

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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- Students can refer to relevant chapters to complete during class or for private study to prepare for topic tests or exams.
- Teachers can use these eBooks as a great reference point for lesson planning, developing internal assessments or when preparing class activities to ensure alignment with exam level questions.
- Mark allocation included to guide student time management.
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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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Unit 3 – Global environmental change

Unit 3 – Overview of type, rate, extent, causes and consequences of land cover change

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.</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>
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<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> <div style="text-align: center;"> <p>Source 4a: Change in the area used for grazing between 1992–93 and 2005–06 in Australia</p> </div> <p>Adapted from: Mewett, J., Papirnska, J., Kelley, G., et al. (2013, October). Map 31: change in the area used for grazing between 1992–93 and 2005–06. Towards National Reporting on Agricultural Land Use Change in Australia (p. 2). Retrieved May, 2023, from chrome-extension://fddidrammehocagpcidifnfmh/https://art.earthdata.nasa.gov/search/asset/1627355/0 Used under a Creative Commons Attribution 3.0 Australia Licence.</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.</p>
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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:

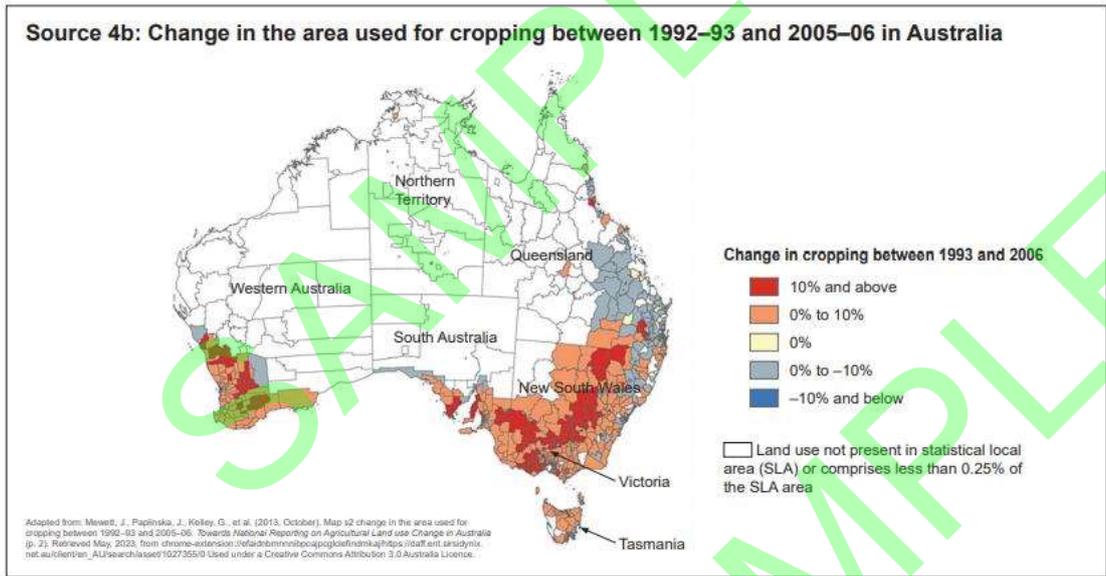
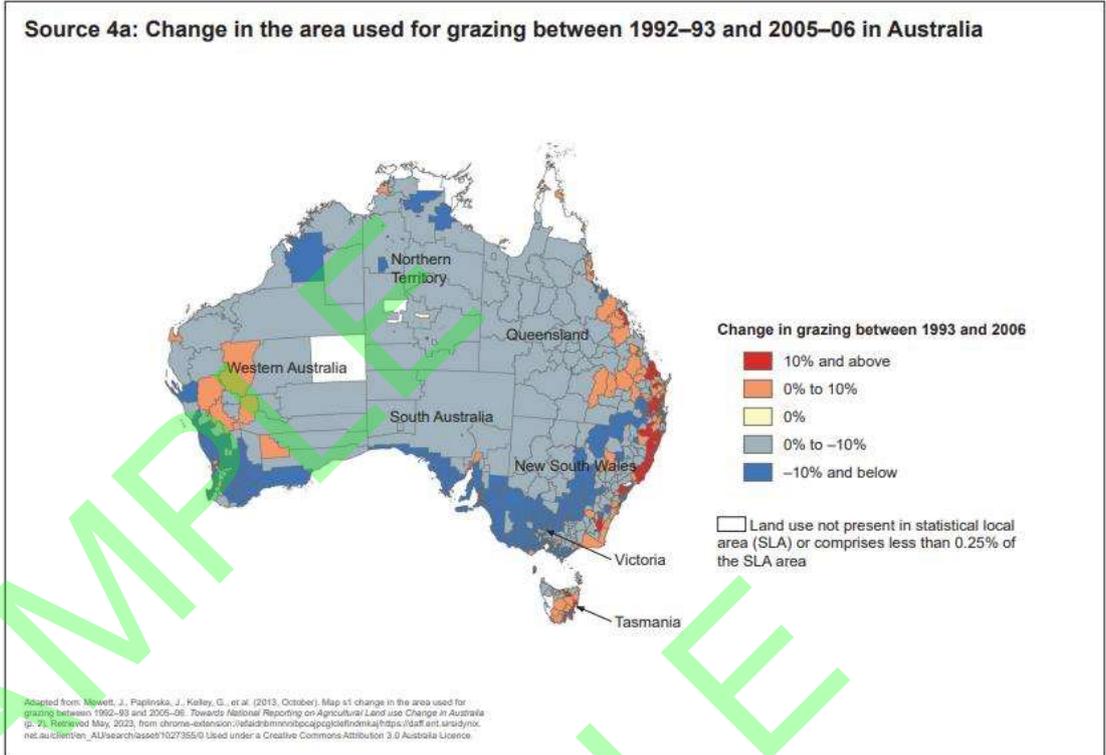
	Two:

SAMPLE
SAMPLE
SAMPLE

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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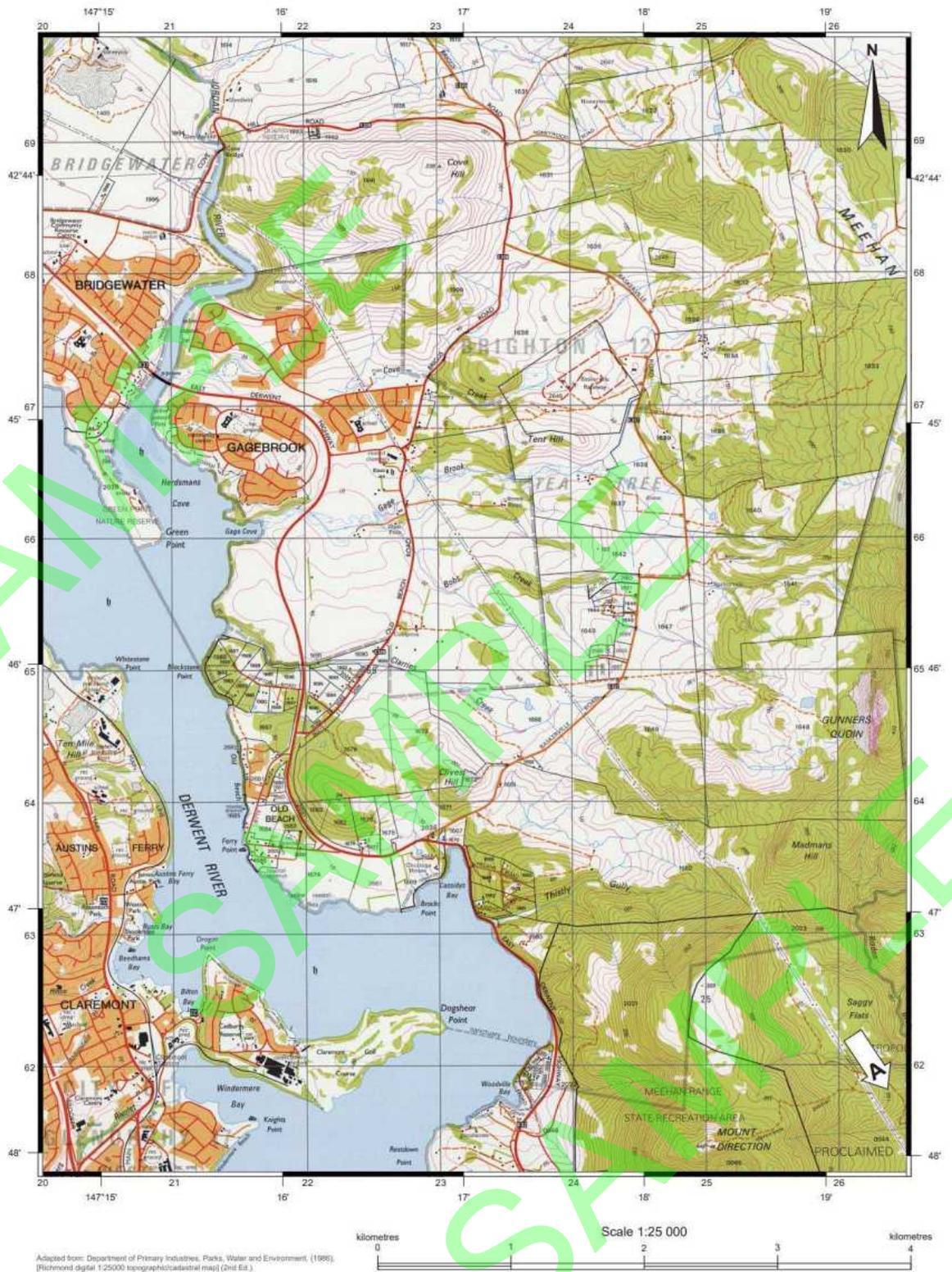
<p>2023 Section 2 Question 26</p> <p>Land cover change</p>	<p>Explain one of the following impacts of land cover change:</p> <ul style="list-style-type: none">• changes to the water cycle• soil erosion and degradation• loss of habitat and biodiversity• loss of ecosystem services• the degradation of aquatic 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	
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	Wasteland, Rapids
	Minor road with route number	Picnic area, Trig station beacon, Spot elevation	Indefinite character or floodbank, Levee
	Other road	Contour with value, Depression contour	Tidal rocks or ledges, 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
Railway with station; Places entered in National Estate Register		Low dense vegetation; Distinctive grass	Jetty, Launching ramp
Power transmission line and pylon positions		Orchard; Pine plantation	Property boundary, Land parcel boundary and number
Building, Feature of historic or special interest; Ruin; Mine			

Source 2: Old Beach aerial photograph 2019



DigitalGlobe. (2019). [Old Beach aerial photograph] (Camera ~3000m). 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:

2022
Section 2
Question
25

Land cover change

Define the term 'anthropogenic biome'. (2 marks)

2022
Section 2
Question
26

Land cover change

Refer to **Source 6**: The loss of biodiversity 1800 to 2100 to answer Question 26.

Source 6: The loss of biodiversity 1800 to 2100

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%

** Green Model refers to low-impact land use model*
***Current Model refers to the current land use model*

Data from: Newbold, T., Hudson, L. N., Purvis, A. et al. (2015). Global effects of land use on local terrestrial biodiversity. Nature 520, pp. 45-50. Retrieved May, 2022, from <https://www.unep-wcmc.org/news/biodiversity-damage-mapped-by-global-land-use-study>

With specific reference to **Source 6**, explain how land cover change contributes to biodiversity loss. (3 marks)

2022 Section 2 Question 27 Land cover change	(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)

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)

2021 Section 2 Question 26 Land cover change	Explain the concept of climate change. (3 marks)

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.
	One:
	Two:

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

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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) <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>
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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: <hr/> <hr/> Socio-economic variable: <hr/> <hr/>
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2019 Section 2 Question 26 Land cover change	Define the term 'natural biome'. (2 marks)

SAMPLE
SAMPLE
SAMPLE

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</p> <p>(b) changes to the water cycle, unemployment, loss of habitat and biodiversity</p> <p>(c) changes to regional climates, soil erosion and degradation and unemployment</p> <p>(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.</p> <p>(b) changes that have taken place to both natural and human land uses due to human actions.</p> <p>(c) changes that have taken place in natural environments due to natural and/or human causes. – Answer</p> <p>(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.</p> <p>(b) government policies and land ownership. – Answer</p> <p>(c) institutional arrangements and rainfall variability.</p> <p>(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)								
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Defines the concept of climate change, including reference to at least two of; space, time and variability</td> <td>2</td> </tr> <tr> <td>Defines the concept of climate change, including reference to one of; space, time or variability</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>2</td> </tr> </tbody> </table>	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
	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								
Answers could include:									
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.									
Accept other relevant answers.									

<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)										
	<table border="1"> <thead> <tr> <th>Description</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Describes the expansion of agriculture as a process of land cover change and uses relevant data from both sources to support their answer</td> <td>3</td> </tr> <tr> <td>Outlines the expansion of agriculture as a process of land cover change and uses relevant data from either source to support their answer</td> <td>2</td> </tr> <tr> <td>Makes a generalised statement about the expansion of agriculture as a process of land cover change with limited, or no reference to the sources</td> <td>1</td> </tr> <tr> <td style="text-align: right;">Total</td> <td>3</td> </tr> </tbody> </table>	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
	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										
Answers could include:											
Expansion refers to an increase in area used for production. Examples from the sources could include: <ul style="list-style-type: none"> • between 1993 and 2006, parts of the Victorian, New South Wales and Queensland coastal strip have experienced more that 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%. 											
Accept other relevant answers.											

**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
<p>Answers could include:</p> <p>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.</p> <p>Accept other relevant answers.</p> <p>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 Land cover change	Explain one of the following impacts of land cover change: <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. 									
	(3 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>Explains the impact of land cover change</td> <td style="text-align: center;">3</td> </tr> <tr> <td>Describes the impact of land cover change</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Makes a generalised statement about the impact of land cover change</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"> • 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									

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.									
	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) <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>Provides a grid reference of where the land use change has occurred within the area specified in the question.</td> <td style="text-align: center;">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 style="text-align: center;">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 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>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
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	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	<p>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)</p> <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>	

<p>2020 Section 2 Question 25</p> <p>Land cover change</p>	<p>Explain the concept of biodiversity loss. (3 marks)</p> <table border="1" style="width: 100%;"> <thead> <tr> <th style="width: 70%;">Description</th> <th style="width: 30%;">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	
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> <p>Marker information: 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>	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
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							

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.															
	<p>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)</p> <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> <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>	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
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															

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															
	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																
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.																	

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