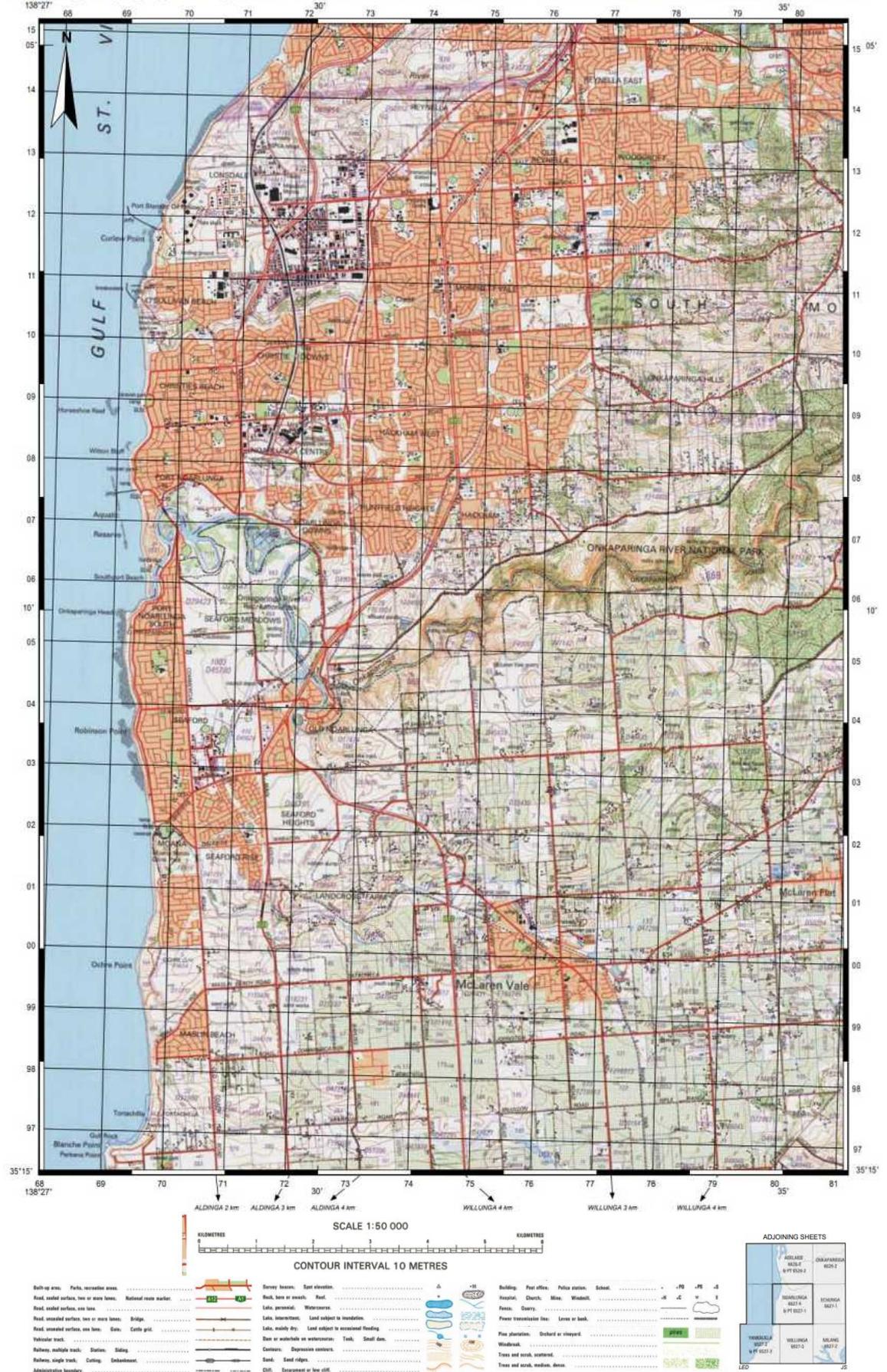
**2019
Section 1
Questions
1-9**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1: Noarlunga topographic map 2001** to answer Questions 1 to 9.

**Source 1:
Noarlunga topographic map 2001**

Adapted from: Department for Environment and Water, the Government of South Australia. (2001). Noarlunga South Australia (4th ed.) [Topographic map, 1:50 000]. Retrieved March, 2019, from <https://www.environment.sa.gov.au/>. Legend adapted from: Department of Lands, the Government of South Australia. (1989). Hawker South Australia (2nd ed.) [Topographic map, 1:50 000]. SA: Department of Environment and Heritage.



1. The scale of the Noarlunga topographic map as a statement in words is 1 centimetre represents
- (a) 5 kilometres.
 - (b) 500 metres.
 - (c) 5000 centimetres.
 - (d) 50 000 metres.
2. The cultural feature located at GR 758004 is a
- (a) cemetery.
 - (b) church.
 - (c) police station.
 - (d) post office.
3. The latitude and longitude of the effluent pond located in AR 7305 is
- (a) $35^{\circ} 10'S 138^{\circ} 31'E$.
 - (b) $138^{\circ} 31'S 35^{\circ} 10'E$.
 - (c) $35^{\circ} 12'S 138^{\circ} 29'W$.
 - (d) $35^{\circ} 05'S 138^{\circ} 74'E$.
4. Identify the landform feature found at GR 733041.
- (a) escarpment
 - (b) ridge
 - (c) spur
 - (d) valley
5. The direction and compass bearing to be followed when travelling from the intersection at GR 799013 to the intersection at GR 778000 would be
- (a) NE 60° .
 - (b) NNE 20° .
 - (c) SSW 200° .
 - (d) WSW 240° .
6. The distance travelled in a southerly direction along the bicycle track from its intersection with States Road in AR 7513 to the bridge over the Onkaparinga River (AR 7204) is closest to
- (a) 10 kilometres.
 - (b) 18 kilometres.
 - (c) 20 kilometres.
 - (d) 28 kilometres.
7. The gradient of the slope from the base of the radio mast at GR 757981 directly west to the coastline is closest to
- (a) 1:70.
 - (b) 1:85.
 - (c) 1:115.
 - (d) 1:120.

8. When walking east along northing 03 from GR 750030 to the small dam (GR 757030) you would be travelling

- (a) downhill across a concave slope.
- (b) uphill across a convex slope.
- (c) downhill across a uniform slope.
- (d) uphill across a uniform slope.

9. The area of the flora and fauna reserve at GR 795033 is closest to

- (a) 18 hectares.
- (b) 45 hectares.
- (c) 450 hectares.
- (d) 1 800 hectares.

Note: One hectare is 10 000 m².

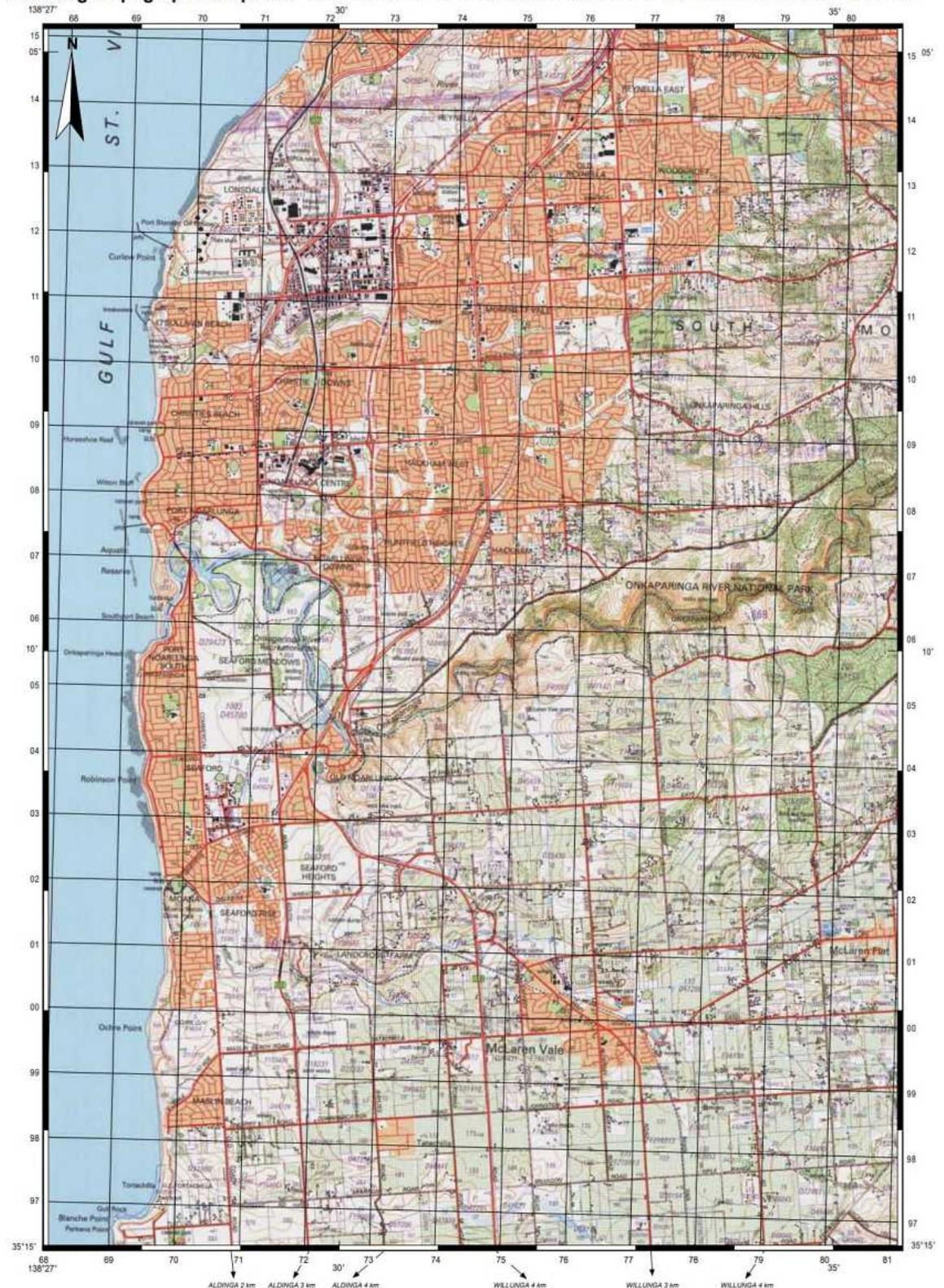
**2019
Section 1
Questions
10-12**

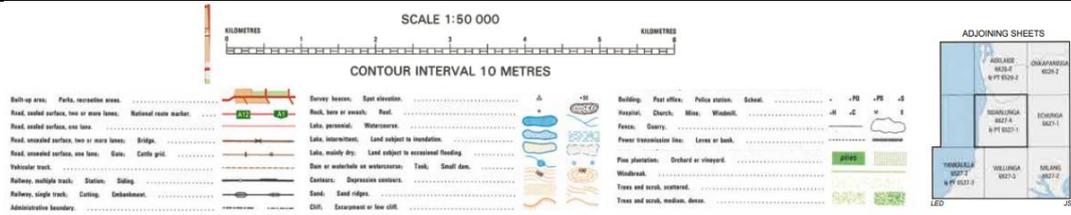
**Unit 3 and 4
– Geo Skills**

Refer to **Source 1: Noarlunga topographic map 2001** and **Source 2: Noarlunga aerial photograph 2017** to answer Questions 10 to 12.

**Source 1:
Noarlunga topographic map 2001**

Adapted from: Department for Environment and Water, the Government of South Australia. (2001). *Noarlunga South Australia* (4th ed.) [Topographic map; 1:50 000]. Retrieved March, 2019, from <https://www.environment.sa.gov.au/>. Legend adapted from: Department of Lands, the Government of South Australia. (1969). *Hawker South Australia* (2nd ed.) [Topographic map; 1:50 000]. SA: Department of Environment and Heritage.





Source 2: Noarlunga aerial photograph 2017

Adapted from: DigitalGlobe. (2017, October 15). [Noarlunga aerial photograph accessed via Google Earth Pro].



10. Which of the following statements is correct?

- (a) The scale of the aerial photograph is larger than that of the topographic map.
- (b) The scales of the aerial photograph and the topographic map are the same.
- (c) The scale of the topographic map is larger than that of the aerial photograph.
- (d) The scale of the topographic map is twice as large as that of the aerial photograph.

11. Identify the feature found at the point marked A on **Source 2**.

- (a) caravan park
- (b) cemetery
- (c) primary school
- (d) shopping centre

12. The grid reference of the cultural feature found at the point marked B on **Source 2** is

- (a) GR 739996.
- (b) GR 739014.
- (c) GR 760995.
- (d) GR 805011.

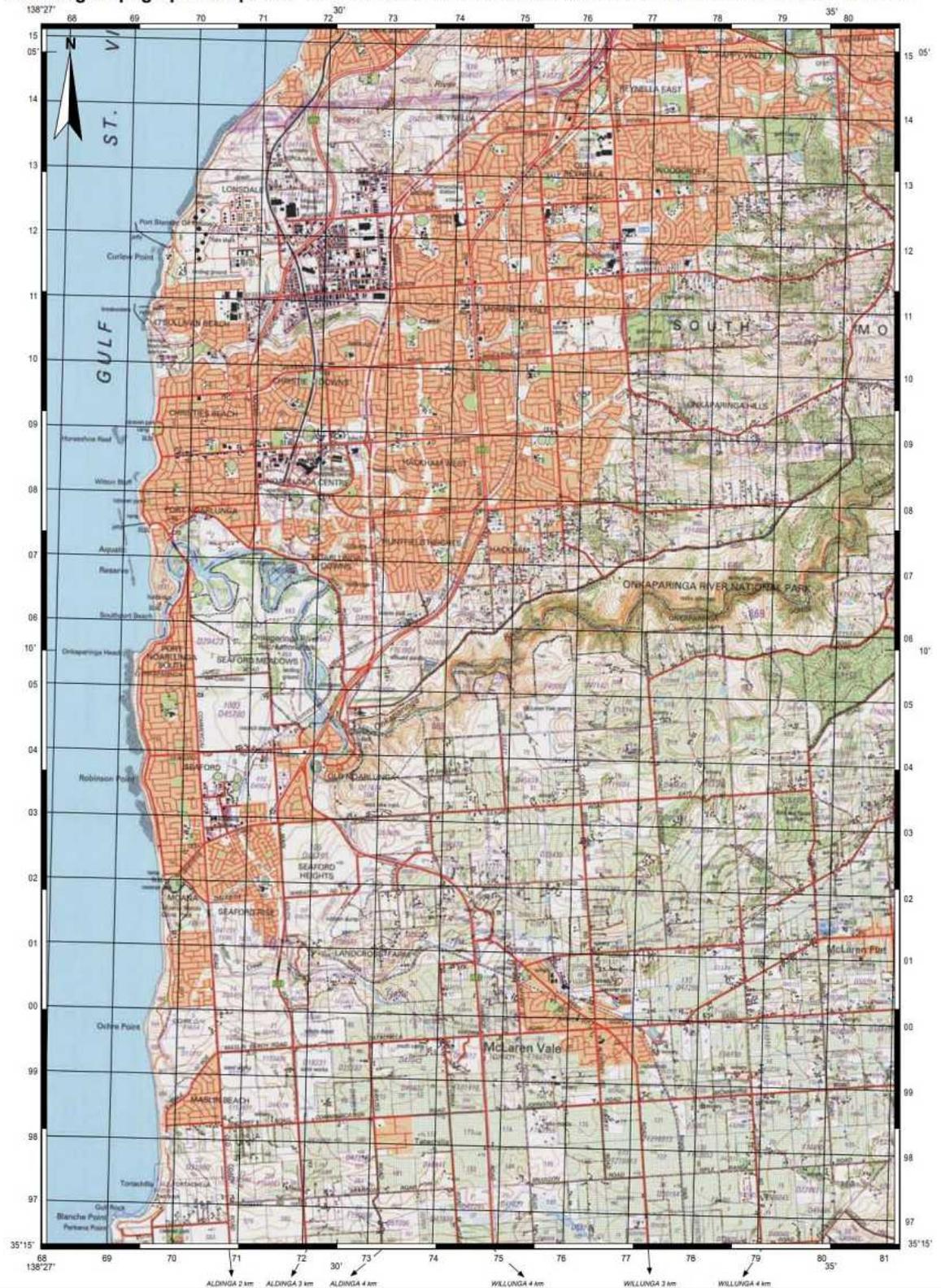
**2019
Section 1
Question
13**

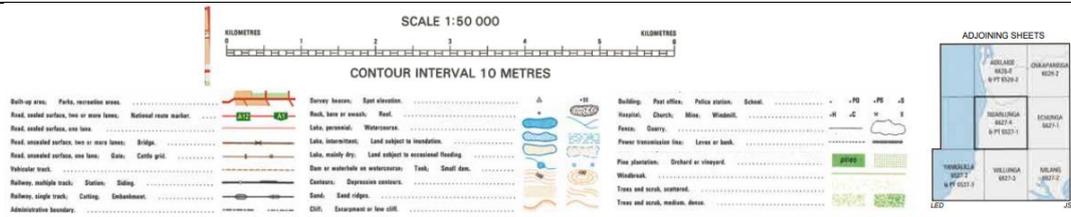
**Unit 3 and 4
– Geo Skills**

Refer to **Source 1: Noarlunga topographic map 2001** and **Source 3: Maslin Beach ground photograph 2019** to answer Question 13.

**Source 1:
Noarlunga topographic map 2001**

Adapted from: Department for Environment and Water, the Government of South Australia. (2001). *Noarlunga South Australia* (4th ed.) [Topographic map; 1:50 000]. Retrieved March, 2019, from <https://www.environment.sa.gov.au/>. Legend adapted from: Department of Lands, the Government of South Australia. (1969). *Hawker South Australia* (2nd ed.) [Topographic map; 1:50 000]. SA: Department of Environment and Heritage.





Source 3: Maslin Beach ground photograph 2019



Maslin Beach ground photograph by courtesy member of examining panel.

The photograph in Source 3 was taken at GR 699984. In which direction was the photographer facing?

- (a) south-east
- (b) north
- (c) south
- (d) west

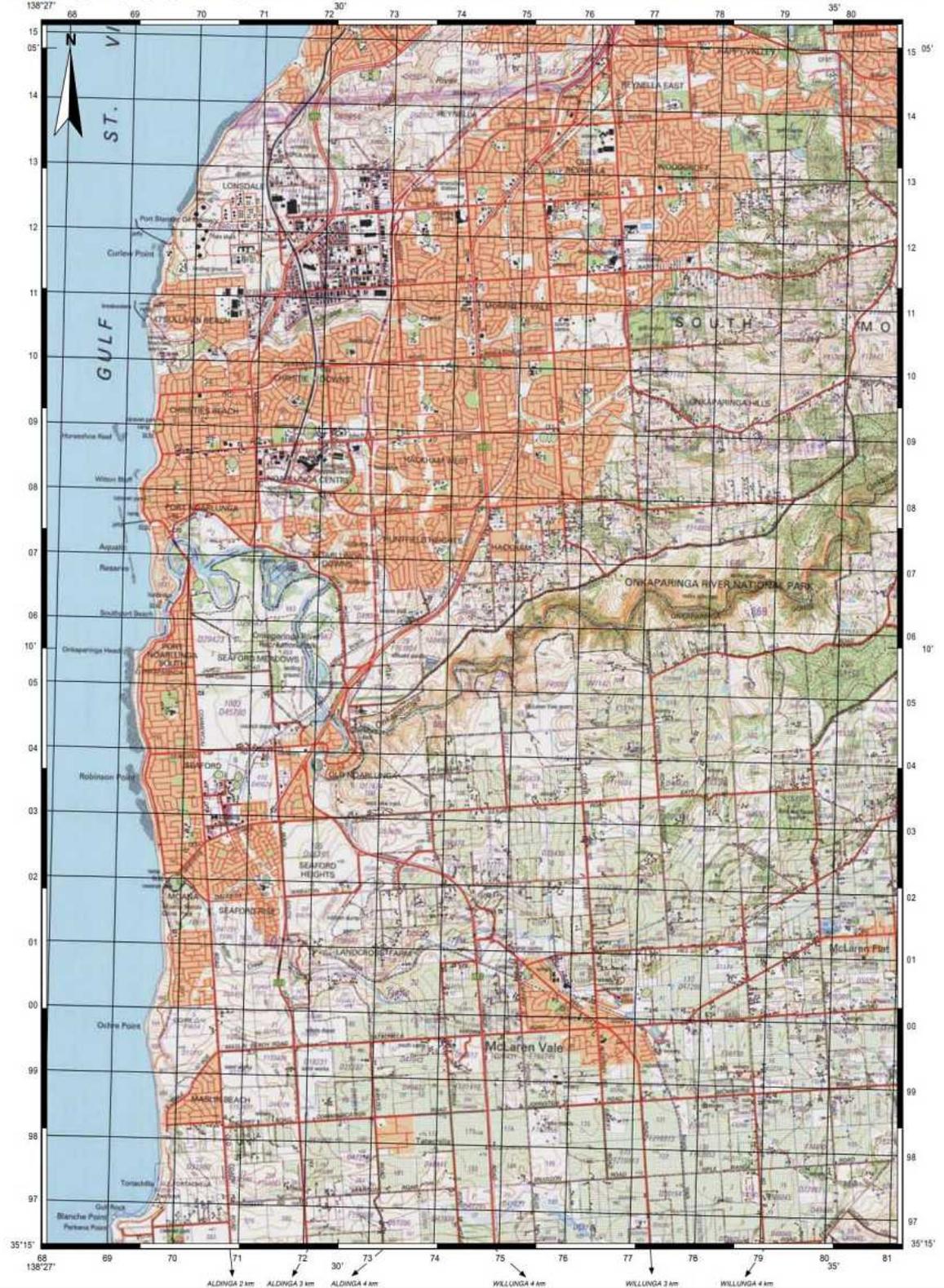
**2019
Section 1
Question
14**

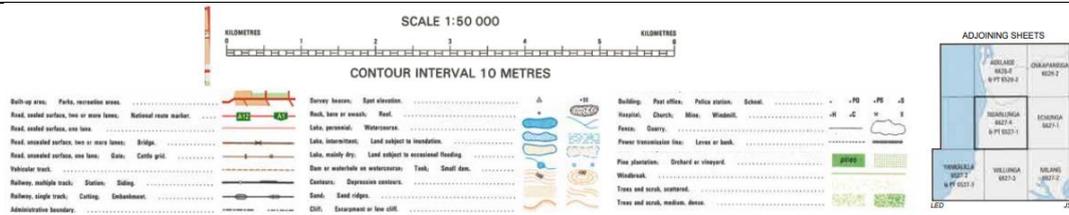
**Unit 3 and 4
– Geo Skills**

Refer to **Source 1: Noarlunga topographic map 2001** and **Source 4: Old Noarlunga ground photograph 2019** to answer Question 14.

**Source 1:
Noarlunga topographic map 2001**

Adapted from: Department for Environment and Water, the Government of South Australia. (2001). *Noarlunga South Australia* (4th ed.) [Topographic map; 1:50 000]. Retrieved March, 2019, from <https://www.environment.sa.gov.au/>. Legend adapted from: Department of Lands, the Government of South Australia. (1969). *Hawker South Australia* (2nd ed.) [Topographic map; 1:50 000]. SA: Department of Environment and Heritage.





Source 4: Old Noarlunga ground photograph 2019



Old Noarlunga ground photograph by courtesy member of examining panel.

The photograph in Source 4 was taken looking west-south-west at GR 720041. The process of land cover change that has occurred between Source 1 and Source 4 is expansion of

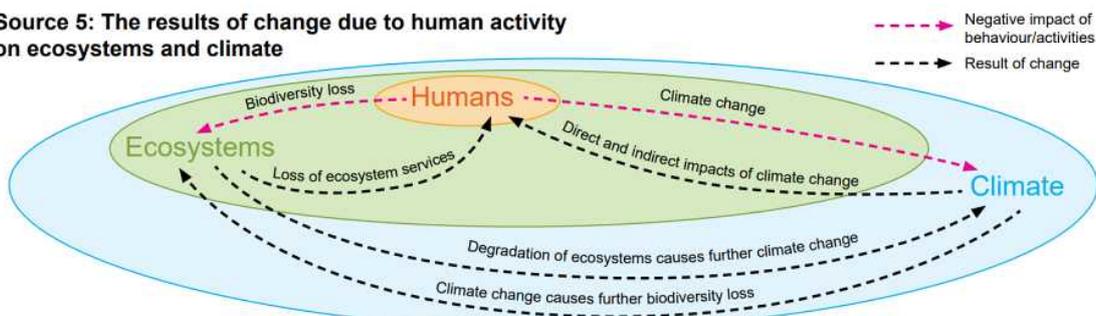
- (a) agriculture.
- (b) deforestation.
- (c) industry.
- (d) urban settlement.

2019
Section 1
Question
17

Unit 3 and 4
– Geo Skills

Refer to **Source 5**: The results of change due to human activity on ecosystems and climate to answer Question 17.

Source 5: The results of change due to human activity on ecosystems and climate



Adapted from: Zari, M. P. (2014). Ecosystem services analysis in response to biodiversity loss caused by the built environment. *S.A.P.I.E.N.S.* 7 (No. 1), p. 9, fig. 3. Retrieved May, 2019, from <https://journals.openedition.org/sapiens/1684>. Used under Creative Commons Attribution 3.0 Licence

The arrow indicating that climate change results in further biodiversity loss is an illustration of a

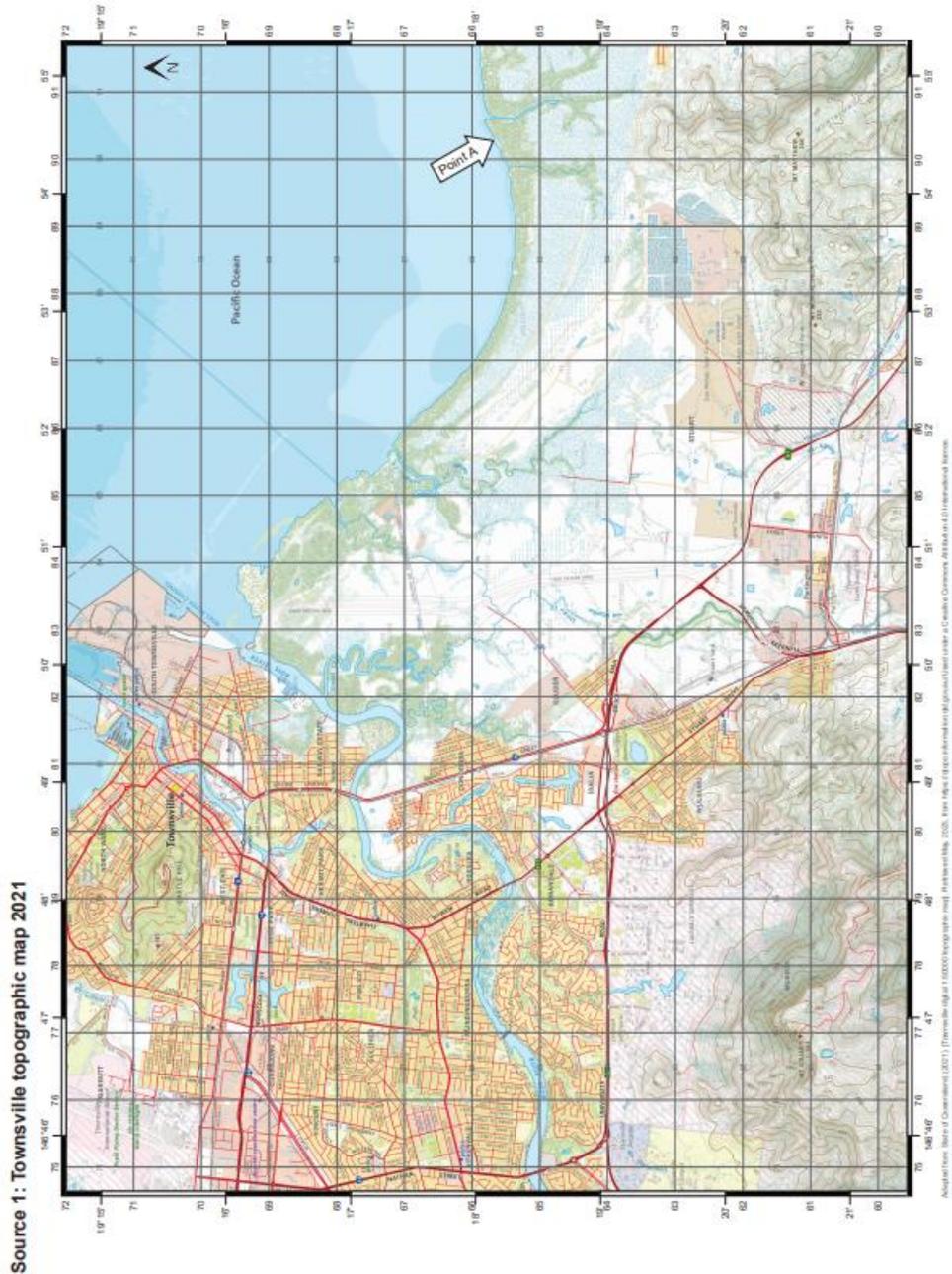
- (a) causal relationship.
- (b) central tendency.
- (c) proportional circle.
- (d) statistical association.

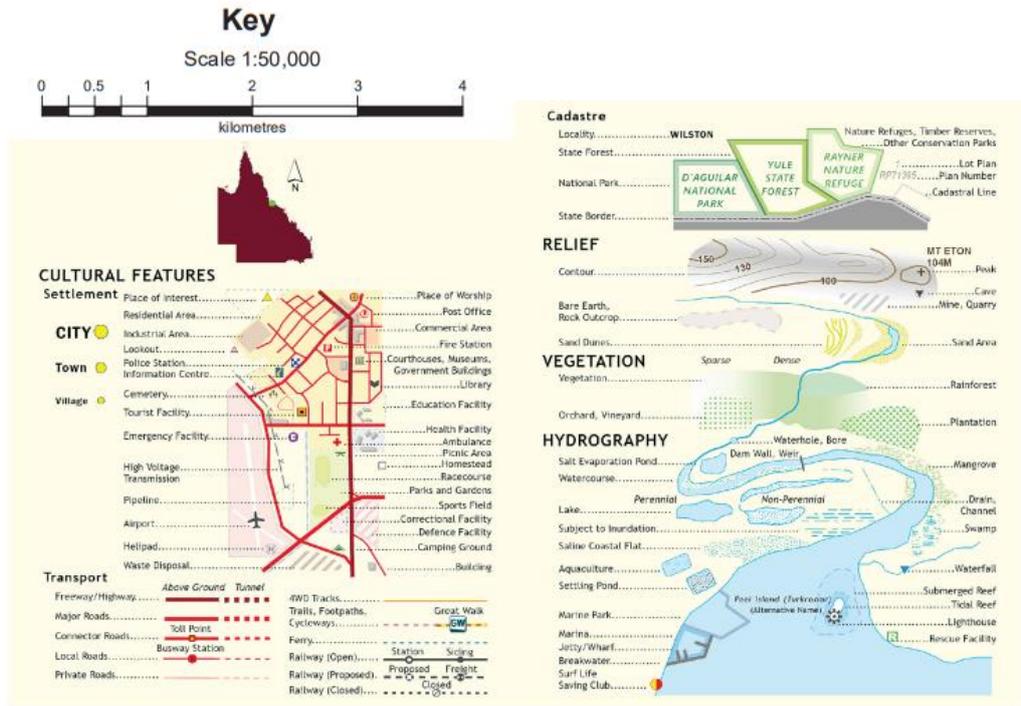
Section 2

2023
Section 2
Question
21

Unit 3 and 4
– Geo Skills

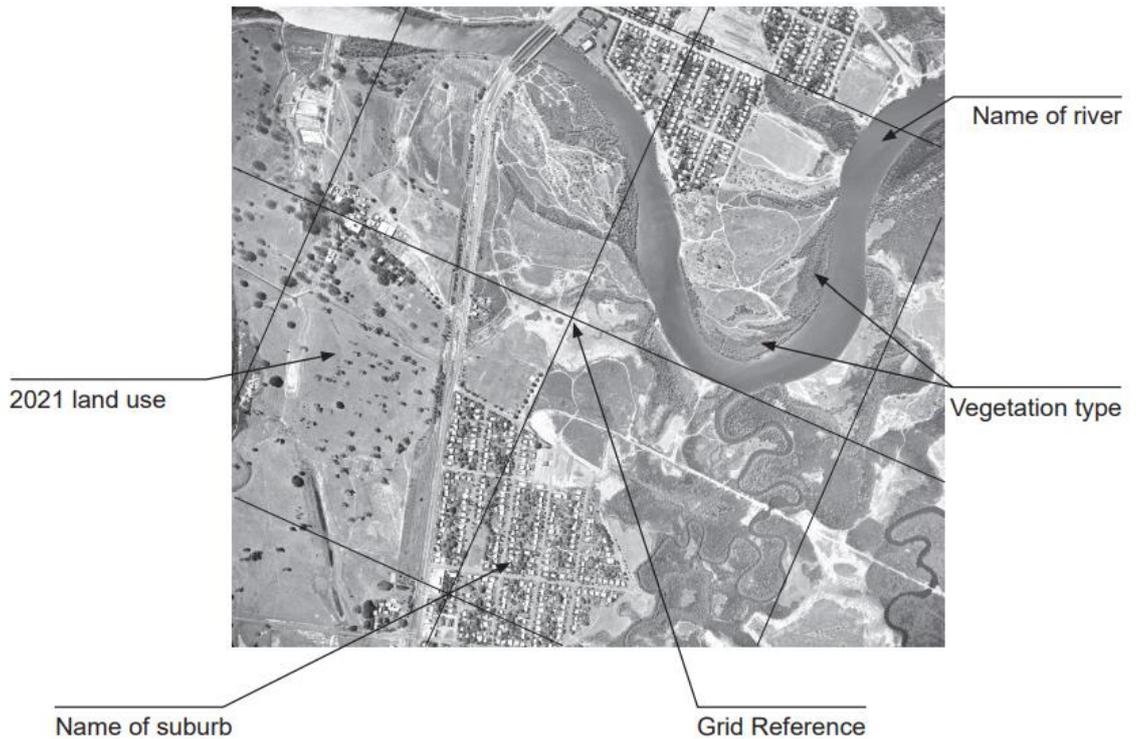
Refer to **Source 1: Townsville topographic map 2021** and Townsville aerial photograph 1995 (below) to answer Question 21.





(a) Label the following features on the aerial photograph below. (5 marks)

Townsville aerial photograph 1995



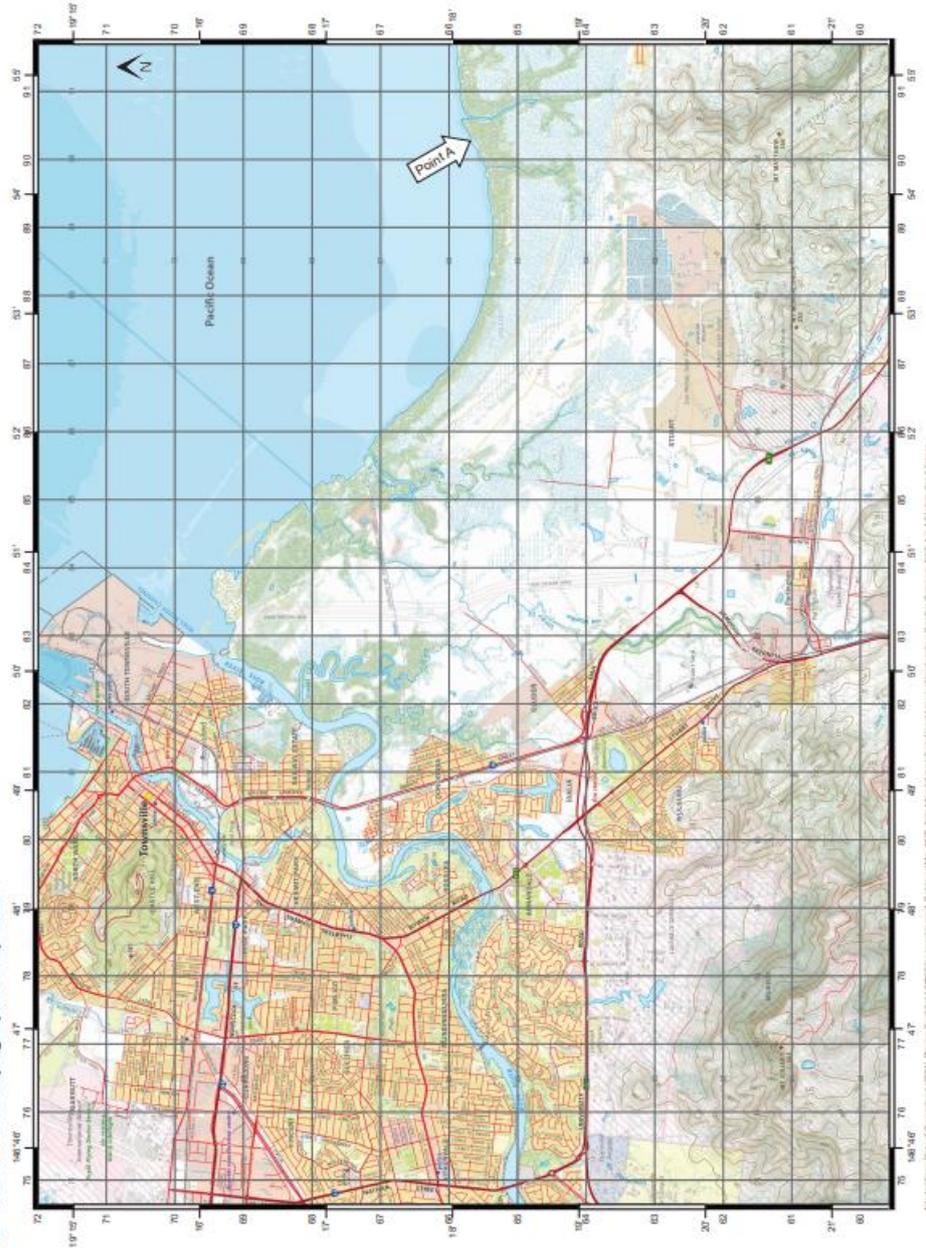
(b) Identify whether **Source 1**: Townsville topographic map 2021 or the Townsville aerial photograph 1995 (above) has the larger scale. (1 mark)

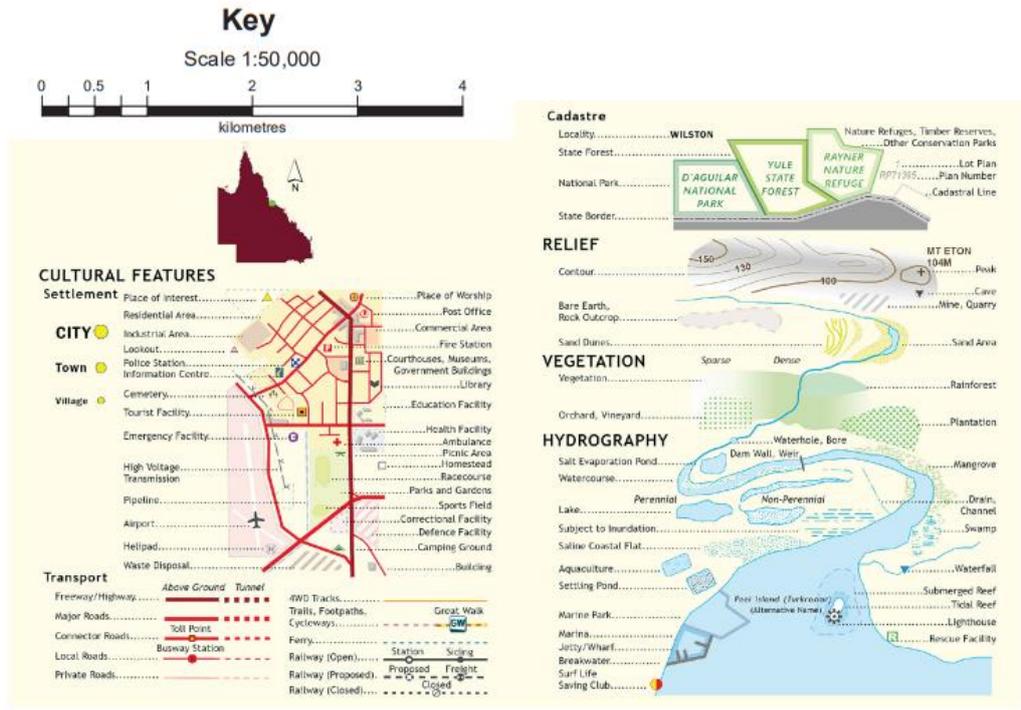
2023
Section 2
Question
22

Unit 3 and 4
– Geo Skills

Refer to **Source 1: Townsville topographic map 2021** to answer Question 22.

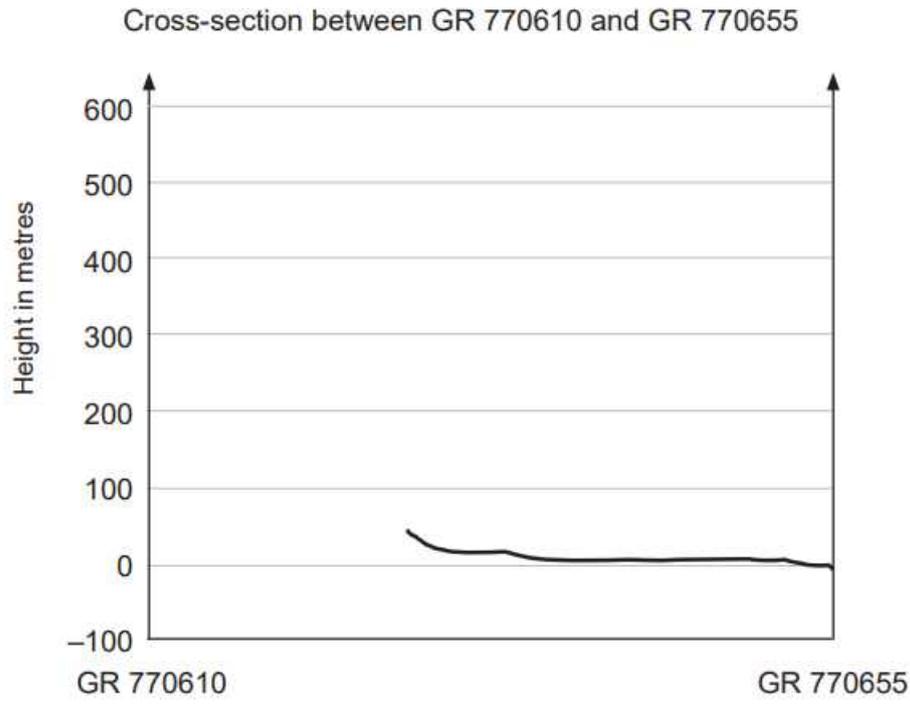
Source 1: Townsville topographic map 2021





(a) Complete the cross-section extending from GR 770610 to GR 770655. (2 marks)

Note: To assist you to transcribe contour locations, you may remove page 29 of this booklet by tearing along the perforations.



(b) Annotate the following features on the cross-section above. (3 marks)

- University Road
- Lavarack Golf Course
- Residential area

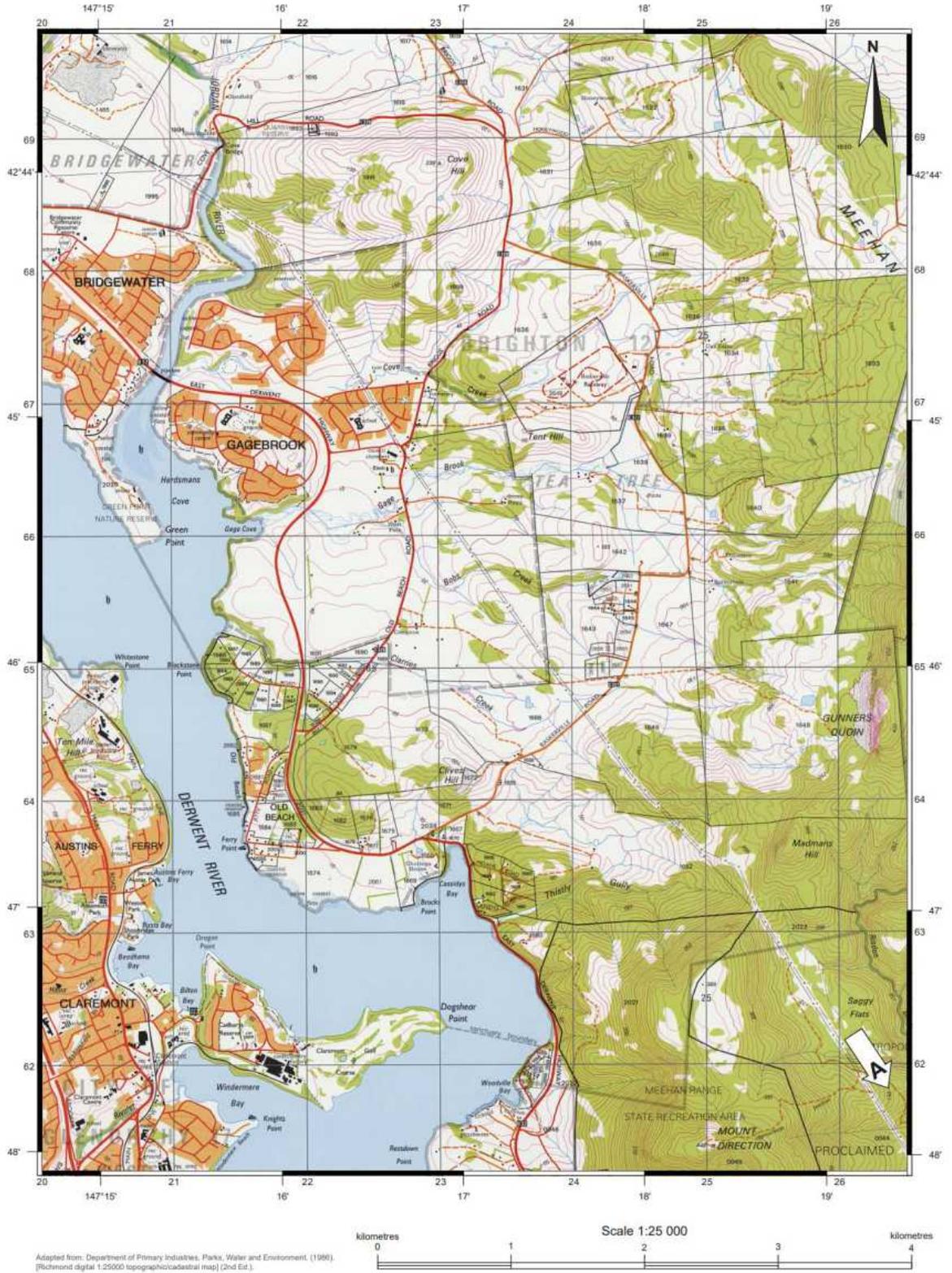
(c) Identify the overall shape of the slope from the peak of Mt Stuart to GR 770628. (1 mark)

**2022
Section 2
Questions
21-22**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1: Derwent River Valley topographic map 1986** to answer Questions 21 and 22.

Source 1: Derwent River Valley topographic map 1986



Source 1: Key

Residential area; Commercial buildings		Post office; Police station; Fire station; School		Swamp	
Roads maintained for continuous public use	Primary road with route number	Caravan park; Camping ground; Public toilets		Windbreak	
	Secondary road with route number	Disposal area; Information centre; Cemetery		Wet area; Subject to flooding	
	Minor road with route number	Firic area; Trip station beacon; Spot elevation		Waterfall; Rapids	
	Other road	Contour with value; Depression contour		Indefinite shoreline or floodbank; Levee	
Roads of restricted use or access	Other roads with bridge	Quarry; pit or open cut mine		Tidal rocks or ledges; Offshore rock	
	Vehicular track with gate	Rock scree; Broken rocky surface		Navigation light or lighthouse; Exposed wreck	
Walking track or horse trail (approximate position) with bridge		Dense forest; Medium forest		Sand; Tidal reef	
Railway with station; Places entered in National Estate Register		Low dense vegetation; Distinctive grass		Saline coastal flat; Tidal flats	
Power transmission line and pylon positions		Orchard; Pine plantation		Jetty; Launching ramp	
Building; Feature of historic or special interest; Run; Mine				Property boundary; Land parcel boundary and number	

21. Calculate the time a boat travelling at an average speed of 12 km/h would take to sail directly from the jetty at Austins Ferry Bay (GR 209634) to the jetty at the public toilets at Bilton Bay (GR 211624). Show your calculations and answer in minutes and seconds. (2 marks)

Calculation:

Answer:

22. Outline **one** site feature and **one** situation feature of the reservoir located at GR 219679. (2 marks)

Site:

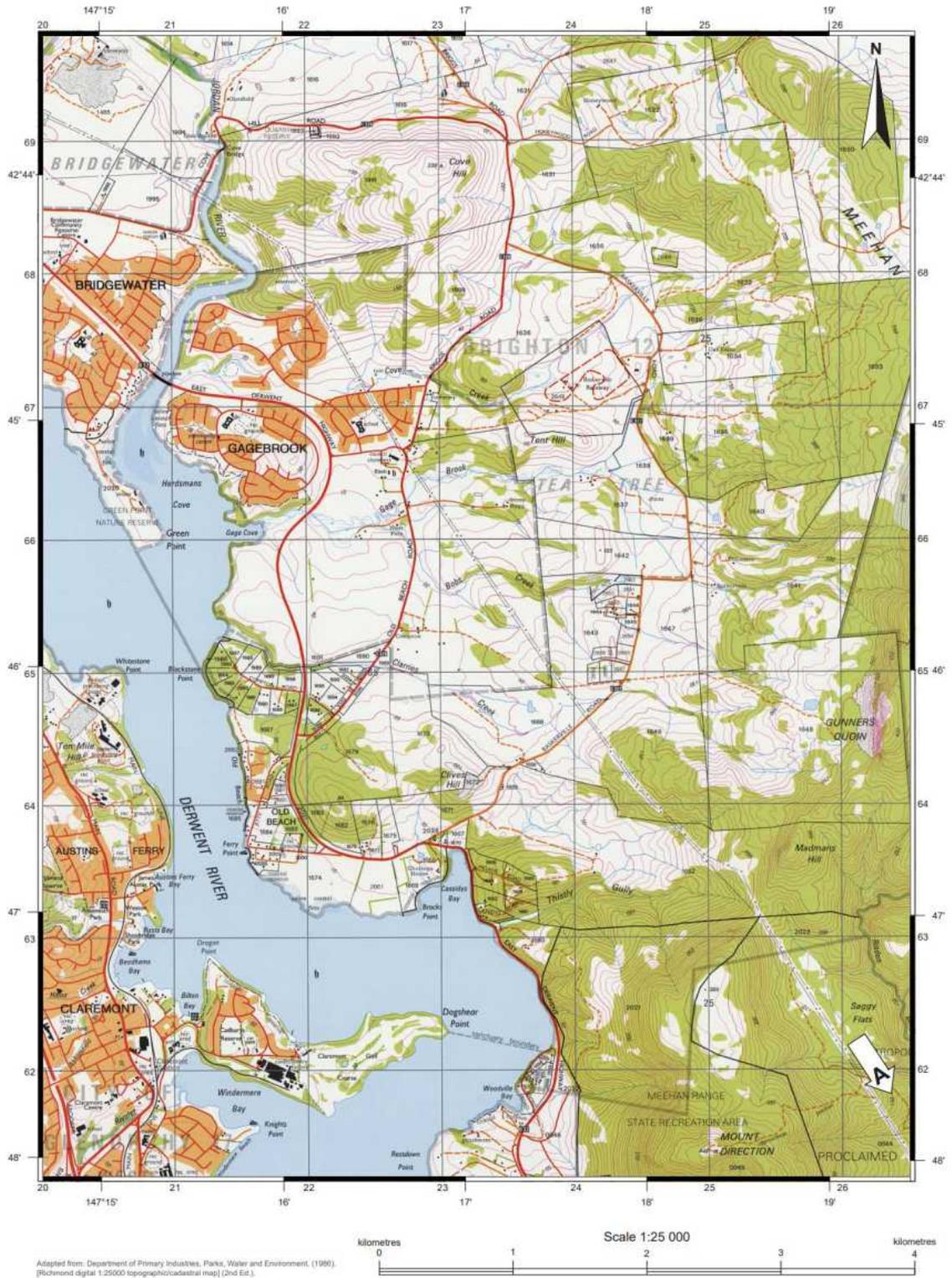
Situation:

2022
Section 2
Question
24

Unit 3 and 4
– Geo Skills

Refer to **Source 1: Derwent River Valley topographic map 1986** and **Source 3: Derwent Valley oblique photograph 2017** to answer Question 24.

Source 1: Derwent River Valley topographic map 1986



Source 1: Key

Residential area; Commercial buildings		Post office; Police station; Fire station; School		Swamp	
Roads maintained for continuous public use	Primary road with route number	Caravan park; Camping ground; Public toilets		Wet area; Subject to flooding	
	Secondary road with route number	Disposal area; Information centre; Cemetery		Waterfall; Rapids	
	Minor road with route number	Picnic area; Trip station beacon; Spot elevation		Indefinite shoreline or floodbank; Levee	
	Other road	Contour with value; Depression contour		Tidal rocks or ledge; Offshore rock	
Roads of restricted use or access	Other roads with bridge	Quarry; pit or open cut mine		Navigation light or lighthouse; Exposed wreck	
	Vehicular track with gate	Rock scree; Broken rocky surface		Sand; Tidal reef	
Walking track or horse trail (approximate position) with bridge		Dense forest; Medium forest		Saline coastal flat; Tidal flats	
Walking track or horse trail (approximate position) without bridge		Low dense vegetation; Distinctive grass		Jetty; Launching ramp	
Railway with station; Places entered in National Estate Register		Orchard; Pine plantation		Property boundary; Land parcel boundary and number	
Power transmission line and pylon positions					
Building; Feature of historic or special interest; Run; Mine					

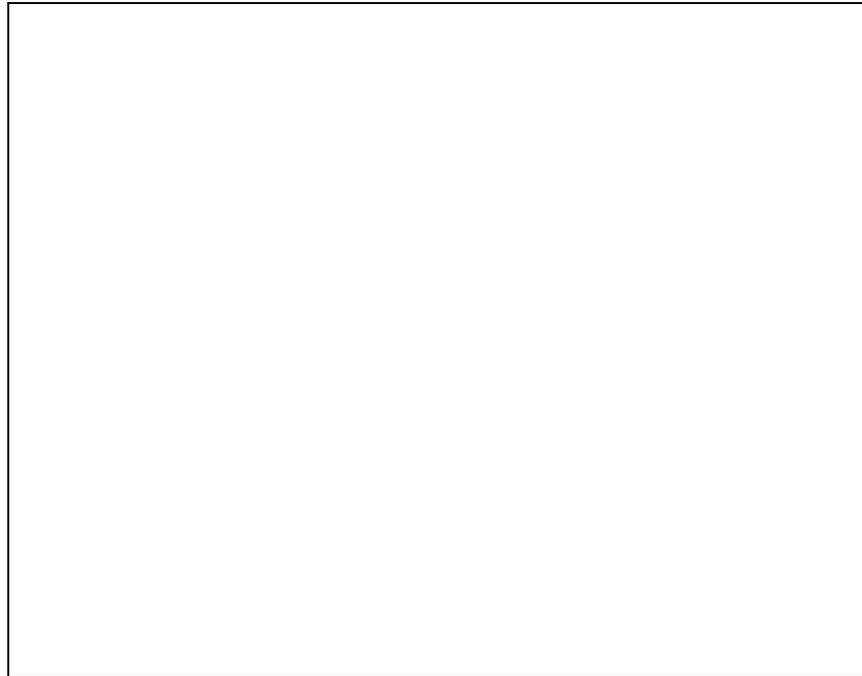
Source 2: Old Beach aerial photograph 2019



DigitalGlobe. (2019). [Old Beach aerial photograph] (Camera ~3500m). Retrieved April, 2022, from Google Earth Pro.

In the frame below, draw an annotated sketch of the oblique photograph and label the following features on your sketch. (5 marks)

- Mountain range
- Outline of the river
- Mount Direction
- Dogshear Point
- Confectionery factory

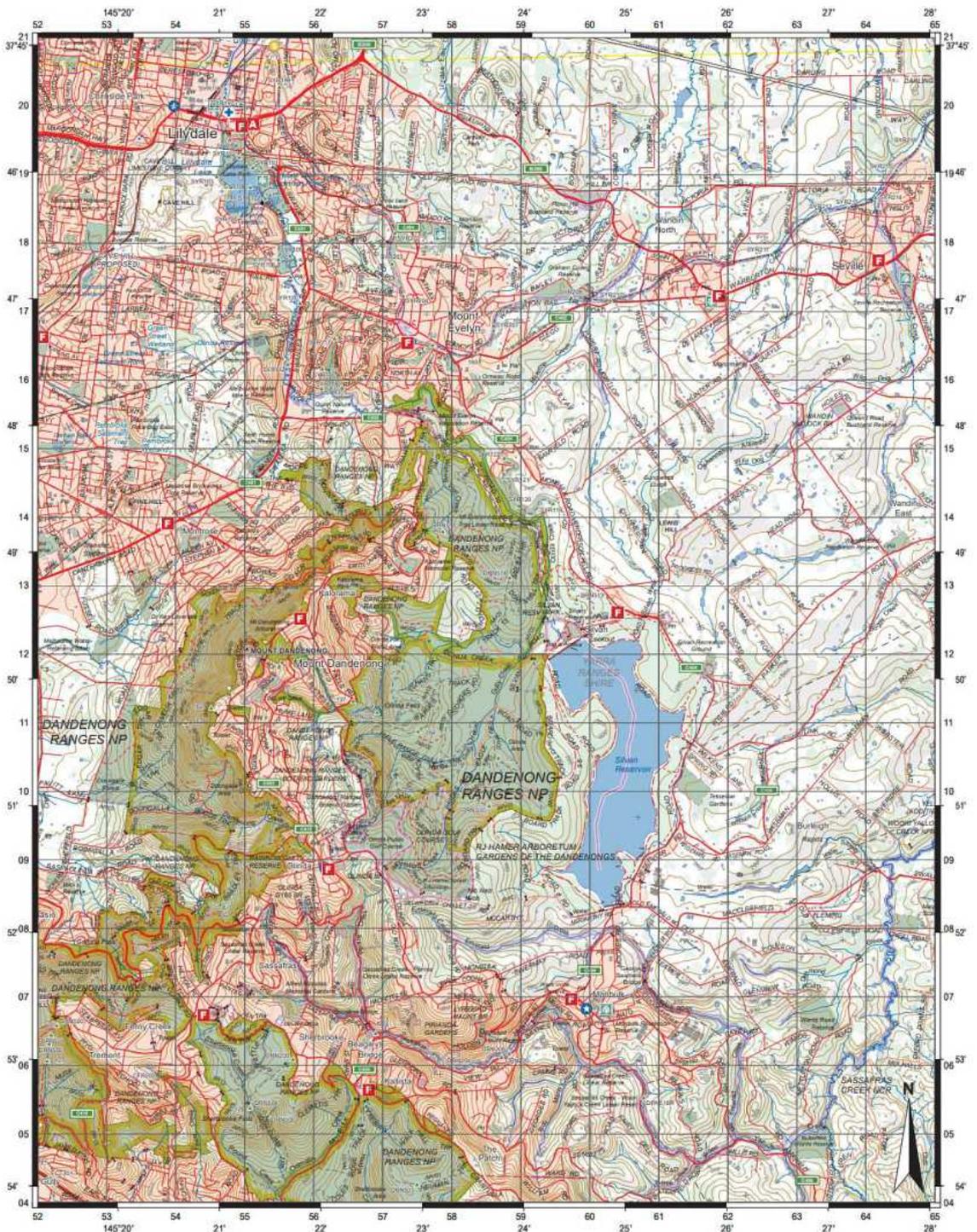


2021
Section 2
Questions
21-23

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Lilydale topographic map 2019 to answer Questions 21 to 23.

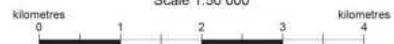
Source 1: Lilydale topographic map 2019

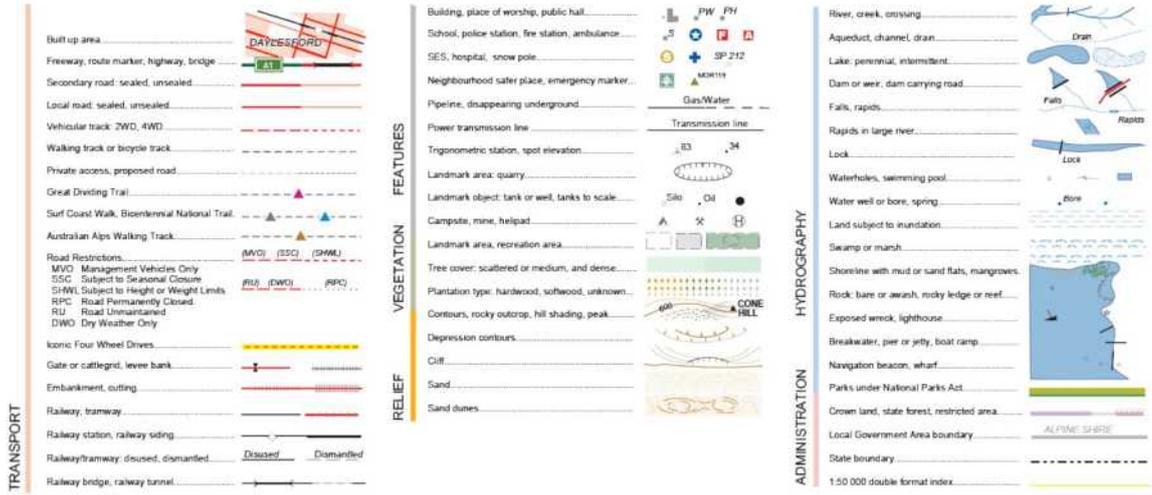


State of Victoria (Department of Environment, Land, Water and Planning). (n.d.). [Lilydale topographic map]. Retrieved December, 2020, from <https://vicmaptop.land.vic.gov.au/#/discover-map>

Contour Interval 20 metres

Scale 1:50 000





21. Within the area bordered by eastings 57 and 59, and northings 06 and 08, identify how the transport links have been influenced by site factors. Name a specific example to support your response. (2 marks)

22. State the latitude and longitude (in degrees and minutes) of the small dam located at GR 618189 and describe a second characteristic of its situation. (2 marks)

Latitude and longitude:

Second situation characteristic:

23. Calculate how long a car travelling at an average speed of 50 kilometres an hour will take to travel along Sheffield Road from the Intersection of Pavitt Lane at GR 527099 to its end, where it meets the boundary of the National Park at GR 558143. Your answer must be in minutes and seconds.

Calculation:

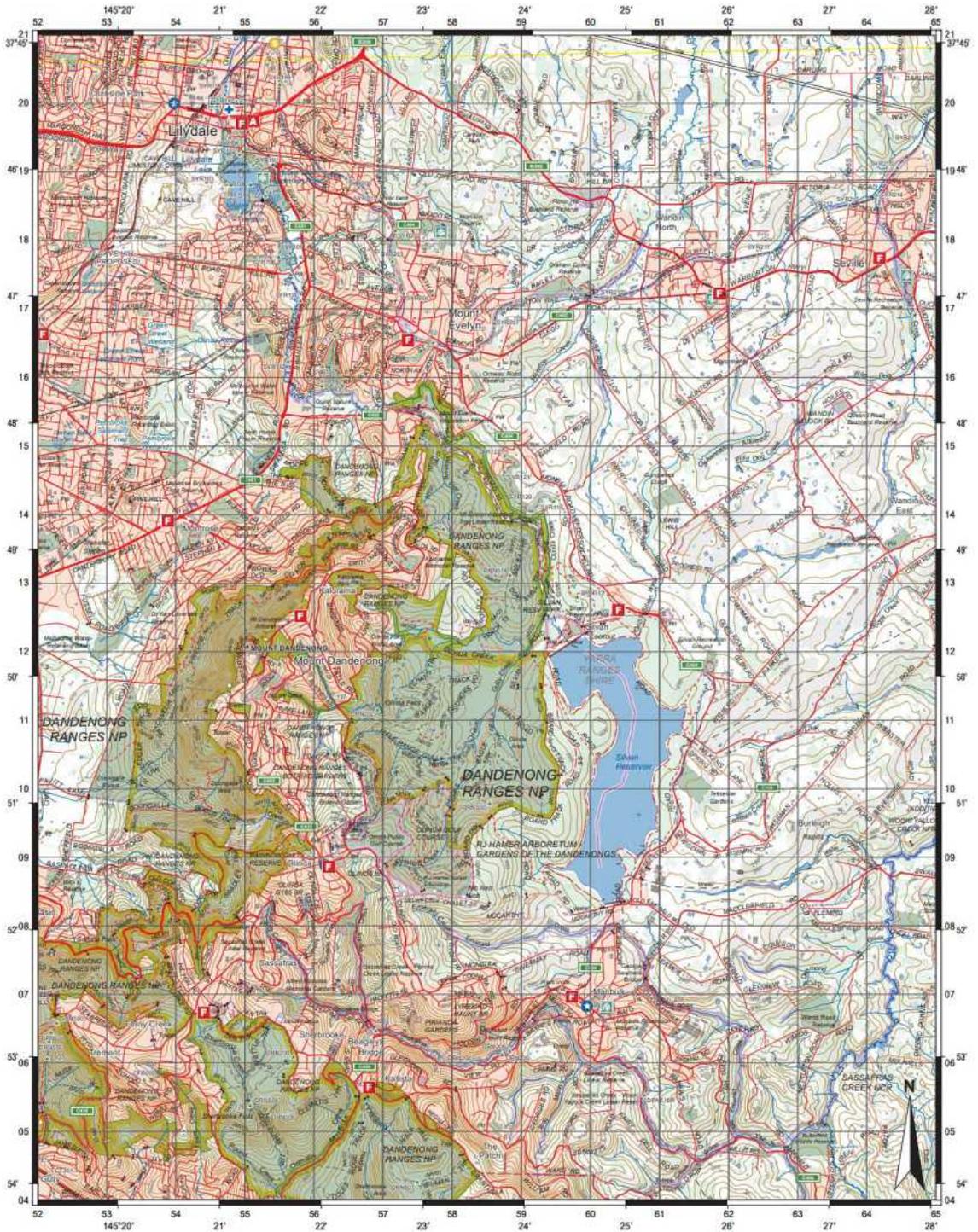
Answer:

2021
Section 2
Question
24

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Lilydale topographic map 2019 (ARs 5520 and 5620), **Source 2**: Lilydale aerial photograph 2006 and **Source 3**: Lilydale aerial photograph 2018 to answer Question 24.

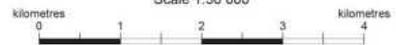
Source 1: Lilydale topographic map 2019



State of Victoria (Department of Environment, Land, Water and Planning). (n.d.). [Lilydale topographic map]. Retrieved December, 2020, from <https://vicmaptopo.land.vic.gov.au/#discover-map>

Contour Interval 20 metres

Scale 1:50 000



TRANSPORT	VEGETATION	RELIEF	FEATURES	HYDROGRAPHY	ADMINISTRATION
Built up area			Building, place of worship, public hall	River, creek, crossing	
Freeway, route marker, highway, bridge			School, police station, fire station, ambulance	Aqueduct, channel, drain	
Secondary road: sealed, unsealed			SES, hospital, snow pole	Lake: perennial, intermittent	
Local road: sealed, unsealed			Neighbourhood safer place, emergency marker	Dam or weir, dam carrying road	
Vehicular track: 2WD, 4WD			Pipeline, disappearing underground	Falls, rapids	
Walking track or bicycle track			Power transmission line	Rapids in large river	
Private access, proposed road			Trigonometric station, spot elevation	Lock	
Great Driving Trail			Landmark area: quarry	Waterholes, swimming pool	
Surf Coast Walk, Bicentennial National Trail			Landmark object: tank or well, tanks to scale	Water well or bore, spring	
Australian Alps Walking Track			Campsite, mine, helipad	Land subject to inundation	
Road Restrictions:			Landmark area, recreation area	Swamp or marsh	
MVO Management Vehicles Only			Tree cover: scattered or medium, and dense	Shoreline with mud or sand flats, mangroves	
SSC Subject to Seasonal Closure			Plantation type: hardwood, softwood, unknown	Rock: bare or awash, rocky ledge or reef	
SHWL Subject to Height or Weight Limits			Contours, rocky outcrop, hill shading, peak	Exposed wreck, lighthouse	
RPC Road Permanently Closed			Depression contours	Breakwater, pier or jetty, boat ramp	
RJ Road Unmaintained			Cleft	Navigation beacon, wharf	
DWO Dry Weather Only			Sand	Parks under National Parks Act	
Iconic Four Wheel Drives			Sand dunes	Crown land, state forest, restricted area	
Gate or cattlegrid, levee bank				Local Government Area boundary	
Embankment, cutting				State boundary	
Railway, tramway				1:50 000 double format index	
Railway station, railway siding					
Railway/tramway: disused, dismantled					
Railway bridge, railway tunnel					

Source 2: Lilydale aerial photograph 2006



DigitalGlobe. (2006). [Lilydale aerial photograph]. Retrieved December, 2020, from Google Earth Pro.

Source 3: Lilydale aerial photograph 2018



DigitalGlobe. (2018). [Lilydale aerial photograph]. Retrieved December, 2020, from Google Earth Pro.

Locate by grid reference and outline one example of land use change that has occurred in the area shown in Source 2 (2006) and Source 3 (2018). (3 marks)

Location by grid reference:

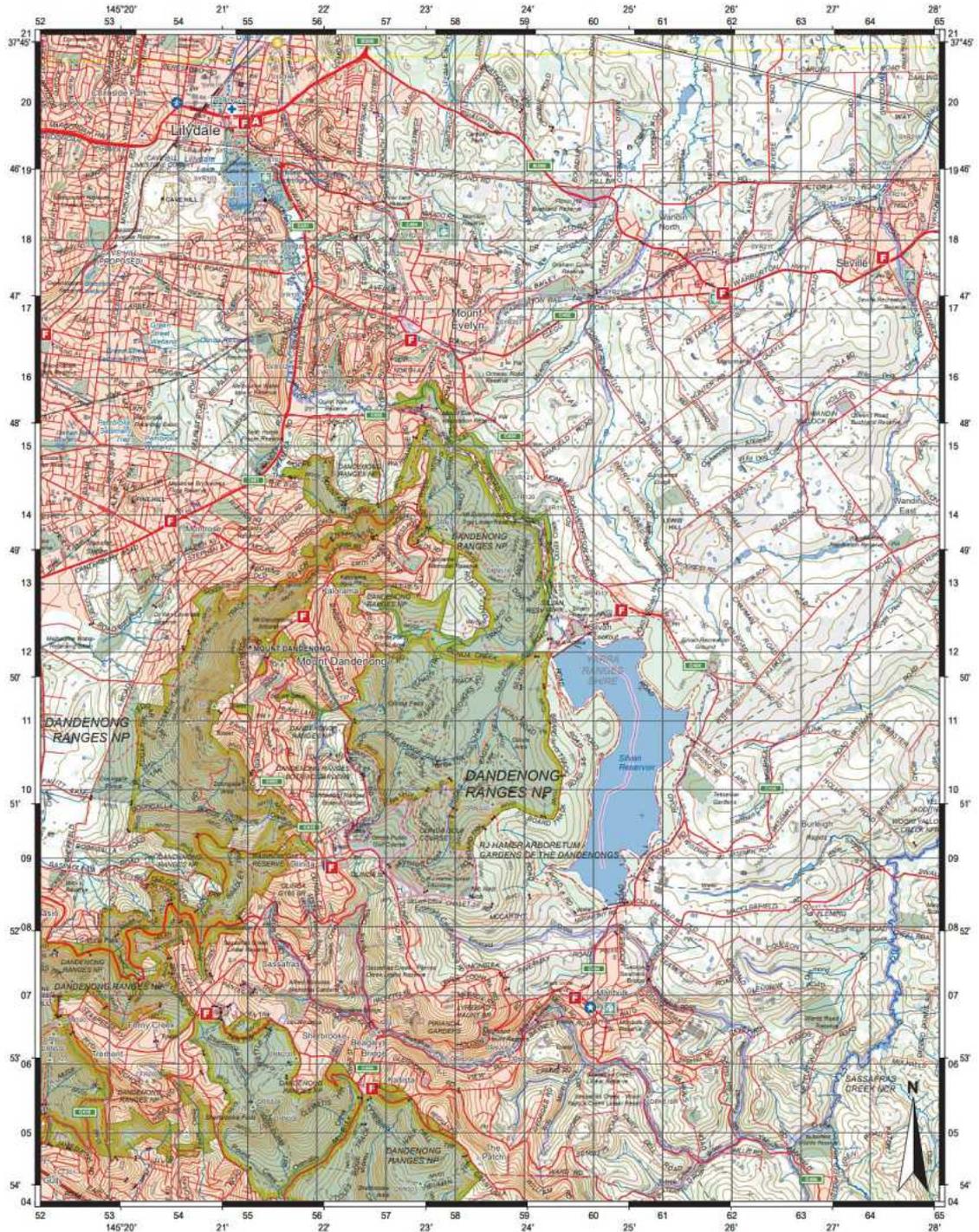
Example of land use change:

2021
Section 2
Question
25

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Lilydale topographic map 2019 and **Source 4**: Warburton Highway aerial photograph 2018 to answer Question 25.

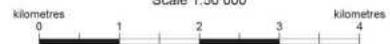
Source 1: Lilydale topographic map 2019

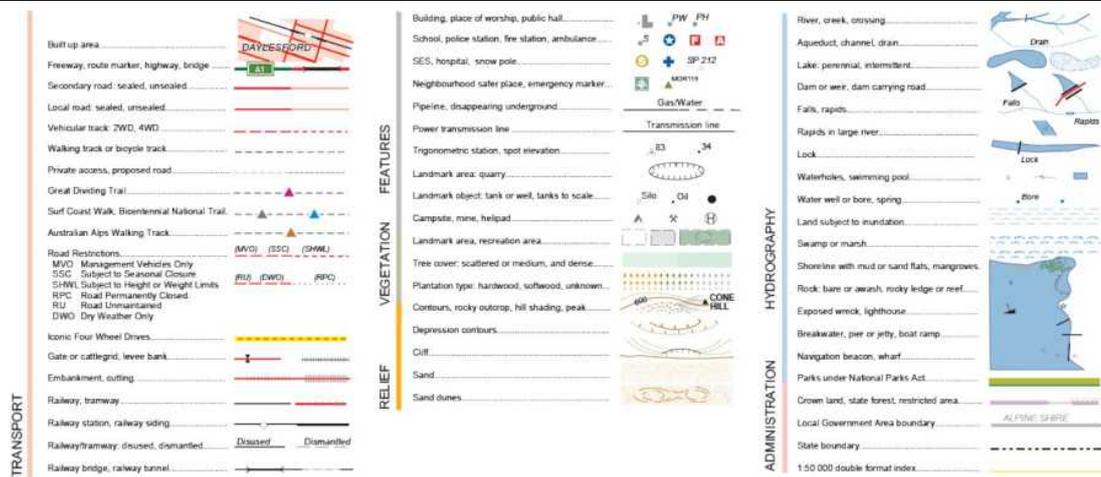


State of Victoria (Department of Environment, Land, Water and Planning). (n.d.). [Lilydale topographic map]. Retrieved December, 2020, from <https://vicmaptopo.land.vic.gov.au/#/discover-map>

Contour Interval 20 metres

Scale 1:50 000





Source 4: Warburton Highway aerial photograph 2018

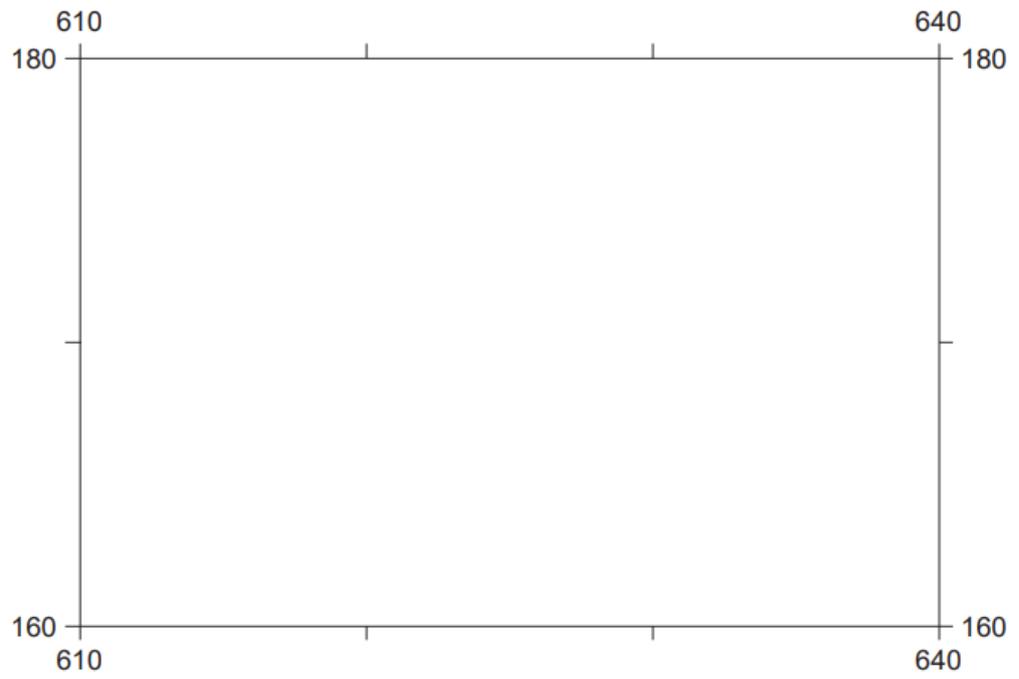


Adapted from: DigitalGlobe. (2018). [Wandin North aerial photograph]. Retrieved December, 2020, from Google Earth Pro.

In the frame below construct an annotated sketch map of the area shown in **Source 4**. (5 marks)

Label the following features on your sketch map:

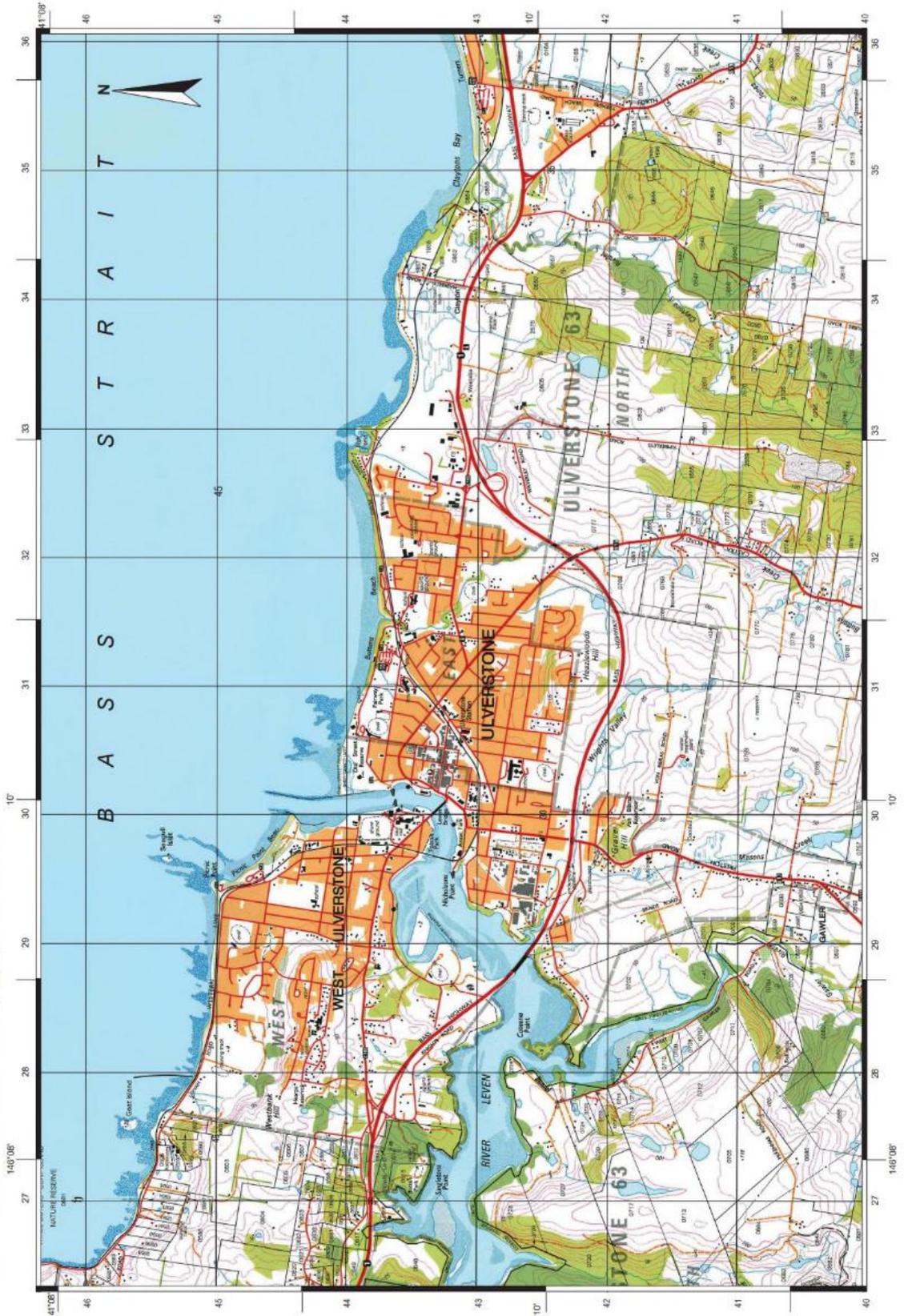
- Warburton Highway
- dismantled railway line
- the built-up areas
- the areas of agricultural land
- the scale of the sketch map.

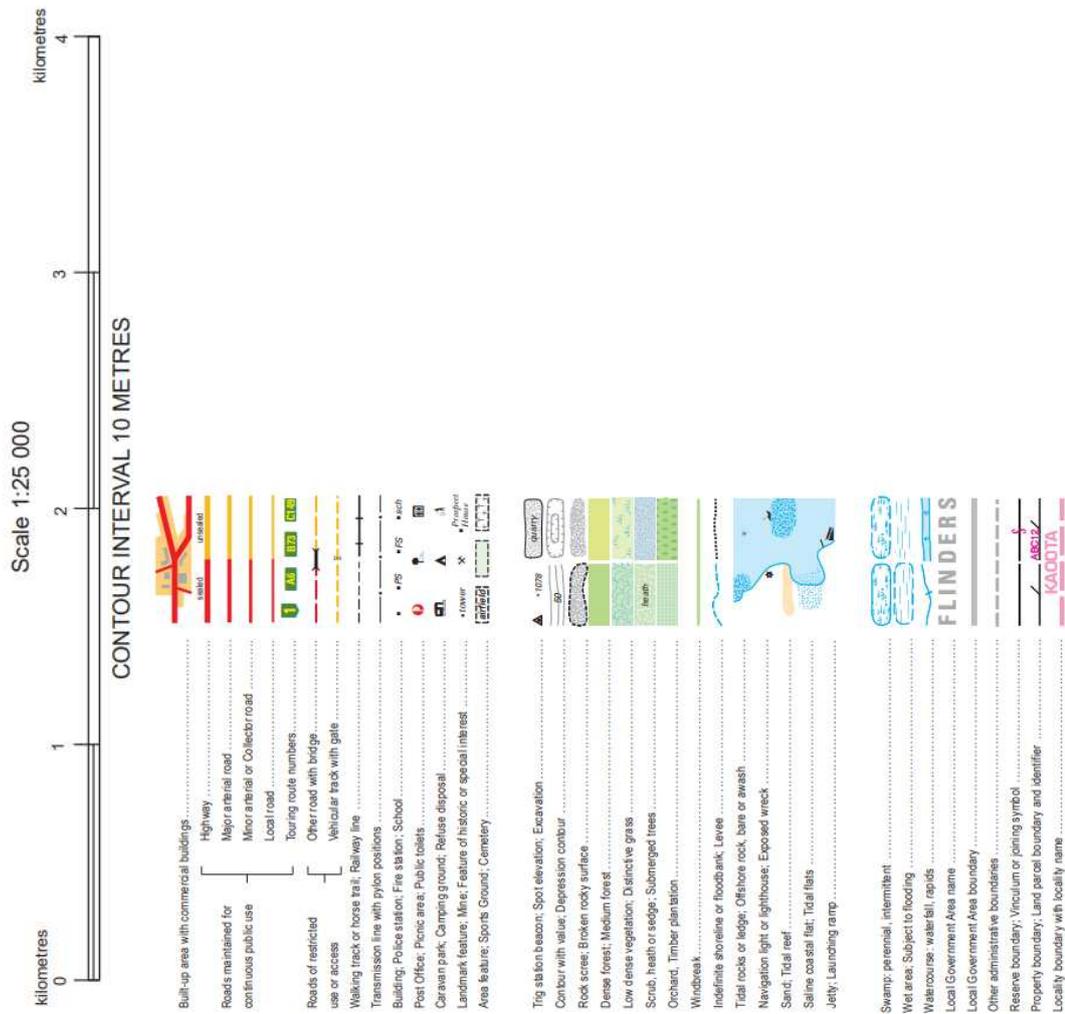


Scale: _____

Refer to **Source 1**: Ulverstone Tasmania topographic map 1986 to answer Questions 21 and 22.

Source 1: Ulverstone Tasmania topographic map 1986

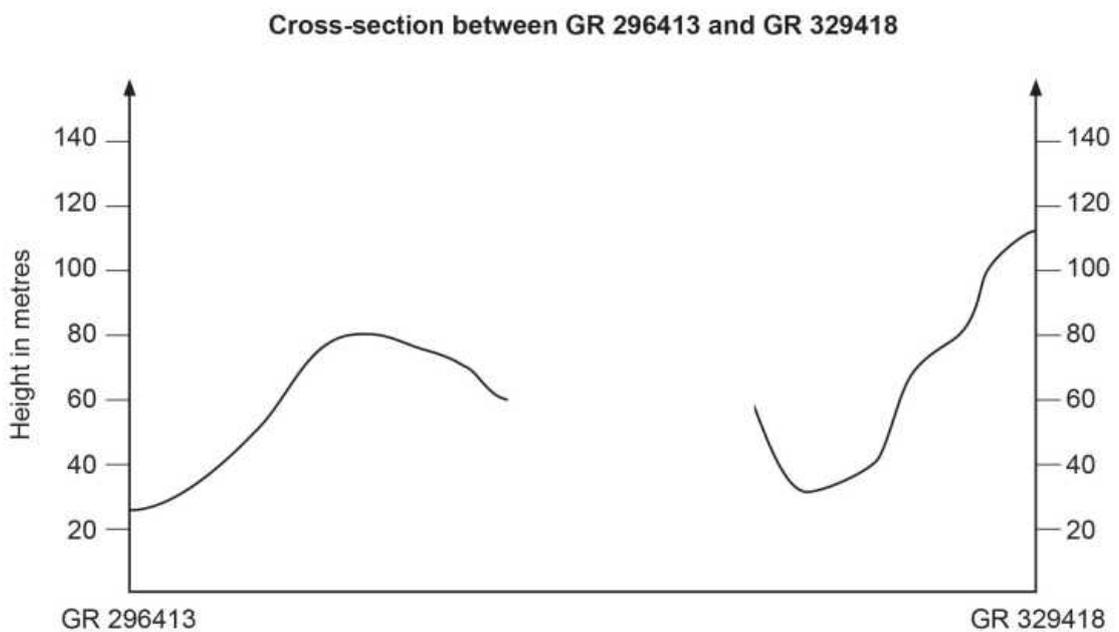




1:25 000 Topographic/Cadastral Map – Ulverstone 4244. Department of Primary Industries, Parks, Water and Environment, Tasmanian Government. TASMAP eShop. <https://www.tasmap.tas.gov.au>

Question 22

(a) Complete the cross-section extending from GR 296413 to GR 329418. (2 marks)



(b) Annotate the following features on the cross-section above.

- area of intermittent swamp
- Castra Road
- water treatment plant (3 marks)

Question 22.

Calculate the average gradient of the creek from its source at GR 271414 to where it meets the River Leven at GR 274426.

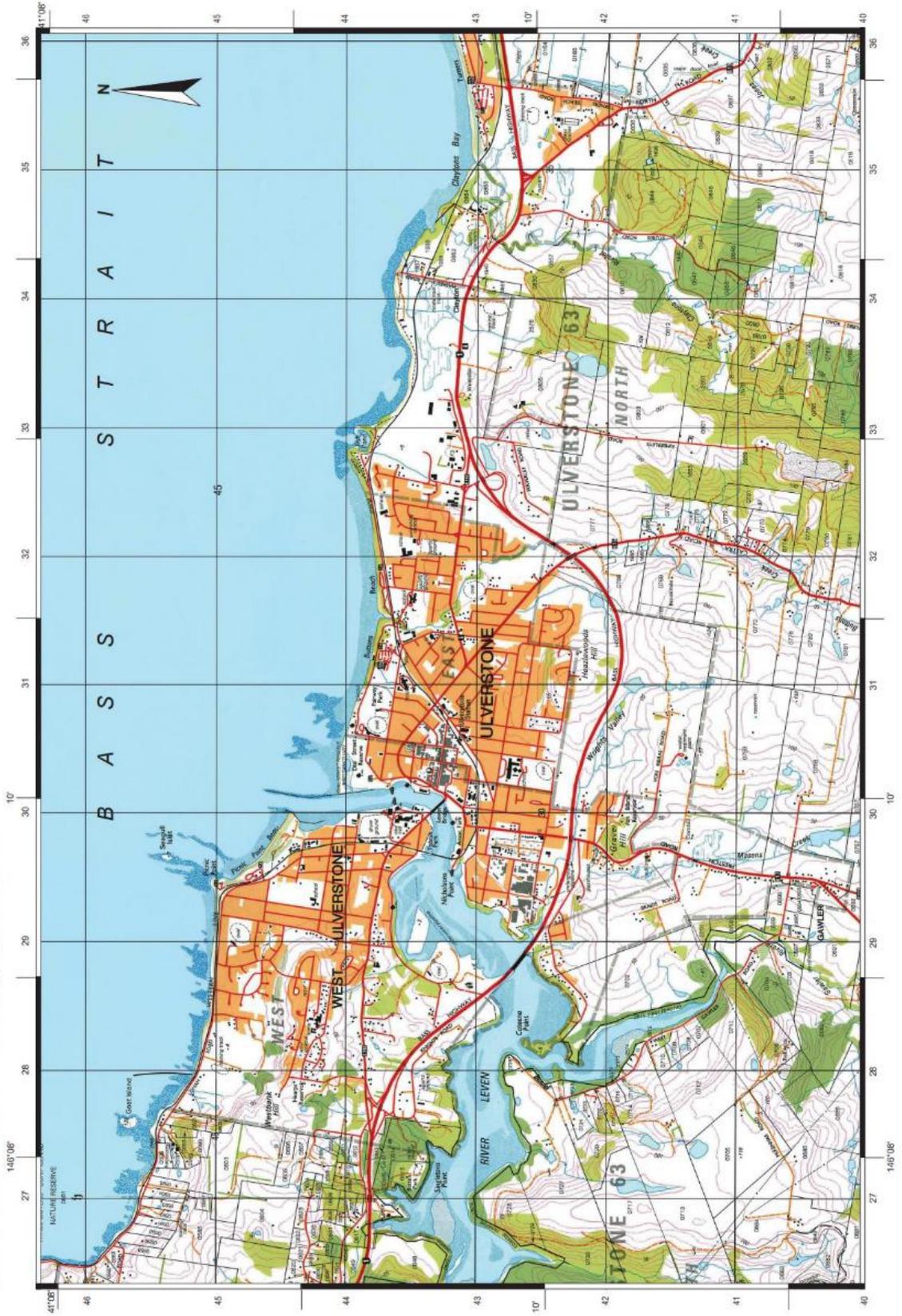
Show your method of calculation and your answer. (2 marks)

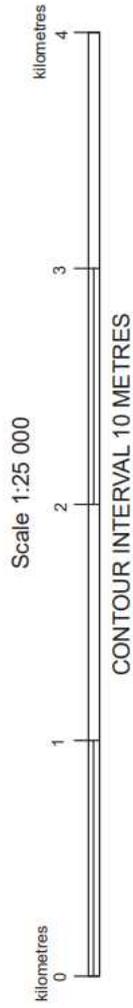
2020
Section 2
Question
23

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Ulverstone Tasmania topographic map 1986 and **Source 2**: Ulverstone aerial photograph 2019 to answer Question 23.

Source 1: Ulverstone Tasmania topographic map 1986



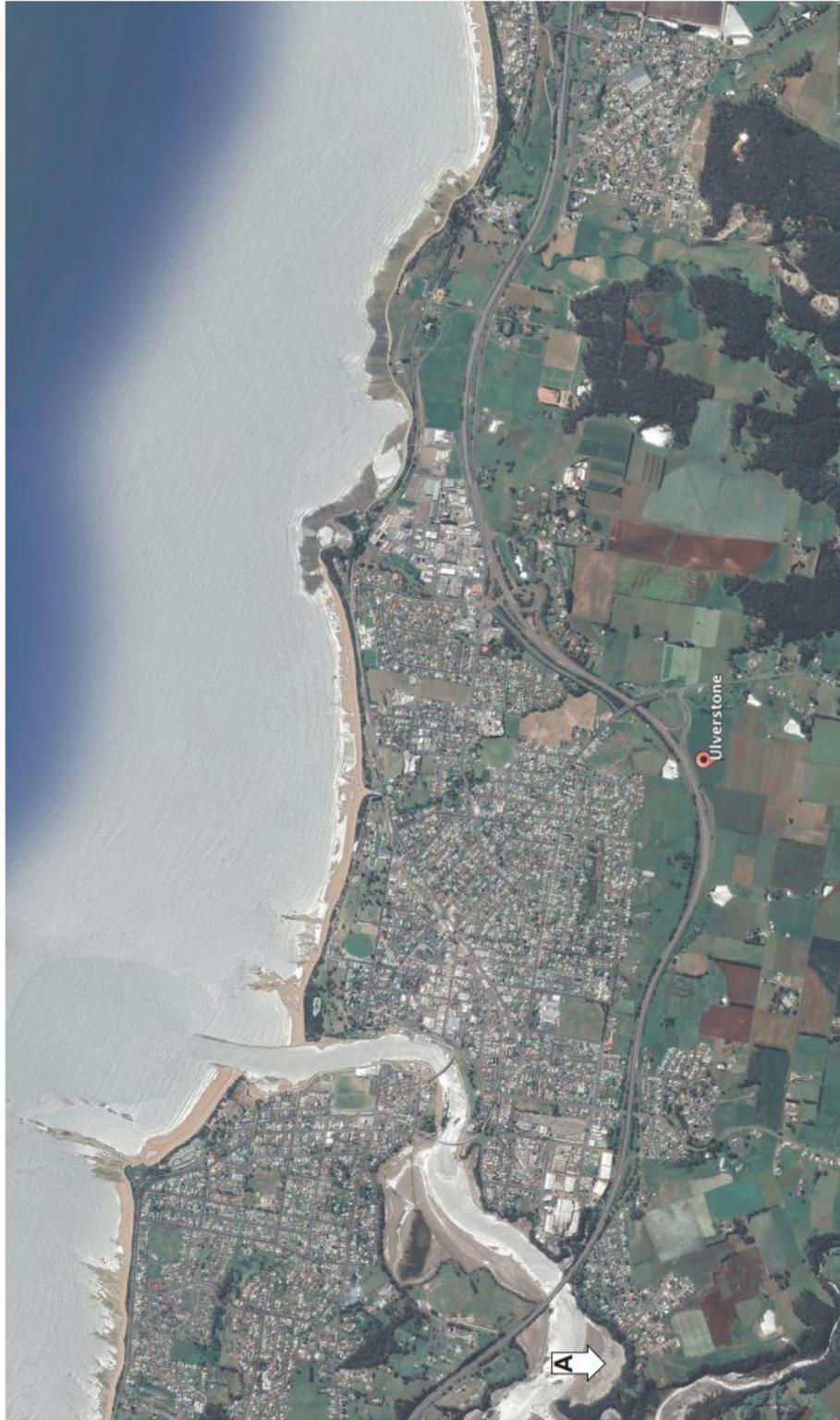


Built-up area with commercial buildings	
Roads maintained for continuous public use	<ul style="list-style-type: none"> Highway Major arterial road Minor arterial or Collector road Local road
Roads of restricted use or access	<ul style="list-style-type: none"> Touring route numbers Other road with bridge Vehicular track with gate Walking track or horse trail; Railway line Transmission line with pylon positions
Building; Police station; Fire station; School	
Post Office; Picnic area; Public toilets	
Caravan park; Camping ground; Refuse disposal	
Landmark feature; Mine; Feature of historic or special interest	
Area feature; Sports Ground; Cemetery	
Tig station beacon; Spot elevation; Excavation	
Contour with value; Depression contour	
Rock scree; Broken rocky surface	
Dense forest; Medium forest	
Low dense vegetation; Distinctive grass	
Scrub; Heath or sedge; Submerged trees	
Orchard; Timber plantation	
Windbreak	
Indefinite shoreline or floodbank; Levee	
Tidal rocks or ledges; Offshore rock, bare or awash	
Navigation light or lighthouse; Exposed wreck	
Sand; Tidal reef	
Saline coastal flat; Tidal flats	
Jetty; Launching ramp	
Swamp; perennial, intermittent	
Wet area; Subject to flooding	
Watercourse; water fall, rapids	
Local Government Area name	
Local Government Area boundary	
Other administrative boundaries	
Reserve boundary; Vicinity or joining symbol	
Property boundary; Land parcel boundary and identifier	
Locally boundary with locally name	

1:25 000 Topographic/Cadastral Map – Ulverstone 4244. Department of Primary Industries, Parks, Water and Environment, Tasmanian Government. TASMAP eShop. <https://www.tasmap.tas.gov.au>

Source 2: Ulverstone aerial photograph 2019

Source: Google Earth Pro. © 2019 Google. Image © 08/01/2020 Global Digital. Retrieved January 2020. Reproduced under the aegis of Google Earth's general use policy for educational purposes.



Describe the land use changes that can be observed in AR 3243 and in AR 3542 between 1996 and 2019. (4 marks)

AR 3243

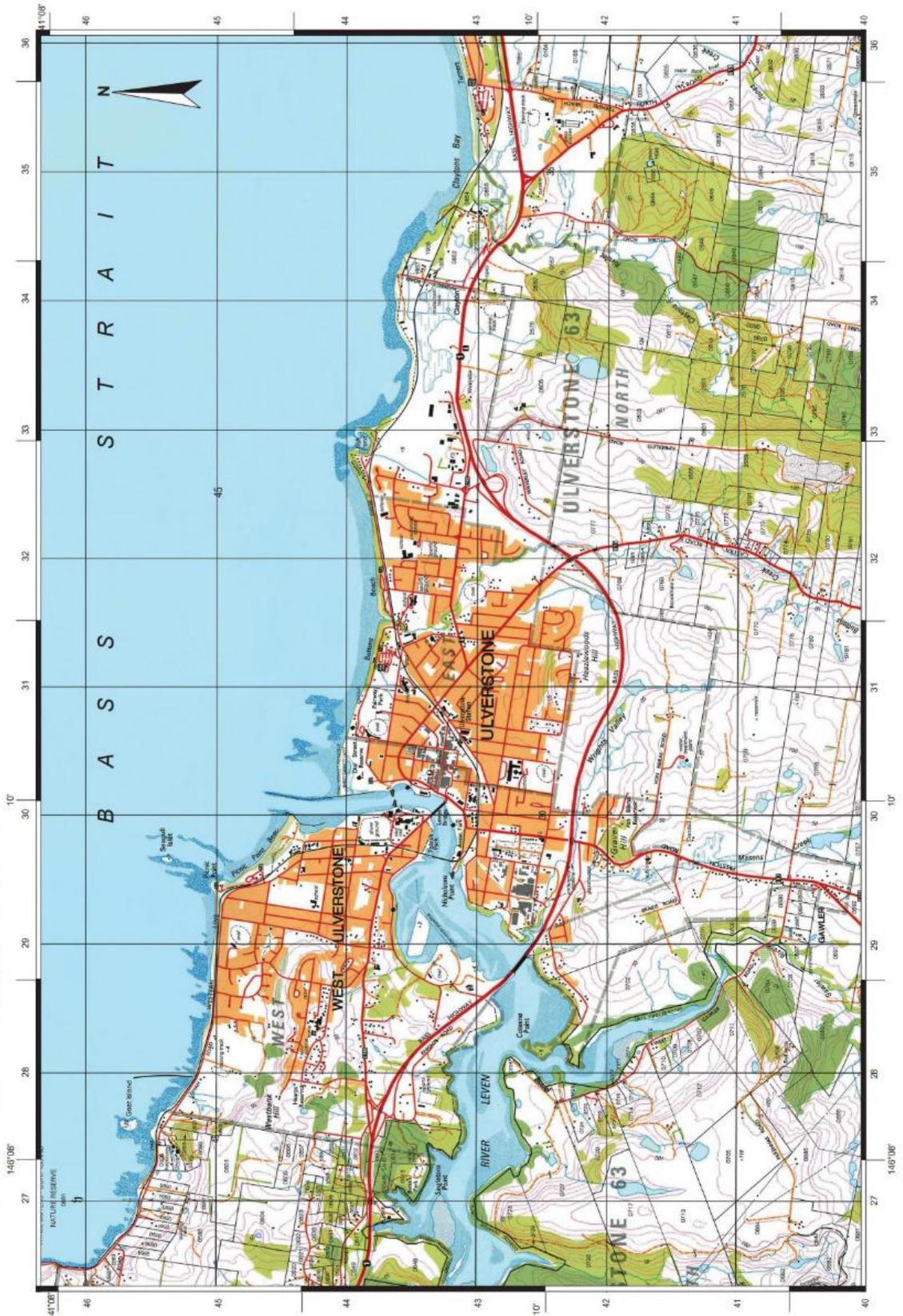
AR 3542

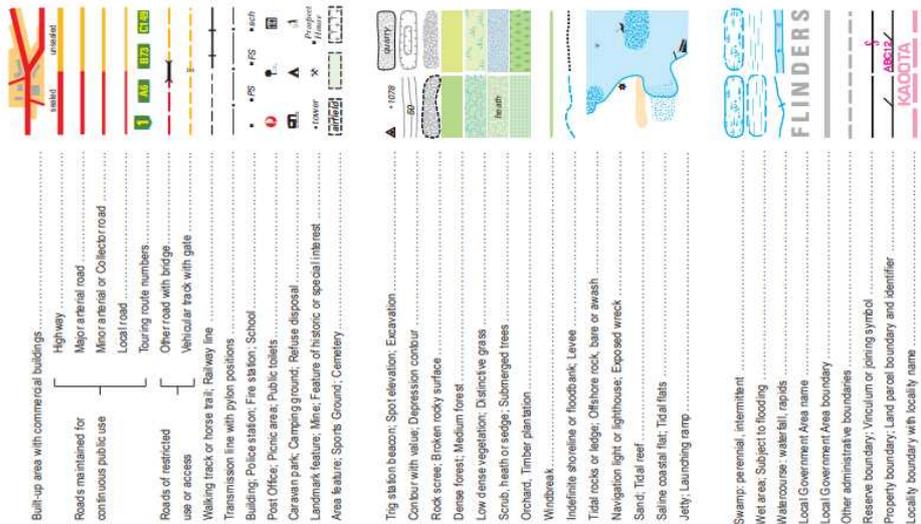
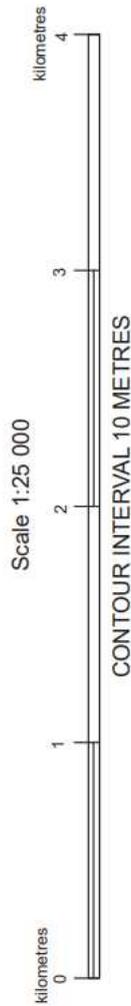
2020
Section 2
Question
24

Unit 3 and 4
– Geo Skills

Refer to **Source 1**: Ulverstone Tasmania topographic map 1986 and **Source 3**: Ulverstone oblique aerial photograph to answer Question 24.

Source 1: Ulverstone Tasmania topographic map 1986





1:25 000 Topographic/Cadastral Map – Ulverstone 4244. Department of Primary Industries, Parks, Water and Environment, Tasmanian Government. TASMAP eShop. <https://www.tasmap.tas.gov.au>

Source 3: Ulverstone oblique aerial photograph



Screenshot taken from Central Coast Council website, homepage. Retrieved January 7, 2020 <https://www.centralcoast.tas.gov.au/>

State the area reference that point B is located in on **Source 3** and identify the reason for the lack of residential development at this location.

Area reference

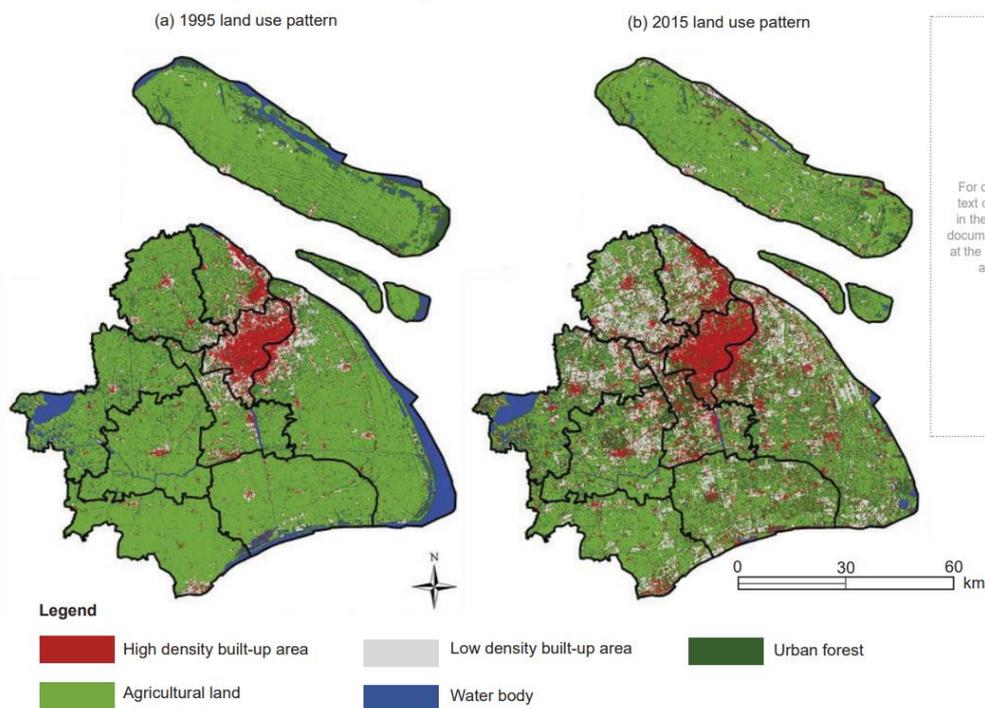
Reason

2020
Section 2
Question
27

Unit 3 and 4
– Geo Skills

Refer to **Source 5**: Land use patterns of Shanghai in 1995 and 2015 to answer Question 27.

Source 5: Land use patterns of Shanghai in 1995 and 2015



Spatiotemporal variation of landscape patterns and their spatial determinants in Shanghai, China - Scientific Figure on ResearchGate. Available from: https://www.researchgate.net/figure/Land-use-patterns-of-Shanghai-in-1995-and-2015_fig2_321996207 [Retrieved January 3, 2020]

Identify **two** land cover changes that can be observed to have occurred in Shanghai between 1995 and 2015. (2 marks)

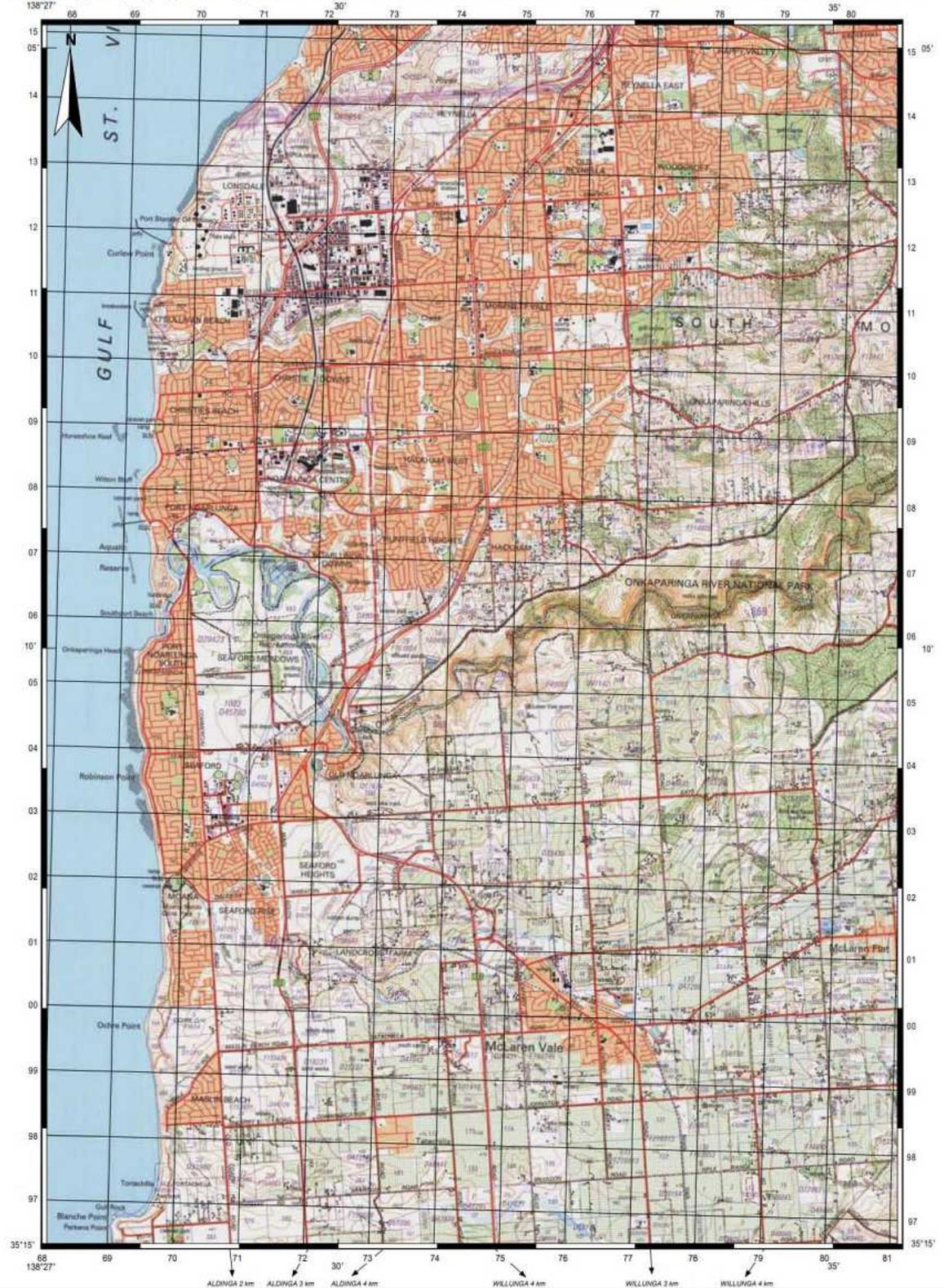
2019
Section 2
Question
21

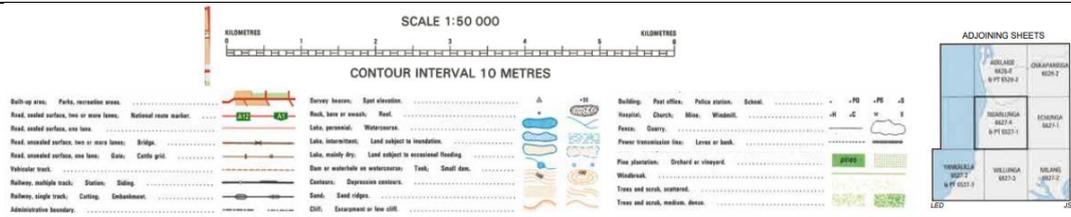
Unit 3 and 4
– Geo Skills

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

**Source 1:
Noarlunga topographic map 2001**

Adapted from: Department for Environment and Water, the Government of South Australia. (2001). *Noarlunga South Australia* (4th ed.) [Topographic map; 1:50 000]. Retrieved March, 2019, from <https://www.environment.sa.gov.au/>. Legend adapted from: Department of Lands, the Government of South Australia. (1969). *Hawker South Australia* (2nd ed.) [Topographic map; 1:50 000]. SA: Department of Environment and Heritage.





(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)

**2019
Section 2
Question
22**

**Unit 3 and 4
– Geo Skills**

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. (2 marks)

Calculation:

Answer:

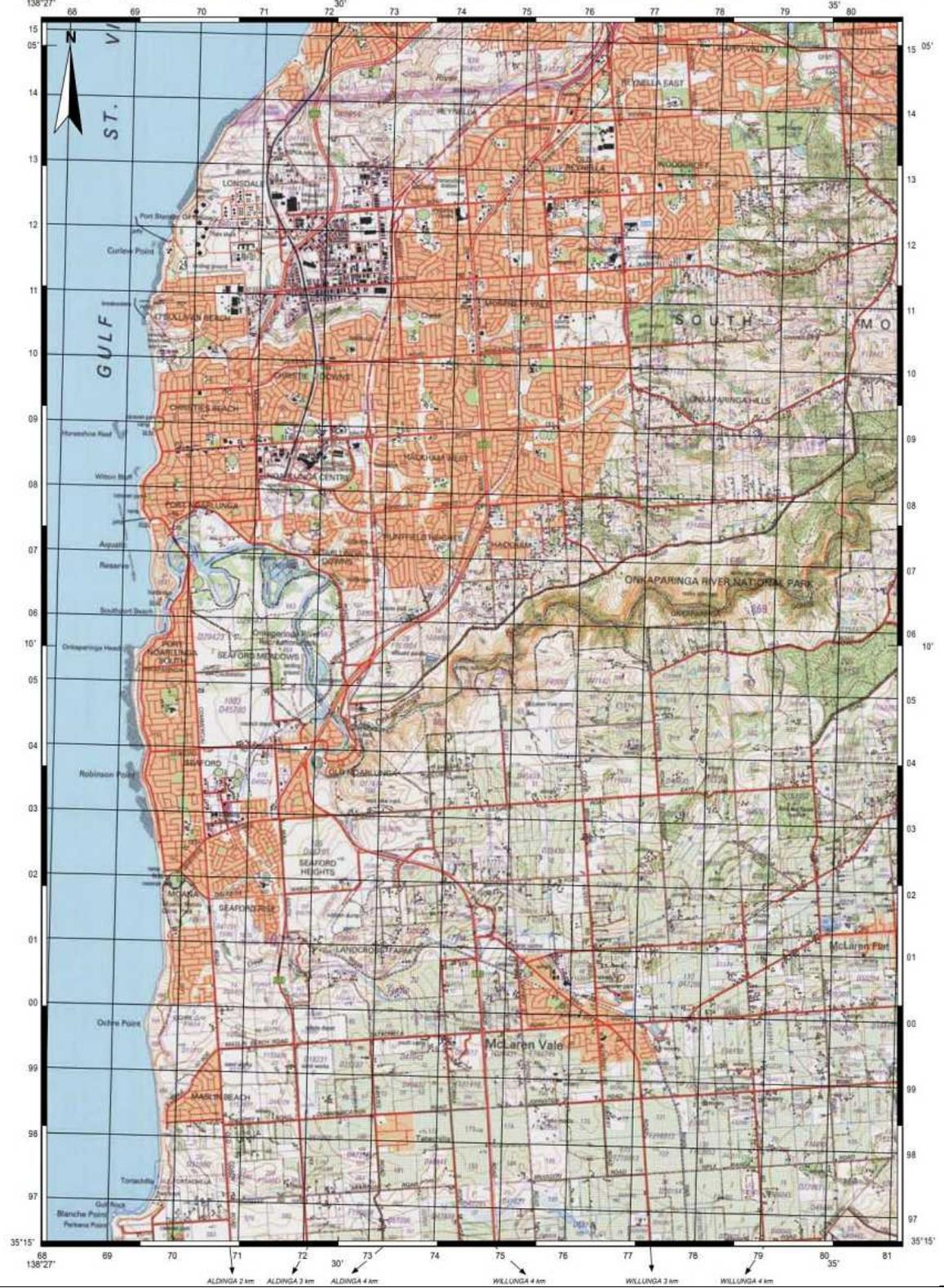
**2019
Section 2
Question
23**

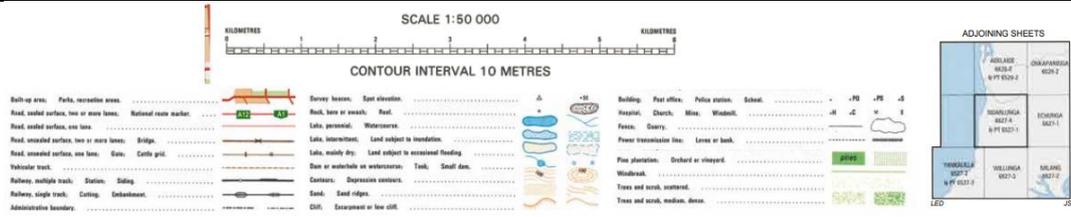
**Unit 3 and 4
– Geo Skills**

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

**Source 1:
Noarlunga topographic map 2001**

Adapted from: Department for Environment and Water, the Government of South Australia. (2001). *Noarlunga South Australia* (4th ed.) [Topographic map; 1:50 000]. Retrieved March, 2019, from <https://www.environment.sa.gov.au/>. Legend adapted from: Department of Lands, the Government of South Australia. (1989). *Hawker South Australia* (2nd ed.) [Topographic map; 1:50 000]. SA: Department of Environment and Heritage.





Source 2: Noarlunga aerial photograph 2017

Adapted from: DigitalGlobe. (2017, October 15). [Noarlunga aerial photograph accessed via Google Earth Pro].



(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)

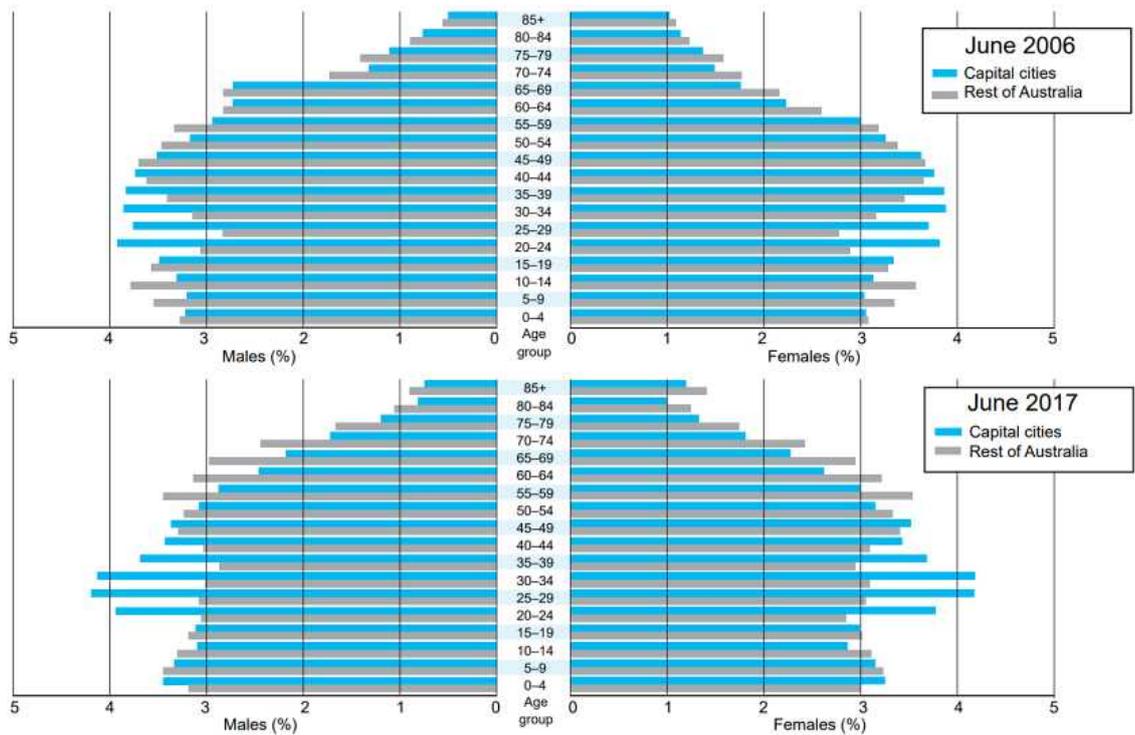
**2019
Section 2
Question
31**

**Unit 3 and 4
– Geo Skills**

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

Source 9: Age and sex distribution (%) capital cities and rest of Australia, June 2006 and June 2017

Top graph adapted from: Australian Bureau of Statistics, (2008). *Age and sex distribution [...] 2006* [Graph]. Retrieved May, 2019, from <http://www.abs.gov.au/> [...] Used under Creative Commons Attribution 4.0 International Licence. Bottom graph adapted from: Australian Bureau of Statistics, (2018). *Age and sex distribution [...] 2017* [Graph]. Retrieved May, 2019, from <http://www.abs.gov.au/> [...] Used under Creative Commons Attribution 4.0 International Licence



(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)

Marking Guide – Section 1

<p>2023 Section 1 Questions 1-11</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Townsville topographic map 2021 to answer Questions 1 to 11.</p> <p>1. The scale of the Townsville topographic map, as a written statement, is one centimetre represents</p> <p>(a) 500 metres. – Answer (b) 50 000 metres. (c) 1.0 kilometre. (d) 2.0 kilometres.</p> <p>2. The length of Ingham Road from Crowder Street (GR 761698) east to Sturt Street is closest to</p> <p>(a) 1.8 kilometres. (b) 3.4 kilometres. – Answer (c) 6.8 kilometres. (d) 14 kilometres.</p> <p>3. The bearing of the railway line from the closed railway station at GR 815640 to the bridge at GR 805678 is</p> <p>(a) 14 degrees. (b) 166 degrees. (c) 196 degrees. (d) 346 degrees. – Answer</p> <p>4. The landform feature located at GR 869615 is a</p> <p>(a) cliff. (b) hill. – Answer (c) ridge. (d) valley.</p> <p>5. Identify the hydrological feature located at GR 870650.</p> <p>(a) subject to inundation – Answer (b) swamp (c) non-perennial river (d) settling pond</p> <p>6. The cultural feature located at GR 805638 is a</p> <p>(a) pond. (b) roundabout. (c) racecourse. (d) fire station. – Answer</p> <p>7. The average gradient from the peak of Mt Matthew (AR 9061) to Point A at the coastline is closest to</p> <p>(a) 1:6. (b) 1:9. (c) 1:15. – Answer (d) 1:30.</p>
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	<p>8. Which of the following represents the latitude and longitude of the caravan park at GR 828640?</p> <p>(a) 146°50'E 19°19'S (b) 19°19'S 146°50'E – Answer (c) 146°51'E 19°18'S (d) 19°64'S 146°83'E</p> <p>9. The area of the AMH Townsville Abattoir (AR 8461 and AR 8462) is closest to</p> <p>(a) 0.4 square kilometres. – Answer (b) 0.8 square kilometres. (c) 1.5 square kilometres. (d) 3 square kilometres.</p> <p>10. How long would it take a freight train moving at an average speed of 45 km/h to travel from the closed station at GR 806690 to the closed station at GR 851606?</p> <p>(a) 8 minutes (b) 11 minutes (c) 15 minutes – Answer (d) 45 minutes</p> <p>11. Cluden Park racecourse located at AR 8163 is situated</p> <p>(a) at 19°20'S 146°50'E. (b) at the intersection of Stuart Drive and Flinders Highway. (c) on relatively steep land. (d) 5 km north-east of Mt Stuart. – Answer</p>
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<p>2023 Section 1 Questions 12-14</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Townsville topographic map 2021 and Source 2: Townsville Central Business District photograph 2005 to answer Questions 12 to 14.</p> <p>12. In which direction was the drone camera facing when taking the photograph?</p> <p>(a) west south-west – Answer (b) east north-east (c) south south-west (d) north north-east</p> <p>13. Source 2: Townsville Central Business District photograph 2005 is an example of</p> <p>(a) a ground level photograph. (b) a satellite image. (c) an oblique aerial photograph. – Answer (d) a vertical aerial photograph.</p> <p>14. Which statement correctly describes a site feature of the Townsville Central Business District?</p> <p>(a) on the lower slopes of Castle Hill on flat to gently sloping land between 0 m to 50 m asl – Answer (b) on a steep and undulating riverbank with rainforest between 0 m to 250 m asl (c) opposite a beach facing the Pacific Ocean (d) between the small boat harbour and the river mouth</p>
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<p>2023 Section 1 Question 15</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 3: Townsville population pyramids 2001 and 2021 to answer Question 15.</p> <p>15. Between 2001 and 2021, the population of Townsville</p> <p>(a) decreased and showed a decline in numbers of 65 to 79 year olds. (b) increased but showed a decline in numbers of 70 to 74 year olds. (c) decreased but showed an increase in the numbers of 0 to 14 year olds. (d) increased and showed an increase in the numbers of 20 to 34 year olds. – Answer</p>
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<p>2022 Section 1 Questions 1-12</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Derwent River Valley topographic map 1986 to answer Questions 1 to 12.</p> <p>1. The scale of the topographic map, as a written statement, is one centimetre represents</p> <p>(a) 250 metres. – Answer (b) 750 metres. (c) 25 000 metres. (d) 7.5 kilometres.</p> <p>2. The length of East Derwent Highway from Grid Reference (GR) 210672 to northing 66 is closest to</p> <p>(a) 1.0 kilometre. (b) 1.3 kilometres. (c) 2.1 kilometres. – Answer (d) 8.5 kilometres.</p> <p>3. Cove Bridge is located at GR</p> <p>(a) 689214. (b) 209672. (c) 213685. (d) 214689. – Answer</p> <p>4. The cultural feature located southwest of the intersection of Briggs Road and Old Beach Road at GR 226666 is</p> <p>(a) Gage Brook. (b) a school. (c) the council chambers. – Answer (d) a cemetery</p> <p>5. The contour interval of the topographic map is</p> <p>(a) 10 metres. – Answer (b) 25 metres. (c) 50 metres. (d) 100 metres.</p> <p>6. Which of the following best represents the landform located between GR 227680 and GR 230684?</p> <p>(a) spur (b) valley (c) hill (d) saddle – Answer</p>
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	<p>7. Which one of the following represents the latitude and longitude of Claremont Centre (AR 2061)?</p> <p>(a) 20°05'E 61°08'S (b) 42°48'S 147°15'E – Answer (c) 61°08'S 20°05'E (d) 147°15'E 42°48'S</p> <p>8. The compass bearing of the powerline from its intersection with Baskerville Road (AR 2464) to its intersection with Old Beach Road (AR 2266) is closest to</p> <p>(a) 56°. (b) 146°. (c) 236°. (d) 326°. – Answer</p> <p>9. The area of Baskerville Raceway (GR 240672), which is defined by land parcel boundary 2649, is closest to</p> <p>(a) 0.75 hectares. (b) 7.5 hectares. (c) 75 hectares. – Answer (d) 750 hectares.</p> <p>Note: One hectare is 10 000 m².</p> <p>10. The average gradient for a person walking in a straight line from Point A (AR 2661) to the highest point of Mount Direction (AR 2561) is closest to</p> <p>(a) 1:2. (b) 1:5. – Answer (c) 1:20. (d) 1:50.</p> <p>11. The hydrological feature located at GR 208667 is a</p> <p>(a) cove with offshore rocks. (b) saline coastal flat listed on the National Estate Register. (c) tidal reef with an exposed wreck. (d) tidal flat listed on the National Estate Register. – Answer</p> <p>12. Which of the following correctly describes a site feature of Gunners Quoin (AR 2664)?</p> <p>(a) a western-facing slope ranging from 240 metres to 320 metres. – Answer (b) a depression contour 4.5 kilometres east of Baskerville Road. (c) a steep hill 1 kilometre north-east of Madmans Hill. (d) an eastern-facing slope ranging from 240 metres to 420 metres.</p>
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<p>2022 Section 1 Question 13</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Derwent River Valley topographic map 1986 and Source 3: Derwent River Valley oblique photograph 2017 to answer Question 13.</p> <p>13. In which direction was the photographer facing when taking the photograph?</p> <p>(a) west-north-west (b) south-east (c) north-west (d) east-south-east – Answer</p>
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<p>2022 Section 1 Question 14</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 4: Hobart climate graph 2021 to answer Question 14.</p> <p>14. Which of the following statements correctly describes the temperature range in January for Hobart?</p> <p>(a) 47°C. (b) 10°C. – Answer (c) 22°C. (d) 12°C.</p>
<p>2022 Section 1 Question 15</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 5: Greenhouse gas emissions per kilogram of food product to answer Question 15.</p> <p>Increases in greenhouse gas (GHG) emissions from food production are most likely to occur due to an increase in demand for</p> <p>(a) Category A Foods resulting from decreasing affluence. (b) Category A Foods resulting from increasing affluence. – Answer (c) Category B Foods resulting from decreasing affluence. (d) Category B Foods resulting from increasing affluence.</p>
<p>2022 Section 1 Question 17</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 7a: Weekly income by age for Old Beach, Tasmania and Australia, 2016 to answer Question 17.</p> <p>Which statement correctly describes the proportional weekly income of 35–54 year-old workers?</p> <p>(a) Australia has a higher proportion earning over \$1500 compared to Old Beach. (b) Old Beach has a lower proportion earning over \$1500 compared to Tasmania. (c) Old Beach has a lower proportion earning over \$1500 compared to Australia. (d) Old Beach has a higher proportion earning over \$1500 compared to Australia. – Answer</p>
<p>2022 Section 1 Question 18</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 7b: Occupation as a % of workforce for Old Beach, Tasmania and Australia, 2016 to answer Question 18.</p> <p>Which statement correctly describes the occupational characteristics of Old Beach, Tasmania and Australia? Proportionately,</p> <p>(a) Tasmania has 4.5% more clerical and administrative workers than Old Beach. (b) Australia has 5% more community and personal service workers than Tasmania. (c) Old Beach has 4.5% more clerical and administrative workers than Australia. – Answer (d) Old Beach has 10% more professionals than Australia.</p>

<p>2021 Section 1 Questions 1-8</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Lilydale topographic map 2019 to answer Questions 1 to 8.</p> <p>1. Lewis Hill is located at Grid Reference (GR) (a) 140613. (b) 201584. (c) 584201. (d) 613139. – Answer</p> <p>2. The linear feature extending in a south-westerly direction from the edge of the map at GR 650126 to GR 613108 is (a) the Great Dividing Trail. (b) a railway tunnel. (c) an underground pipeline. – Answer (d) a power transmission line.</p> <p>3. The cultural feature located at GR 597070 is (a) a fire station. – Answer (b) a police station. (c) Monbulk Recreational Reserve. (d) a Neighbourhood Safer Place.</p> <p>4. The eastern end of Macclesfield Road, at GR 634085, is at a height closest to (a) 220 metres. (b) 230 metres. – Answer (c) 240 metres. (d) 250 metres.</p> <p>5. Travelling along Queens Road, from the intersection of Queens Road and Lewis Road at GR 616140 to the intersection at GR 642158, you would be following a bearing of (a) 35 degrees. (b) 55 degrees. – Answer (c) 215 degrees. (d) 235 degrees.</p> <p>6. If travelling directly south from GR 645120 to GR 645110, the landform you cross is a (a) hill. (b) plain. (c) ridge. (d) valley. – Answer</p> <p>7. The total area of the Silvan Reservoir, located adjacent to the Dandenong Ranges National Park, is closest to (a) 2 square kilometres. (b) 4 square kilometres. – Answer (c) 8 square kilometres. (d) 10 square kilometres.</p>
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	<p>8. The gradient of the section of Chalet Road that is permanently closed between the gate at GR 585083 and the gate at GR 591084 is closest to</p> <p>(a) 1:8. (b) 1:6. (c) 1:4. – Answer (d) 1:2.</p>
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<p>2021 Section 1 Questions 9-12</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Lilydale topographic map 2019 and Source 4: Warburton Highway aerial photograph 2018 to answer Questions 9 to 12.</p> <p>9. Which one of the following statements is correct?</p> <p>(a) The scale of Source 1 is larger than the scale of Source 4. (b) The scale of Source 1 is smaller than the scale of Source 4. – Answer (c) The scale of Source 1 is the same as the scale of Source 4. (d) The scale of Source 1 is three times smaller than the scale of Source 4.</p> <p>10. The length of Warburton Highway shown on Source 4 is closest to</p> <p>(a) 3.5 kilometres. – Answer (b) 7.0 kilometres. (c) 10.5 kilometres. (d) 14.0 kilometres.</p> <p>11. The feature indicated at Point A on Source 4 is a</p> <p>(a) lake. – Answer (b) oval. (c) quarry. (d) swamp.</p> <p>12. The dominant non-urban land use in the area shown in Source 4 is</p> <p>(a) agricultural. – Answer (b) industrial. (c) plantations. (d) recreational.</p>
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<p>2021 Section 1 Question 14</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 5: Global land cover to answer Question 14.</p> <p>Which one of the following correctly lists the area of global land cover from largest to smallest?</p> <p>(a) shrub, glaciers, freshwater, urban and built-up land (b) livestock: meat and dairy, agriculture, forests, crops (c) forests, livestock: meat and dairy, barren land, shrub (d) agriculture, forests, glaciers, urban and built-up land – Answer</p>
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<p>2021 Section 1 Question 15</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 6: Regional breakdown of threats to biodiversity to answer Question 15.</p> <p>When comparing the five regions shown, which of the following statements is correct?</p> <p>(a) The threat to biodiversity due to changes in land and sea use is greatest in Africa. (b) The threat to biodiversity due to species overexploitation is greatest in Asia Pacific. (c) The threat to biodiversity due to climate change is greatest in North America. (d) The threat to biodiversity due to pollution is greatest in Asia Pacific. – Answer</p>
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<p>2021 Section 1 Question 18</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 7: Percentage of the world’s population living in urban areas to answer Question 18.</p> <p>Which region is predicted to experience the greatest increase in the percentage of the population living in urban areas between 1990 and 2050?</p> <p>(a) North America (b) Latin America (c) Asia – Answer (d) Africa</p>
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<p>2021 Section 1 Question 19</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 8: Australia’s population distribution (Map 1 and Map 2) to answer Question 19.</p> <p>Which of the following states’ or territories’ population distribution differs most from the national population distribution pattern?</p> <p>(a) New South Wales (b) Northern Territory – Answer (c) South Australia (d) Western Australia</p>
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<p>2020 Section 1 Questions 1-10</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Ulverstone Tasmania topographic map 1986 to answer Questions 1 to 10.</p> <p>1. The height at the top of Heazlewoods Hill at GR 311422 is closest to</p> <p>(a) 75 metres. (b) 80 metres. (c) 85 metres. – Answer (d) 90 metres.</p> <p>2. Identify the cultural feature that is located along northing 430, between eastings 30 and 33.</p> <p>(a) Buttons Creek (b) oval – Answer (c) school (d) Ulverstone Station</p> <p>3. The scale of the Ulverstone topographic map, as a written statement, is one centimetre represents</p> <p>(a) 2.5 kilometres. (b) 25 kilometres. (c) 250 metres. – Answer (d) 250 kilometres.</p> <p>4. What is the compass bearing to be followed when travelling along Forth Road from the intersection of Bass Highway GR 349426 to the intersection of Turners Beach Road GR 355419?</p> <p>(a) 40° (b) 80° (c) 140° – Answer (d) 190°</p>
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5. The landform feature found at GR 338421 is a

- (a) cliff.
- (b) plain.
- (c) ridge.
- (d) saddle. – Answer**

6. The straight line distance between Goat Island GR 276457 and Seagull Islet GR 297454 is closest to

- (a) 200 metres.
- (b) 2 kilometres. – Answer**
- (c) 800 metres.
- (d) 8 kilometres.

7. Which of the following **best** describes the site of Dial Street Reserve, located in AR 3043?

- (a) sited on flat land, on a coastal plain, adjacent to tidal flats – Answer**
- (b) sited on flat land, on a coastal plain, surrounded by medium forest
- (c) sited one kilometre north-east of Nicholsons Point
- (d) sited on undulating land, north-east of a caravan park, with a picnic area

8. Which of the following best describes the situation of the Gawler Post Office GR 295403?

- (a) situated on the east side of Preston Road, 25 kilometres west-south-west of Claytons Bay
- (b) situated on undulating, cleared land east of Masons Creek
- (c) situated four kilometres, north-north-west of West Ulverstone School, at latitude $41^{\circ} 09'S$, longitude $146^{\circ} 09'E$
- (d) situated three kilometres south-south-west of Ulverstone Station, at latitude $41^{\circ} 11'S$ longitude $146^{\circ} 10'E$ – Answer**

9. The area of the property numbered 0817 located across AR 3440 and AR 3441 is closest to

- (a) 25 hectares. – Answer**
- (b) 40 hectares.
- (c) 250 hectares.
- (d) 400 hectares.

Note: One hectare is 10 000 m².

10. A train travelling at an average speed of 30 km/h from the intersection of the railway line and Castra Road at GR 308434 and the intersection of the railway line and Maskells Road at GR 342434 would complete the journey in approximately

- (a) 3 minutes.
- (b) 7 minutes. – Answer**
- (c) 14 minutes.
- (d) 30 minutes.

<p>2020 Section 1 Questions 11-12</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Ulverstone Tasmania topographic map 1986 and Source 2: Ulverstone aerial photograph 2019 to answer Questions 11 and 12.</p> <p>11. Identify the natural feature located at the point marked A on Source 2.</p> <p>(a) tidal flats – Answer (b) Dial Street Reserve (c) intermittent swamp (d) jetty</p> <p>12. The scale of Source 2 compared to that of Source 1 is</p> <p>(a) indefinable. (b) larger. (c) smaller. – Answer (d) the same.</p>
<p>2020 Section 1 Question 13</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Ulverstone Tasmania topographic map 1986 and Source 3: Ulverstone oblique aerial photograph to answer Question 13.</p> <p>What type of land use has replaced the sawmill at GR 299435?</p> <p>(a) agricultural (b) plantation (c) recreational (d) residential – Answer</p>
<p>2020 Section 1 Question 15</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 4: Factors influencing land cover change to answer Question 15.</p> <p>According to Source 4, world population growth, growing affluence and advances in technology are best represented as</p> <p>(a) causal factors. – Answer (b) indirect drivers. (c) direct pressures. (d) ecosystem services.</p>
<p>2019 Section 1 Questions 1-9</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Noarlunga topographic map 2001 to answer Questions 1 to 9.</p> <p>1. The scale of the Noarlunga topographic map as a statement in words is 1 centimetre represents</p> <p>(a) 5 kilometres. (b) 500 metres. – Answer (c) 5000 centimetres. (d) 50 000 metres.</p> <p>2. The cultural feature located at GR 758004 is a</p> <p>(a) cemetery. (b) church. (c) police station. – Answer (d) post office.</p>

3. The latitude and longitude of the effluent pond located in AR 7305 is

- (a) **35° 10'S 138° 31'E. – Answer**
- (b) 138° 31'S 35° 10'E.
- (c) 35° 12'S 138° 29'W.
- (d) 35° 05'S 138° 74'E.

4. Identify the landform feature found at GR 733041.

- (a) escarpment
- (b) ridge
- (c) **spur – Answer**
- (d) valley

5. The direction and compass bearing to be followed when travelling from the intersection at GR 799013 to the intersection at GR 778000 would be

- (a) NE 60°.
- (b) NNE 20°.
- (c) SSW 200°.
- (d) **WSW 240°. – Answer**

6. The distance travelled in a southerly direction along the bicycle track from its intersection with States Road in AR 7513 to the bridge over the Onkaparinga River (AR 7204) is closest to

- (a) **10 kilometres. – Answer**
- (b) 18 kilometres.
- (c) 20 kilometres.
- (d) 28 kilometres.

7. The gradient of the slope from the base of the radio mast at GR 757981 directly west to the coastline is closest to

- (a) 1:70.
- (b) **1:85. – Answer**
- (c) 1:115.
- (d) 1:120.

8. When walking east along northing 03 from GR 750030 to the small dam (GR 757030) you would be travelling

- (a) downhill across a concave slope.
- (b) uphill across a convex slope.
- (c) **downhill across a uniform slope. – Answer**
- (d) uphill across a uniform slope.

9. The area of the flora and fauna reserve at GR 795033 is closest to

- (a) 18 hectares.
- (b) **45 hectares. – Answer**
- (c) 450 hectares.
- (d) 1 800 hectares.

Note: One hectare is 10 000 m².

<p>2019 Section 1 Questions 10-12</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Noarlunga topographic map 2001 and Source 2: Noarlunga aerial photograph 2017 to answer Questions 10 to 12.</p> <p>10. Which of the following statements is correct?</p> <p>(a) The scale of the aerial photograph is larger than that of the topographic map. – Answer (b) The scales of the aerial photograph and the topographic map are the same. (c) The scale of the topographic map is larger than that of the aerial photograph. (d) The scale of the topographic map is twice as large as that of the aerial photograph.</p> <p>11. Identify the feature found at the point marked A on Source 2.</p> <p>(a) caravan park (b) cemetery (c) primary school (d) shopping centre – Answer</p> <p>12. The grid reference of the cultural feature found at the point marked B on Source 2 is</p> <p>(a) GR 739996. – Answer (b) GR 739014. (c) GR 760995. (d) GR 805011.</p>
<p>2019 Section 1 Question 13</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Noarlunga topographic map 2001 and Source 3: Maslin Beach ground photograph 2019 to answer Question 13.</p> <p>The photograph in Source 3 was taken at GR 699984. In which direction was the photographer facing?</p> <p>(a) south-east (b) north – Answer (c) south (d) west</p>
<p>2019 Section 1 Question 14</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Noarlunga topographic map 2001 and Source 4: Old Noarlunga ground photograph 2019 to answer Question 14.</p> <p>The photograph in Source 4 was taken looking west-south-west at GR 720041. The process of land cover change that has occurred between Source 1 and Source 4 is expansion of</p> <p>(a) agriculture. (b) deforestation. (c) industry. (d) urban settlement. – Answer</p>
<p>2019 Section 1 Question 17</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 5: The results of change due to human activity on ecosystems and climate to answer Question 17.</p> <p>The arrow indicating that climate change results in further biodiversity loss is an illustration of a</p> <p>(a) causal relationship. – Answer (b) central tendency. (c) proportional circle. (d) statistical association.</p>

Marking Guide – Section 2

**2023
Section 2
Question
21**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1: Townsville topographic map 2021 and Townsville aerial photograph 1995** (below) to answer Question 21.

(a) Label the following features on the aerial photograph below. (5 marks)

Townsville aerial photograph 1995

The aerial photograph shows a river (Ross River) winding through a landscape. On the left bank, there is a dense residential area. On the right bank, there is a large area of mangrove vegetation. A road or railway line runs through the center. A grid reference GR 810670 is marked at the bottom right. Labels with arrows point to these features: 'Ross River' (Name of river), 'Mangrove' (Vegetation type), 'Built up area, residential, urban, suburban, housing' (2021 land use), 'Oonooba' (Name of suburb), and 'GR 810670' (Grid Reference).

(b) Identify whether **Source 1: Townsville topographic map 2021** or the **Townsville aerial photograph 1995** (above) has the larger scale. (1 mark)

Description	Marks
Townsville aerial photograph 1995	1
Total	1

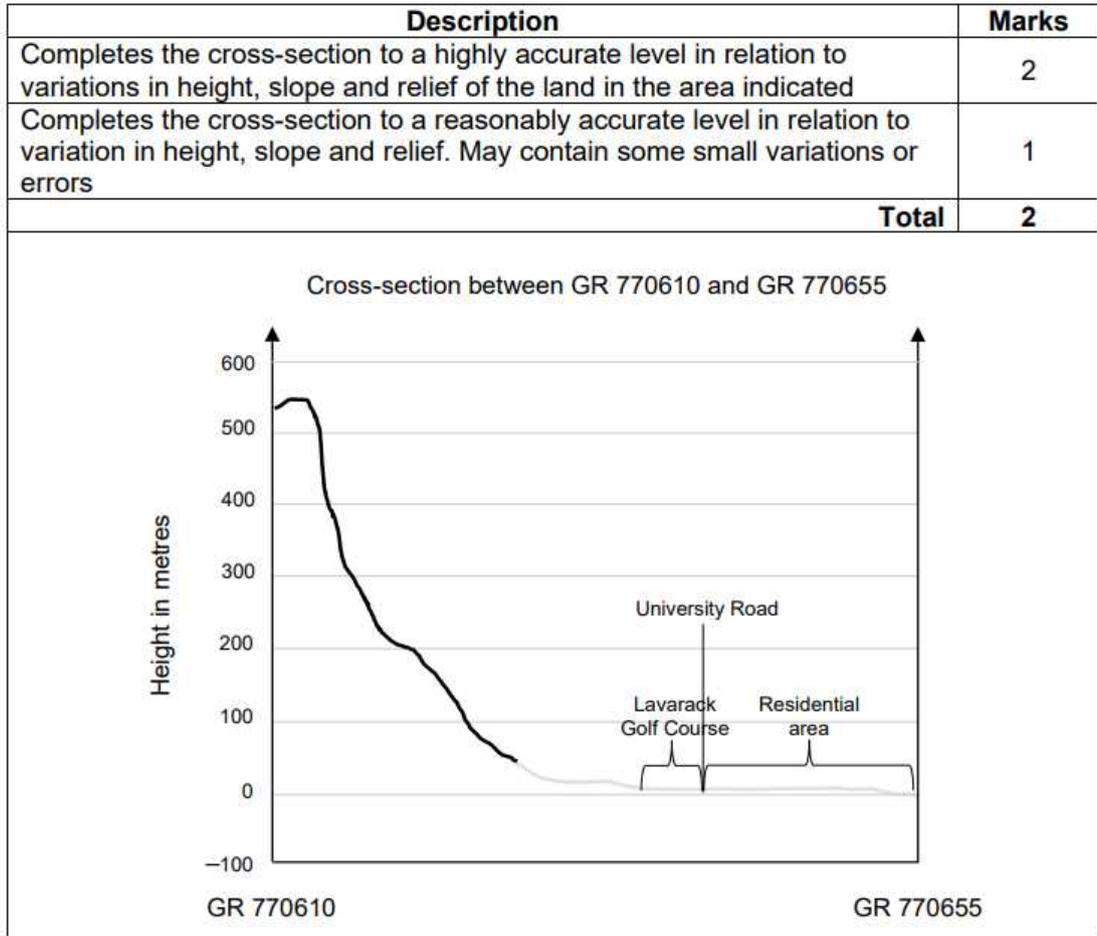
**2023
Section 2
Question
22**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1**: Townsville topographic map 2021 to answer Question 22.

(a) Complete the cross-section extending from GR 770610 to GR 770655. (2 marks)

Note: To assist you to transcribe contour locations, you may remove page 29 of this booklet by tearing along the perforations.



(b) Annotate the following features on the cross-section above. (3 marks)

- University Road
- Lavarack Golf Course
- Residential area

Description	Marks
For each feature on the cross-section (3 x 1 mark)	
Locates and correctly labels the feature	1
Total	3

(c) Identify the overall shape of the slope from the peak of Mt Stuart to GR 770628. (1 mark)

Description	Marks
Concave slope (must use correct terminology)	1
Total	1

**2022
Section 2
Questions
21-22**

**Unit 3 and
4 – Geo
Skills**

Refer to **Source 1**: Derwent River Valley topographic map 1986 to answer Questions 21 and 22.

21. Calculate the time a boat travelling at an average speed of 12 km/h would take to sail directly from the jetty at Austins Ferry Bay (GR 209634) to the jetty at the public toilets at Bilton Bay (GR 211624). Show your calculations and answer in minutes and seconds. (2 marks)

Description	Marks
Shows calculations to determine the answer and provides the correct answer in minutes and seconds.	2
Shows calculations however fails to provide the correct answer or provides the correct answer, but not in minutes and seconds.	1
Total	2

Marker information:

Answer and calculation

The correct answer, based on a distance of 1km, (4cm), is 5 minutes and 0 seconds.

Distance (1km) divided by speed (12 km/h) = 0.083 hours.

0.083 x 60 = 5 minutes.

Answer, in minutes and seconds, is 5 minutes and 0 seconds.

Accept a distance calculation of 0.9 km to 1.1 km, which translates to a range of 4 minutes and 30 seconds to 5 minutes and 30 seconds.

22. Outline **one** site feature and **one** situation feature of the reservoir located at GR 219679. (2 marks)

Description	Marks
Outlines one site feature.	1
Outlines one situation feature.	1
Total	2

Marker information:

Possible site features include:

- moderately sloping land in a SW direction
- height ranges >80m asl to <100m asl.
- cleared land surrounded by areas of medium forest.

Possible situation features include:

- 42°44'S 147°16' E (Also accept 42°45'S 147°16' E)
- approximately 150m - 200m west of a Power transmission line.
- approximately 250m - 300m east of the Jordan River.

Note: need to provide both distance and direction for 1 mark.

Accept other relevant answers.

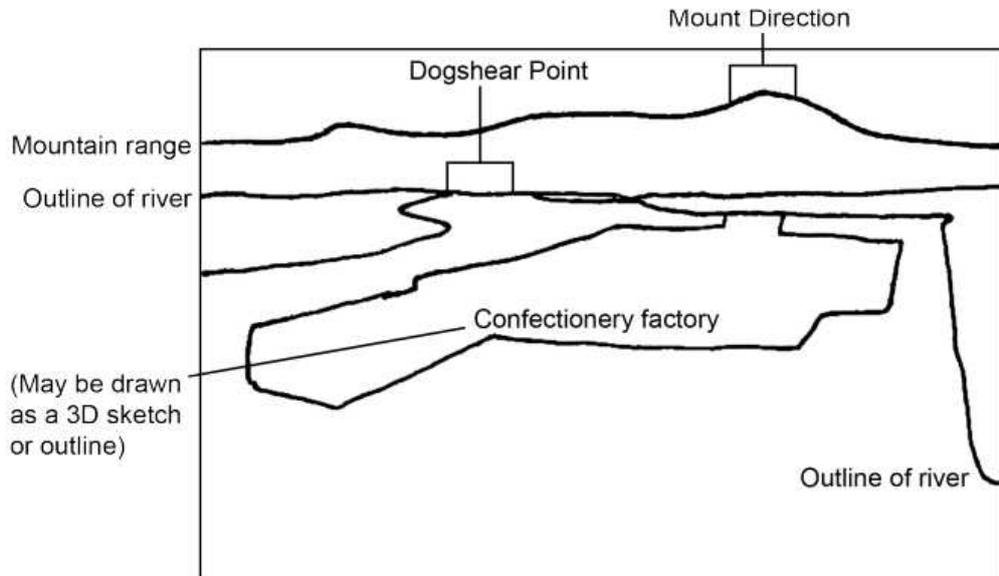
**2022
Section 2
Question
24**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1**: Derwent River Valley topographic map 1986 and **Source 3**: Derwent Valley oblique photograph 2017 to answer Question 24.

In the frame below, draw an annotated sketch of the oblique photograph and label the following features on your sketch. (5 marks)

- Mountain range
- Outline of the river
- Mount Direction
- Dogshear Point
- Confectionery factory



Description	Marks
Locates and labels five features on the sketch.	5
Locates and labels four features on the sketch.	4
Locates and labels three features on the sketch.	3
Locates and labels two features on the sketch.	2
Locates and labels one feature on the sketch.	1
Total	5

**2021
Section 2
Question
24**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1**: Lilydale topographic map 2019 (ARs 5520 and 5620), **Source 2**: Lilydale aerial photograph 2006 and **Source 3**: Lilydale aerial photograph 2018 to answer Question 24.

Locate by grid reference and outline one example of land use change that has occurred in the area shown in Source 2 (2006) and Source 3 (2018). (3 marks)

Description	Mark
Correctly provides a grid reference for a location where land use change has occurred and correctly outlines the land uses at that location in both 2006 and 2018.	3
Correctly provides a grid reference for a location where land use change has occurred and correctly outlines the land uses at that location in either 2006 or 2018.	2
Correctly provides a grid reference for a location where land use change has occurred but fails to correctly outline the land uses at that location in both 2006 and 2018.	1
Total	3

Answer could include (but accept other correct examples):

Immediately south of the major highway junction of Maroondah Highway and Warburton Highway in the north east of the photographs (GR 566205), what were the wooded grounds of a large building in 2006 had, in 2018, been partially cleared for future, presumably housing, development.

Immediately to the south of this area (GR 566204), what were two paddocks in 2006 had been replaced by housing development in 2018.

At the western edge of the photographs, on the northern side of Maroondah Highway (GR 557201), a small patch of woodland in 2006 had been replaced, in 2018, by what appears to be a commercial building.

To the north of this building (GR 557203), a paddock surrounded by trees in 2006 had been cleared for future development in 2018.

A variation/error of one in both the easting and the northing grid references is permissible.

**2021
Section 2
Question
25**

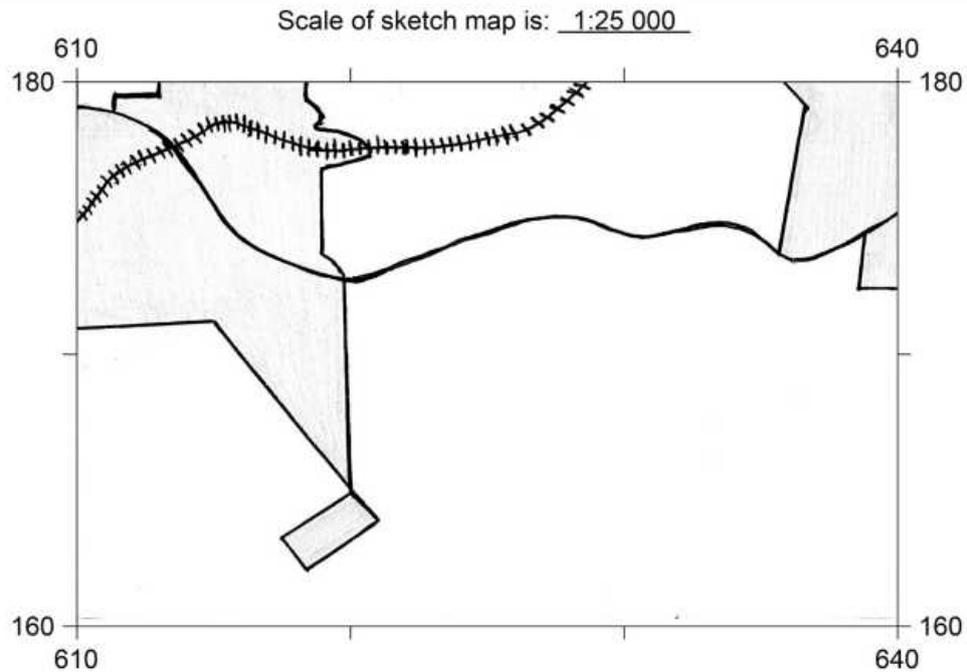
**Unit 3 and 4
– Geo Skills**

Refer to **Source 1**: Lilydale topographic map 2019 and **Source 4**: Warburton Highway aerial photograph 2018 to answer Question 25.

In the frame below construct an annotated sketch map of the area shown in **Source 4**. (5 marks)

Label the following features on your sketch map:

- Warburton Highway
- dismantled railway line
- the built-up areas
- the areas of agricultural land
- the scale of the sketch map.



Description	Marks
All five features are located correctly on the sketch map.	5
Any four features are located correctly on the sketch map.	4
Any three features are located correctly on the sketch map.	3
Any two features are located correctly on the sketch map.	2
Any one feature is located correctly on the sketch map.	1
Total	5

Marker Information:

1 cm on Topographic map represents 2 cm on sketch map.

Topographic map area is 6 x 4 cm. Sketch map area is 12 x 8 cm.

Topographic 1:50 000 ∴ sketch is 1:25 000

There are a few areas of remnant bushland and windbreaks within the farmland. Since these are mostly very small at a scale of 1:25,000, candidates should not be penalised for failing to identify them separately.

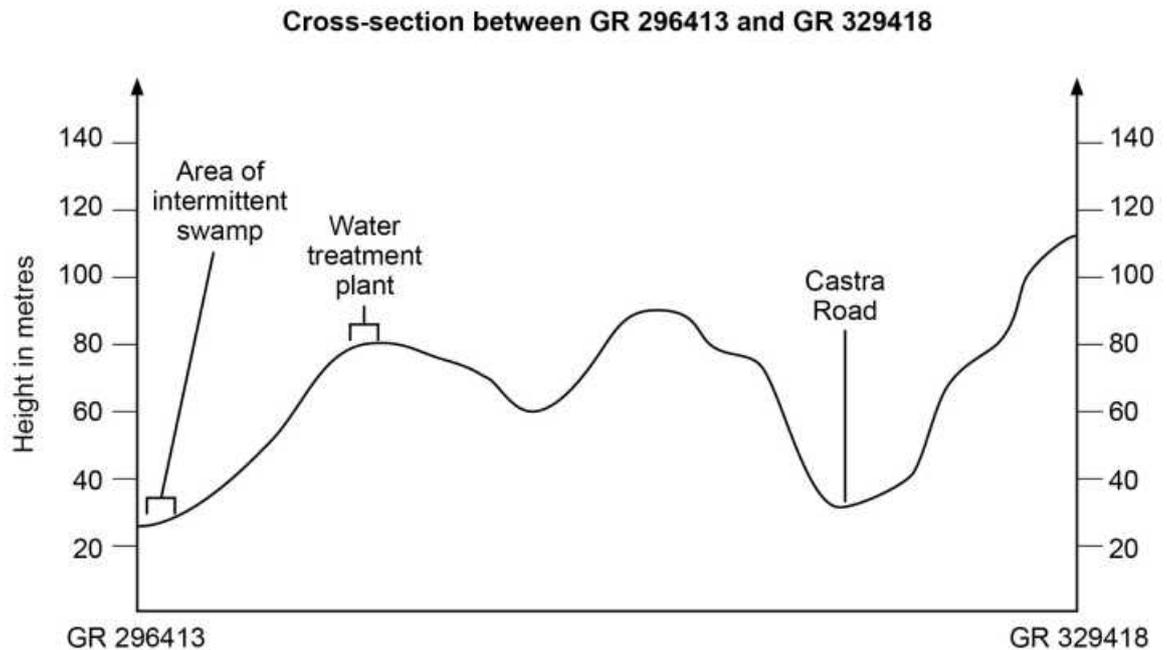
**2020
Section 2
Questions
21-22**

**Unit 3 and 4
– Geo Skills**

Refer to **Source 1**: Ulverstone Tasmania topographic map 1986 to answer Questions 21 and 22.

Question 22

(a) Complete the cross-section extending from GR 296413 to GR 329418. (2 marks)



Description	Marks
Correctly completes the cross section to an accurate level in relation to variations in height, slope and relief of the land in the area indicated	2
Completes the cross section to a reasonably accurate level in relation to variation in height, slope and relief. May contain some small variations or errors	1
Bares no resemblance to the correct shapes and heights	0
Total	2

Note: Highest point should not exceed 100 m.

(b) Annotate the following features on the cross-section above.

- area of intermittent swamp
- Castra Road
- water treatment plant (3 marks)

Description	Marks
Three features are correctly labelled to within 2 mm	3
Two features are correctly labelled to within 2 mm	2
One feature is correctly labelled to within 2 mm	1
Total	3

Question 22.

Calculate the average gradient of the creek from its source at GR 271414 to where it meets the River Leven at GR 274426.

Show your method of calculation and your answer. (2 marks)

Description	Marks										
Correctly shows calculations to determine the answer. (Answer may be correct or incorrect depending on whether they determined correct heights and distances – this mark is for correct and logical method of calculation demonstrated)	1										
Correct answer is provided due to correct determination of heights and distance	1										
Total	2										
<p>Marker information:</p> <p>Height at GR 271414 is 100 metres and at GR 274425 is 0 metres. Distance between the two points is 1250 metres (5 cm).</p> <table style="width: 100%; border: none;"> <tr> <td style="text-align: left;"><u>Rise</u></td> <td style="text-align: left;"><u>Difference in vertical height</u></td> <td style="text-align: center;">$\frac{100 \text{ m} - 0 \text{ m}}{1250 \text{ m}}$</td> <td style="text-align: center;">$\frac{100}{1250 \text{ m}}$</td> <td style="text-align: right;">Gradient 1:12.5</td> </tr> <tr> <td style="text-align: left;">Run</td> <td style="text-align: left;">Distance between the two points</td> <td></td> <td></td> <td></td> </tr> </table> <p>Or</p> <p>Rise:Run = Difference in vertical height:distance between the two points = 100 m – 0 m:1250 m = 100:1250 = 1:12.5</p> <p>Note: Very astute candidates may measure distance as 4.9 cm so distance would be 1225 m, so answer would be 1:12.25. Accept 4.8 – 5 cm (1200 m – 1250 m) for distance and therefore 1:12 to 1:12.5.</p>		<u>Rise</u>	<u>Difference in vertical height</u>	$\frac{100 \text{ m} - 0 \text{ m}}{1250 \text{ m}}$	$\frac{100}{1250 \text{ m}}$	Gradient 1:12.5	Run	Distance between the two points			
<u>Rise</u>	<u>Difference in vertical height</u>	$\frac{100 \text{ m} - 0 \text{ m}}{1250 \text{ m}}$	$\frac{100}{1250 \text{ m}}$	Gradient 1:12.5							
Run	Distance between the two points										

<p>2020 Section 2 Question 23</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Ulverstone Tasmania topographic map 1986 and Source 2: Ulverstone aerial photograph 2019 to answer Question 23.</p> <p>Describe the land use changes that can be observed in AR 3243 and in AR 3542 between 1996 and 2019. (4 marks)</p>																						
	<table border="1"> <thead> <tr> <th>Description</th> <th>Mark</th> </tr> </thead> <tbody> <tr> <td>AR 3243</td> <td></td> </tr> <tr> <td>Correctly describes what the land use was in the area in 1986</td> <td rowspan="2">2</td> </tr> <tr> <td>Correctly describes what the land use is in the area in 2019</td> </tr> <tr> <td>Only correctly describes what the land use is (2019), or was (1986)</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>2</td> </tr> <tr> <td>AR 3542</td> <td></td> </tr> <tr> <td>Correctly describes what the land use was in the area in 1986</td> <td rowspan="2">2</td> </tr> <tr> <td>Correctly describes what the land use is in the area in 2019</td> </tr> <tr> <td>Only correctly describes what the land use is (2019), or was (1986)</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Subtotal</td> <td>2</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>4</td> </tr> </tbody> </table>	Description	Mark	AR 3243		Correctly describes what the land use was in the area in 1986	2	Correctly describes what the land use is in the area in 2019	Only correctly describes what the land use is (2019), or was (1986)	1	Subtotal	2	AR 3542		Correctly describes what the land use was in the area in 1986	2	Correctly describes what the land use is in the area in 2019	Only correctly describes what the land use is (2019), or was (1986)	1	Subtotal	2	Total	4
	Description	Mark																					
	AR 3243																						
	Correctly describes what the land use was in the area in 1986	2																					
	Correctly describes what the land use is in the area in 2019																						
	Only correctly describes what the land use is (2019), or was (1986)	1																					
	Subtotal	2																					
	AR 3542																						
	Correctly describes what the land use was in the area in 1986	2																					
	Correctly describes what the land use is in the area in 2019																						
	Only correctly describes what the land use is (2019), or was (1986)	1																					
Subtotal	2																						
Total	4																						
<p>Answers could include:</p> <p>AR 3243 1986 (Source 1) – western side of area, residential, school, swimming centre, sports ground. Eastern side a few scattered larger buildings and mostly cleared land. 2019 (Source 2) – very small expansion of residential on western side near creek. Eastern side many new larger buildings, probably industrial in nature. Warehouses, small factories and commercial outlets.</p> <p>AR 3542 1986 (Source 1) – cleared land, scattered buildings, some residential along Forth Road and Turners Beach Road, training track and glasshouses. 2019 (Source 2) – Expansion of urban area (residential) in south west corner and within the triangular area of the three roads and up to the drainage features that can be observed to the east. Glasshouses may have expanded or could be a shopping centre in the middle of the housing.</p> <p>Accept other relevant answers.</p>																							

<p>2020 Section 2 Question 24</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>Refer to Source 1: Ulverstone Tasmania topographic map 1986 and Source 3: Ulverstone oblique aerial photograph to answer Question 24.</p> <p>State the area reference that point B is located in on Source 3 and identify the reason for the lack of residential development at this location.</p>								
	<table border="1"> <thead> <tr> <th>Description</th> <th>Mark</th> </tr> </thead> <tbody> <tr> <td>Correct area reference. AR 2844</td> <td>1</td> </tr> <tr> <td>Correctly identifies the reason for the lack of residential development</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>2</td> </tr> </tbody> </table>	Description	Mark	Correct area reference. AR 2844	1	Correctly identifies the reason for the lack of residential development	1	Total	2
	Description	Mark							
	Correct area reference. AR 2844	1							
	Correctly identifies the reason for the lack of residential development	1							
Total	2								
<p>Answer could include:</p> <p>This area is relatively steep, as indicated by the contour lines, compared to the built-up areas adjacent to it. Therefore not very suitable for residential development.</p>									

2020 Section 2 Question 27 Unit 3 and 4 – Geo Skills	Refer to Source 5 : Land use patterns of Shanghai in 1995 and 2015 to answer Question 27. Identify two land cover changes that can be observed to have occurred in Shanghai between 1995 and 2015. (2 marks)							
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Correctly identifies (recognises and names) two land cover changes that can be observed to have occurred in Shanghai between 1995 and 2015</td> <td>2</td> </tr> <tr> <td>Correctly identifies (recognises and names) one land cover change that can be observed to have occurred in Shanghai between 1995 and 2015</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>2</td> </tr> </tbody> </table> <p>Answers could include:</p> <ul style="list-style-type: none"> • a change implies that what was there (1995) and what is there (2015) are identified • high-density built-up area (red) has expanded into previously low density built-up area and agricultural land • low density built-up area (grey) has expanded into previously agricultural land • agricultural land and some low and high-density built-up area have expanded into water bodies (land reclamation along the coastline). <p>Accept other relevant answers.</p>	Description	Marks	Correctly identifies (recognises and names) two land cover changes that can be observed to have occurred in Shanghai between 1995 and 2015	2	Correctly identifies (recognises and names) one land cover change that can be observed to have occurred in Shanghai between 1995 and 2015	1	Total
Description	Marks							
Correctly identifies (recognises and names) two land cover changes that can be observed to have occurred in Shanghai between 1995 and 2015	2							
Correctly identifies (recognises and names) one land cover change that can be observed to have occurred in Shanghai between 1995 and 2015	1							
Total	2							

2019 Section 2 Question 21 Unit 3 and 4 – Geo Skills	Refer to Source 1 : Noarlunga topographic map 2001 to answer Questions 21 and 22. (a) Identify one site feature of the built-up area of Maslin Beach at AR 7098. (1 mark)					
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Correctly identifies one site feature (e.g. elevation, natural drainage, natural vegetation, slope, soil)</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>1</td> </tr> </tbody> </table> <p>Marker information: Site should be identified by referring to the physical characteristics of a place. Site characteristics should be identified accurately, using appropriate geographical terminology. Features referred to should be for the site of the built-up area indicated, not areas two or three grid squares away. Surrounding natural vegetation does provide evidence of vegetation type before clearing.</p> <p>Answers could include:</p> <ul style="list-style-type: none"> • topography – height 20–60 metres, sloping downhill from SE to NW, relatively uniform (a single height within this range is acceptable) • landforms – coastal plain, gentle rise from coast to inland • vegetation – limited evidence of original vegetation • soils – probably sandy soils associated with the coastal features. <p>Accept other relevant answers.</p>	Description	Marks	Correctly identifies one site feature (e.g. elevation, natural drainage, natural vegetation, slope, soil)	1	Total
Description	Marks					
Correctly identifies one site feature (e.g. elevation, natural drainage, natural vegetation, slope, soil)	1					
Total	1					
	(b) Describe one situation feature of the built-up area of Maslin Beach at AR 7098. (2 marks)					

Description	Marks
Correctly describes any situation feature (e.g. latitude and longitude, distance and direction from other places or features, location in relation to major transport routes)	2
Correctly identifies any situation feature (e.g. distance or direction from other places or features, location in relation to major transport routes)	1
Total	2
<p>Marker information:</p> <p>Situation can be described by referring to the location of a place in relation to its surroundings or its proximity to (distance and direction from) other places or features. Situation characteristics should be described accurately, using appropriate geographical terminology.</p> <p>Answers could include:</p> <ul style="list-style-type: none"> distance and direction from other settlements or major features, e.g. approximately 6 km WSW of McLaren Vale town site, 3 km south of Seaford Rise, 1–1.5 km SSE of Ochre Point, east of coastline within 1 km latitude and longitude, e.g. 35° 13' S 138° 28' E (answer can also include 35° 14' S and/or 138° 29' E) identifies major transport routes, e.g. west of Old Coast Road, south east of Gulf Parade. <p>Accept other relevant answers.</p>	

<p>2019 Section 2 Question 22</p> <p>Unit 3 and 4 – Geo Skills</p>	<p>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. (2 marks)</p>								
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Correctly shows calculations to determine their answer. (Answer may be correct or incorrect depending on whether candidates determined correct distance between the two features – this mark is for correct and logical method of calculation demonstrated)</td> <td>1</td> </tr> <tr> <td>Correct answer is provided due to correct determination of distance and application of formula</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>2</td> </tr> </tbody> </table>	Description	Marks	Correctly shows calculations to determine their answer. (Answer may be correct or incorrect depending on whether candidates determined correct distance between the two features – this mark is for correct and logical method of calculation demonstrated)	1	Correct answer is provided due to correct determination of distance and application of formula	1	Total	2
	Description	Marks							
	Correctly shows calculations to determine their answer. (Answer may be correct or incorrect depending on whether candidates determined correct distance between the two features – this mark is for correct and logical method of calculation demonstrated)	1							
Correct answer is provided due to correct determination of distance and application of formula	1								
Total	2								
<p>Marker information:</p> <p>The distance between the intersection and the southern border of the map is 12 cm, which represents 6 km in the real world. Candidates need to add the additional 3 km to Willunga, as indicated in the map margin, giving a total of 9 km.</p> <p>The cross multiplication method is a common way to calculate the answer:</p> $\begin{array}{rcl} \frac{\text{Speed (72 km/hr)}}{\text{Time (60 mins)}} \times \frac{\text{Distance (9 km)}}{\text{Time (? minutes)}} & = & 60 \times 9/72 \\ & & = 7.5 \\ & & = 7 \text{ minutes } 30 \text{ seconds} \end{array}$ <p>Another method is:</p> $\begin{array}{rcl} \text{Time} & = & \frac{\text{Distance}}{\text{Speed}} \times 60 \\ & & = \frac{9}{72} \times 60 \\ & & = 7.5 \\ & & = 7 \text{ minutes } 30 \text{ seconds} \end{array}$									
<p>Note: Accept 0.5 km variation in distance, resulting in acceptable answers ranging from 7 minutes 5 seconds to 7 minutes 55 seconds.</p>									

**2019
Section 2
Question
23**

**Unit 3 and 4
– Geo Skills**

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

(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)

Description	Mark
Correctly locates an example of land use change by using GR/AR or latitude/longitude or referencing identifiable transport or other map features	1
Correctly describes the type of land use change with reference to land use before (2001) and after (2017)	2
Makes a general statement about changes in land use with no specific location given	1
Subtotal	2
Total	3
Answers could include: <ul style="list-style-type: none"> • expansion of sand works north of Maslin Beach Road GR 710995 in an area of cleared land • expansion of residential area south of Pedler Creek GR 710003 and north of Pedler Creek GR 710010 in a sparsely vegetated area • restoration of rubbish dump GR 730018 into an area of light vegetation • creation of commercial/light industrial area at GR 714035 in an area of cleared land. 	
Accept other relevant answers.	

(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)

Description	Marks
Correctly describes how the land use change has been influenced by the natural and/or cultural features by clearly linking the change to the relevant features immediately adjacent to the area of change identified	2
Makes a general statement about the cause of the land use change without clearly describing the influence of a natural or cultural feature	1
Total	2
Answers could include: <ul style="list-style-type: none"> • sand works – on cleared vacant land, adjacent to existing sand works, resource present • residential – adjacent to existing residential area, adjacent/accessible to major roads (Main South Road and Commercial Road). Preservation of existing wetlands and aesthetic location beside Pedler Creek • rubbish dump restoration – proximity to expanding urban development, environmental restoration • commercial establishment – relatively flat land, access to transport, workforce and customers. 	
Accept other relevant answers.	

**2019
Section 2
Question
31**

**Unit 3 and 4
– Geo Skills**

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

(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)

Description	Marks
Correctly describes one difference in the age and sex distributions between the capital cities and the rest of Australia. Quotes data directly from the source to support their answer	2
Correctly identifies one difference in the age and sex distributions between the capital cities and the rest of Australia	1
Total	2
Answers could include: <ul style="list-style-type: none"> • a higher proportion of the population in all age groups over 45 reside in the rest of Australia as compared to the capital cities • a higher proportion of the population in all age groups 0–14 reside in the rest of Australia as compared to the capital cities • a higher proportion of the population in all age groups 20–44 reside in the capital cities as compared to the rest of Australia • a lower proportion of females aged 15–19 reside in capital cities than males in the same age group • a higher proportion of males aged 15–19 reside in the rest of Australia than females in the same age group. 	
Accept other relevant answers.	

(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)

Description	Marks
Correctly describes one change that has occurred between 2006 and 2017 in the distribution of the population in the 20 to 34-year-old age groups. Quotes data directly from the source to support their answer	2
Correctly identifies one change that has occurred between 2006 and 2017 in the distribution of the population in the 20 to 34-year-old age groups	1
Total	2
Answers could include: <ul style="list-style-type: none"> • the proportion of 20–34 year olds living in the capital cities in 2017 is higher than the level in 2006 • the proportion of 20–34 year olds living in the rest of Australia in 2017 is higher than the level in 2006 • the increase in the proportion of 20–34 year old females living in capital cities in 2017 compared to 2006 is greater than the increase in the proportion of 20–34 year old males living in the capital cities. 	
Accept other relevant answers.	