

External Assessment 2024

# ENVIRONMENTAL SCIENCE

ESS315118

## Section **A**

Pages: 16

Questions: 5

Information Sheet: 1

**Preparation time for this exam:** 15 minutes

**Suggested working time:** 36 minutes

### Instructions:

- Answer **all** questions and **all** items within each question.
- Write your answers in the spaces provided in this exam paper.
- The exam is **three (3) hours** in length. The suggested working time for this section is **approximately 36 minutes**.
- The Environmental Science Information Sheet can be used throughout the exam.
- All answers must be written in **English**.
- You **must** make sure your answers address the listed criterion.

Marker use	
C2	/ 36

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# Guide to Exam Structure

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	Questions available	Questions to answer	Suggested working time	Marks available
Section <b>A</b>	5	5	36 minutes	36 marks
Section <b>B</b>	5	5	36 minutes	36 marks
Section <b>C</b>	6	6	36 minutes	36 marks
Section <b>D</b>	6	6	36 minutes	36 marks
Section <b>E</b>	6	6	36 minutes	36 marks
<b>Totals</b>	<b>28</b>	<b>28</b>	<b>180 minutes (3 hours)</b>	<b>180 marks</b>

## Criterion

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You **must** make sure your answers address:

- Criterion 2 develop, interpret and analyse experiments and investigations.

### Question 1

Marker use

Local councils in Tasmania often conduct controlled management burns in autumn or winter. A class of environmental science students noticed that some species of plants appear to be more abundant in the years following these burns. They were each asked to develop a hypothesis to explain the observations. Four of the students' hypotheses are given in Table 1.

- a) For each hypothesis in Table 1, state whether it is valid or not and explain your decision.

/4

Hypothesis	Valid (Y/N)	Explanation
Fire makes plants grow better.		
Why do plants grow better after a burn? Because there are more nutrients available.		
Burns in autumn and winter make plants grow better than burns in spring.		
Smoke water increases seed germination in <i>Banksia</i> species.		

Table 1

Question 1 continues

**Question 1 continued**

Marker use

b) Some of the students collected data on the number of plants in different burned areas. Describe **two (2)** potential issues that might affect the validity or reliability of their results.

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**Total**  
**Q1**  
**/6**

## Question 2

Marker use

Black soldier flies convert kitchen scraps into high quality protein and fat to feed to other animals. Scientists are researching ways to decrease the hatching time of fly eggs to increase efficiency in production. The results of their experiment are shown in Figure 1.

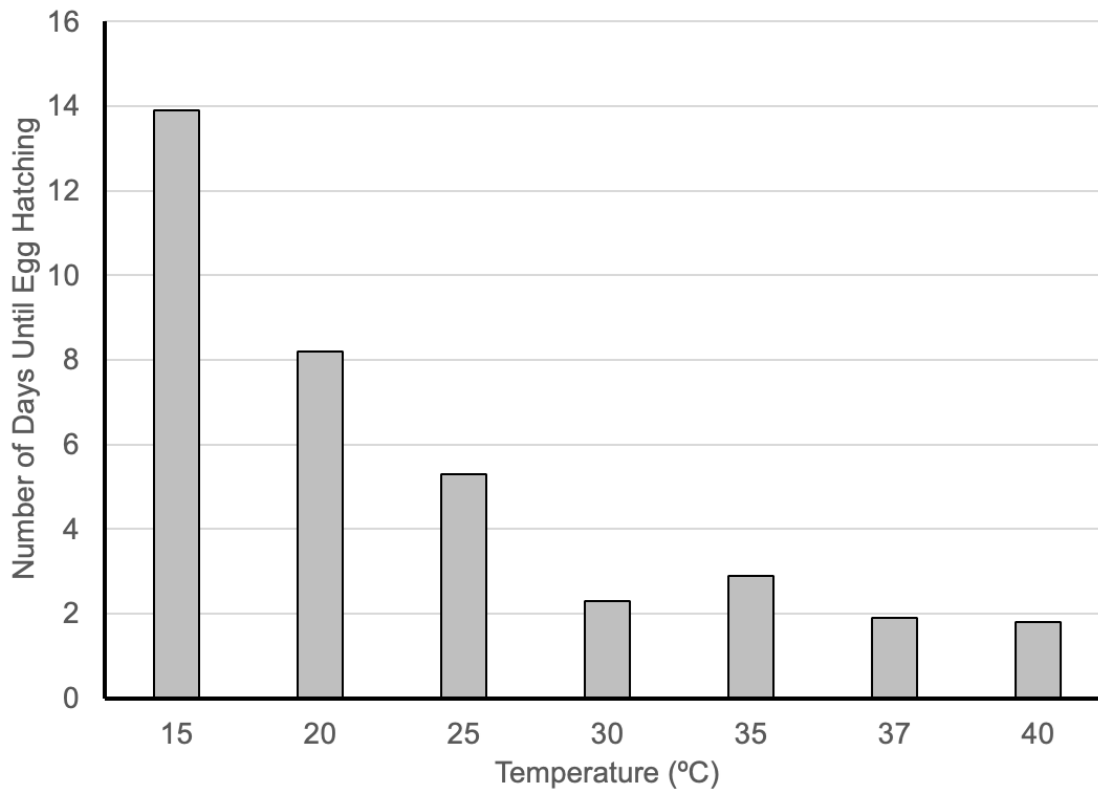


Figure 1: Graph of number of days until egg hatching of soldier flies.

Adapted from Chia et al. (2018), PLoS One 13(11)

Spare diagram used (X)

a) Summarise the results of their experiment.

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b) i. Using Figure 1, circle **one (1)** potentially anomalous (unexpected or strange) result in the data.

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Question 2 b) continues

Question 2 b) continued

Marker use

ii. Describe how you could determine if a particular result was anomalous.

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c) i. Identify **one (1)** problem with the way the researchers have displayed their data.

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ii. Describe a better method of displaying the data.

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d) Suggest a hypothesis that the researchers were testing.

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e) Explain the importance of controlling **two (2)** other variables in the experiment.

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Q2

/13

**Question 3**

Hobart is located on the estuary of the River Derwent. The Derwent Estuary Program (DEP) has collected monthly water samples from many locations since 2007 to investigate water quality. Levels of zinc in the water at the surface of the river, and at the bottom of the river, from one site in the upper estuary are shown in Figure 2. The lines represent the best-fit trend over time.

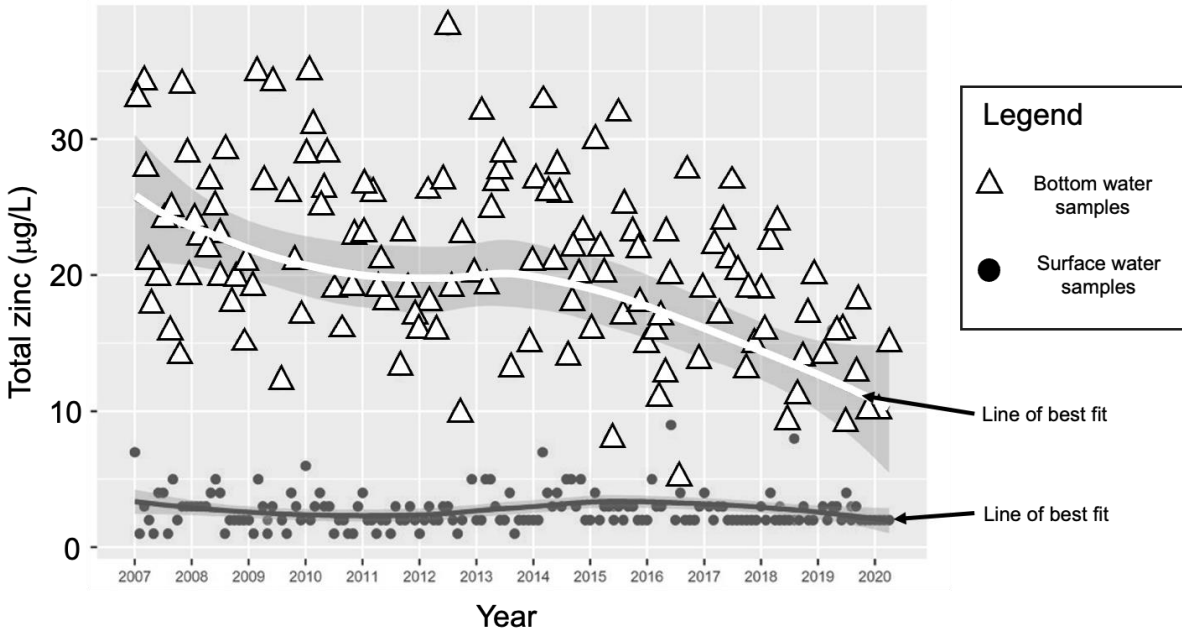


Figure 2: Graph of zinc levels in the water of the Derwent River (µg/L)

Adapted from State of the Derwent estuary – 2020 update, DEP 2020

a) From the four terms listed below, circle **two (2)** which describe this type of monitoring.

- |          |          |
|----------|----------|
| ABIOTIC  | BIOTIC   |
| PHYSICAL | CHEMICAL |

b) State the approximate level of zinc in the water at the surface in 2013 from the line of best fit.

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Question 3 continues

**Question 3 continued**

Marker use

c) Describe the trend in **both** the water at the surface of the river **and** at the bottom of the river over the period 2007–2020.

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d) Explain why the trend line is a more useful way of describing the data than considering any individual data point.

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**Total**  
**Q3**  
**/6**

**Question 4**

Marker use

Two students have decided to investigate which wavelength (colour) of light makes cucumber plants grow faster. They have two lights, one producing blue light and the other producing red light. One student takes the red light home with a cucumber plant, while the other student takes the blue light home with another cucumber plant. After two weeks they bring their plants back to the laboratory and measure the length of the stem. The plant grown with blue light measures 15 cm, while the plant grown with red light measures 10 cm.

- a) The students conclude that blue light makes cucumber plants grow faster. Describe how **one (1)** problem with this experiment could affect the validity of the results.

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- b) Using dot points, propose a better design to investigate the effect of light colour on the growth of cucumber plants.

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- c) Explain whether this experiment has a control treatment.

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Q4  
/7**

**Question 5**

Marker use

Tasmanian devils have been suffering from Devil Facial Tumour Disease (DFTD) for the past 25–30 years. The disease was first discovered on the east coast of Tasmania in 1996. The disease is fatal and infected animals can pass the disease on to uninfected animals. Since 1996, scientists and volunteers have used traps such as the one shown in Figure 3 to conduct surveys at locations all around Tasmania.



*Figure 3: Photograph of a Tasmanian devil emerging from a trap.*

*Image source: <https://www.abc.net.au/news/2015-12-15/captive-bred-tasmanian-devil-program-loses-a-quarter-of-release/7028318>*

a) Suggest a reason for conducting surveys of Tasmanian devils all over Tasmania.

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b) Discuss **two (2)** ethical issues involved with surveys of Tasmanian devils.

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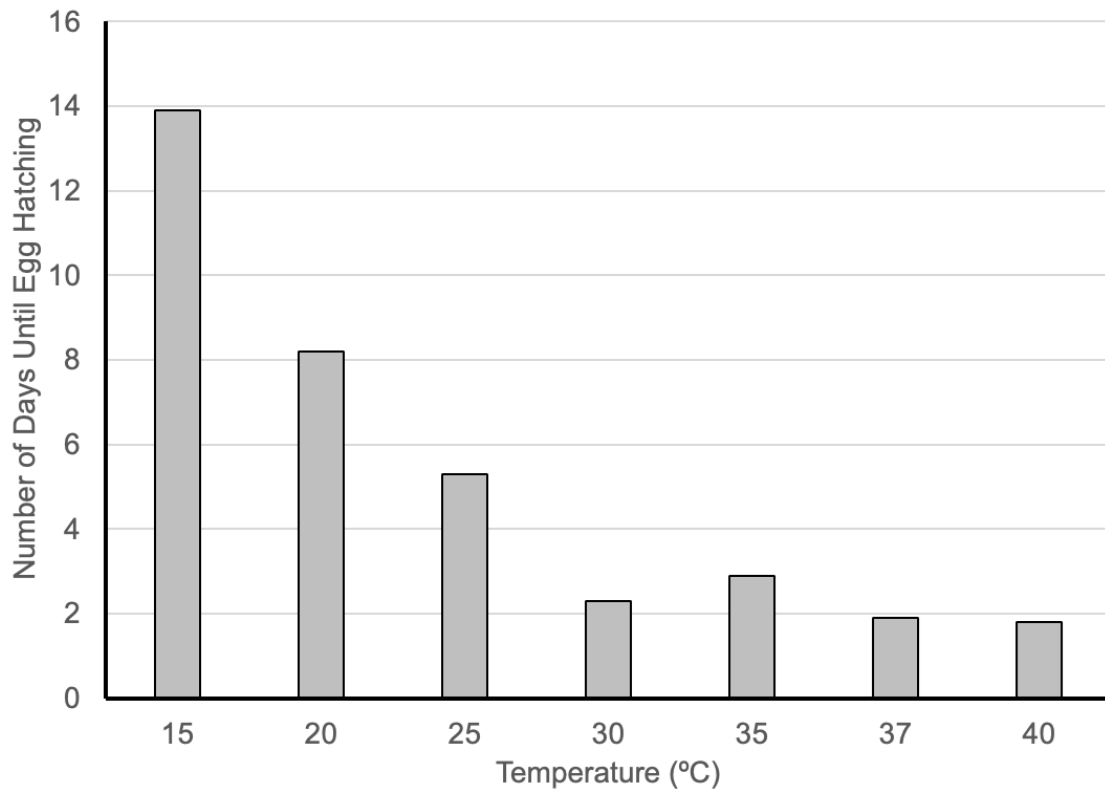
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**Total**  
**Q5**  
**/4**

# Spare Diagram

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Question 2 b) i.



End of Section A  
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TASMANIAN  
ASSESSMENT, STANDARDS  
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External Assessment 2024

# ENVIRONMENTAL SCIENCE

ESS315118

## Section **B**

Pages: 16

Questions: 5

Information Sheet: 1

**Suggested working time:** 36 minutes

### Instructions:

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Marker use	
C5	/ 36

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# Guide to Exam Structure

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Section <b>E</b>	6	6	36 minutes	36 marks
<b>Totals</b>	<b>28</b>	<b>28</b>	<b>180 minutes (3 hours)</b>	<b>180 marks</b>

## Criterion

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You **must** make sure your answers address:

- Criterion 5 apply ecological concepts and processes.

**Question 6**

Marker use

Figure 4 shows a representation of the carbon cycle.

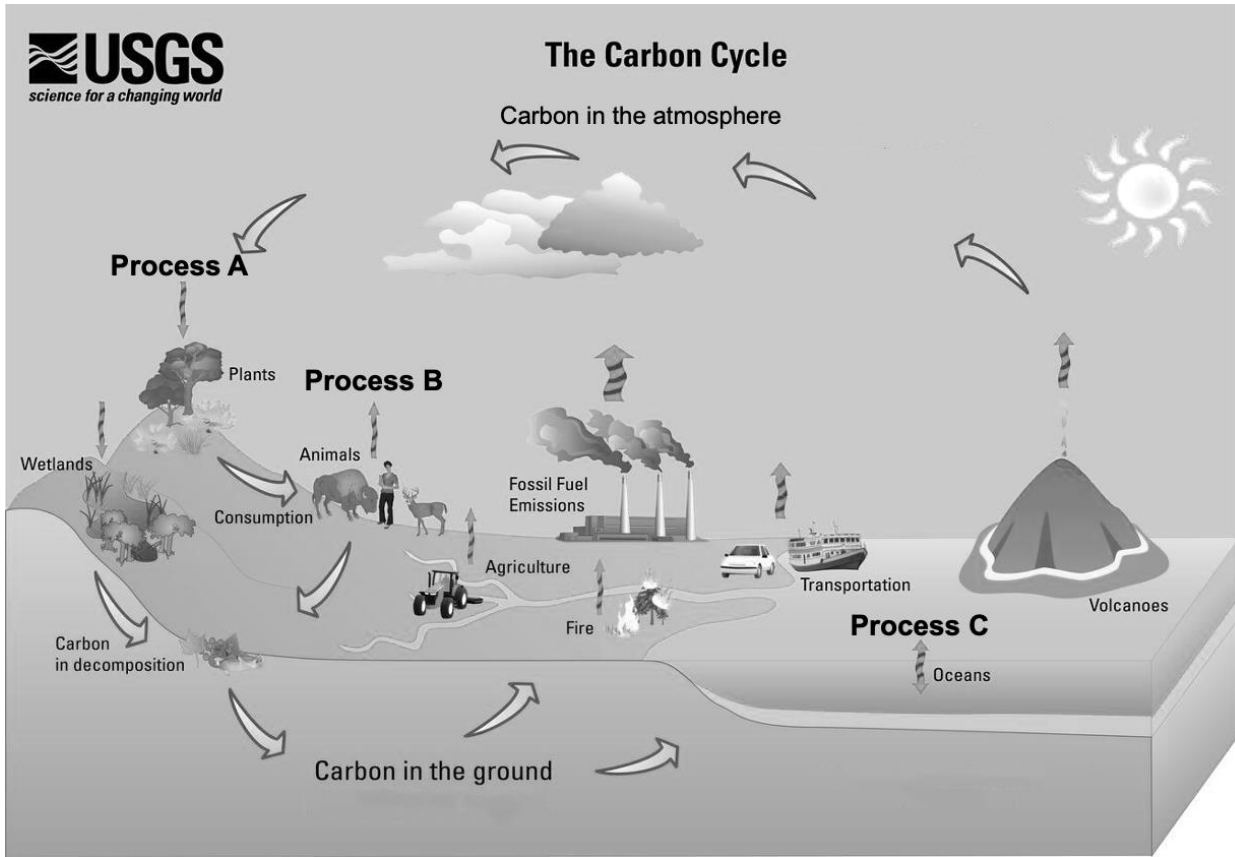


Figure 4: Diagram of the carbon cycle  
Adapted from USGS, no copyright

a) State the identity of the following:

Process A: .....

Process B: .....

/1

b) The majority of atmospheric carbon is in the form of carbon dioxide. State the identity of another form of atmospheric carbon.

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c) Explain why Process C is bi-directional – involving both carbon moving from the atmosphere into the ocean and moving from the ocean into the atmosphere.

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Question 6 continues

**Question 6 continued**

Marker use

- d) Discuss the similarities and differences between the carbon cycle and other biogeochemical cycles such as the nitrogen or phosphorus cycles.

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**Total  
Q6  
/ 8**

**Question 7**

A simplified version of a coral reef food web is shown in Figure 5.

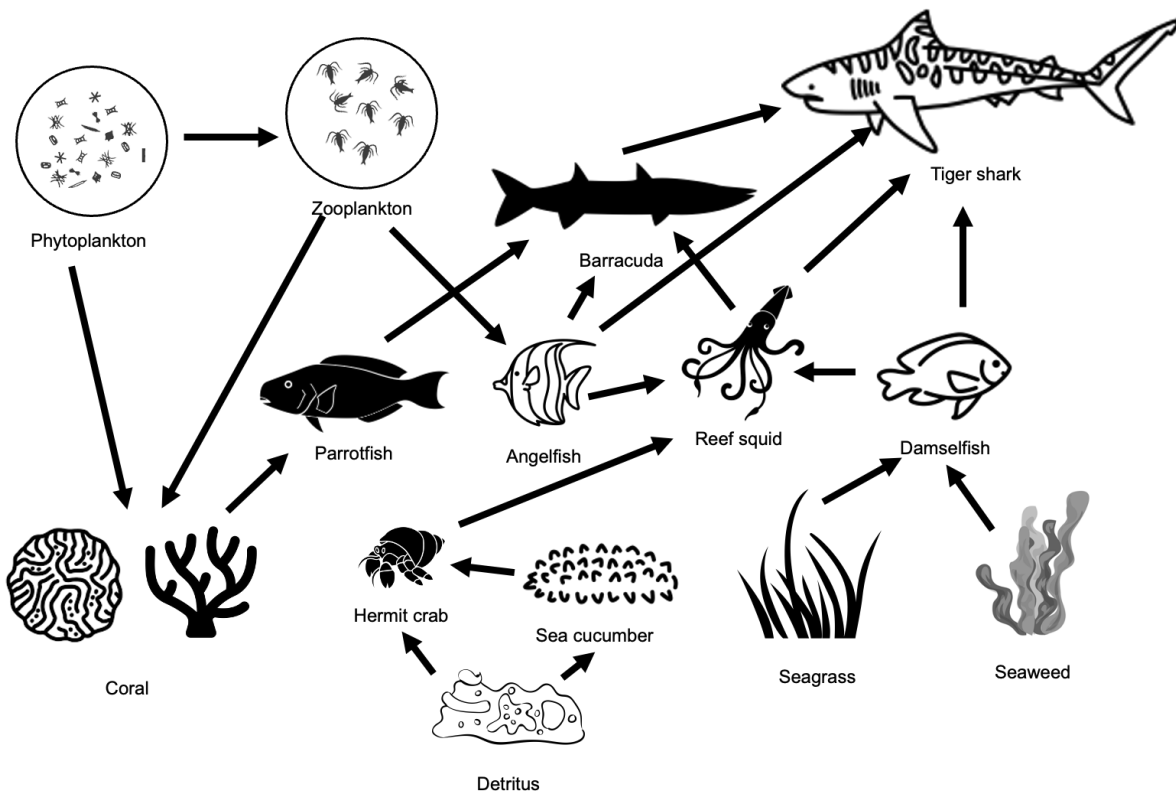


Figure 5: Diagram of a coral reef food web.

Created from various sources on Wikimedia Commons CC-SA 4.0

a) State **two (2)** primary producers shown in the food web.

/1

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b) Identify the following from the food web.

/1

**One (1)** example of a 1<sup>st</sup> order consumer: .....

**One (1)** example of a 3<sup>rd</sup> order consumer: .....

c) The source of the detritus in the food web is not shown. Explain where this material comes from.

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Question 7 continues

Question 7 continued

Marker use

d) Explain why it is not possible to provide a single trophic order for the tiger shark.

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e) Fishing on coral reefs targets larger fish including sharks and barracuda as well as reef squid. Explain the effects of removing most of these individuals on the rest of the ecosystem.

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f) Discuss whether the food web shown requires external inputs of **both** matter and energy.

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Total  
Q7  
/8

**Question 8**

Macquarie Island is a subantarctic island about 1500 km southeast of Tasmania. It is home to large populations of seabirds, penguins and seals. European rabbits and cats were both introduced to Macquarie Island in the 1800s. The cats ate the rabbits and also ate seabirds. An eradication program killed the last cat in 2001. Figure 6 shows an estimate of the population of rabbits from 1984–2006.

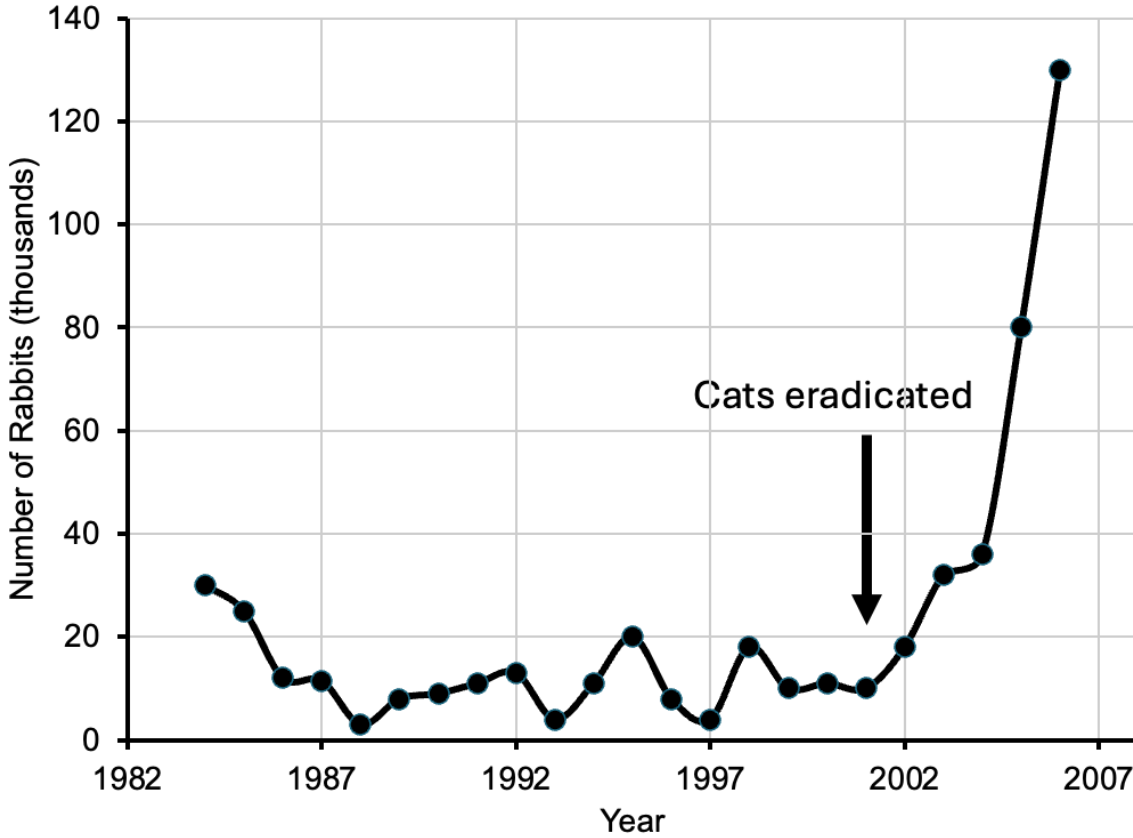


Figure 6: Graph of rabbit numbers (thousands) on Macquarie Island. Adapted from data in Bergstrom et al. (2009), *Journal of Applied Ecology* 46: 73-81

- a) Estimate the equilibrium population of rabbits before cats were eradicated in 2001.

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- b) Explain **one (1)** reason that the population of rabbits fluctuated above or below this equilibrium level between 1984 and 1998.

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Question 8 continues

**Question 8 continued**

Marker use

c) State the type of population growth that the rabbits showed from 2001–2006.

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/1

d) i. On the graph (Figure 7) sketch how the population of rabbits might change over the following 10 years from 2007–2017.

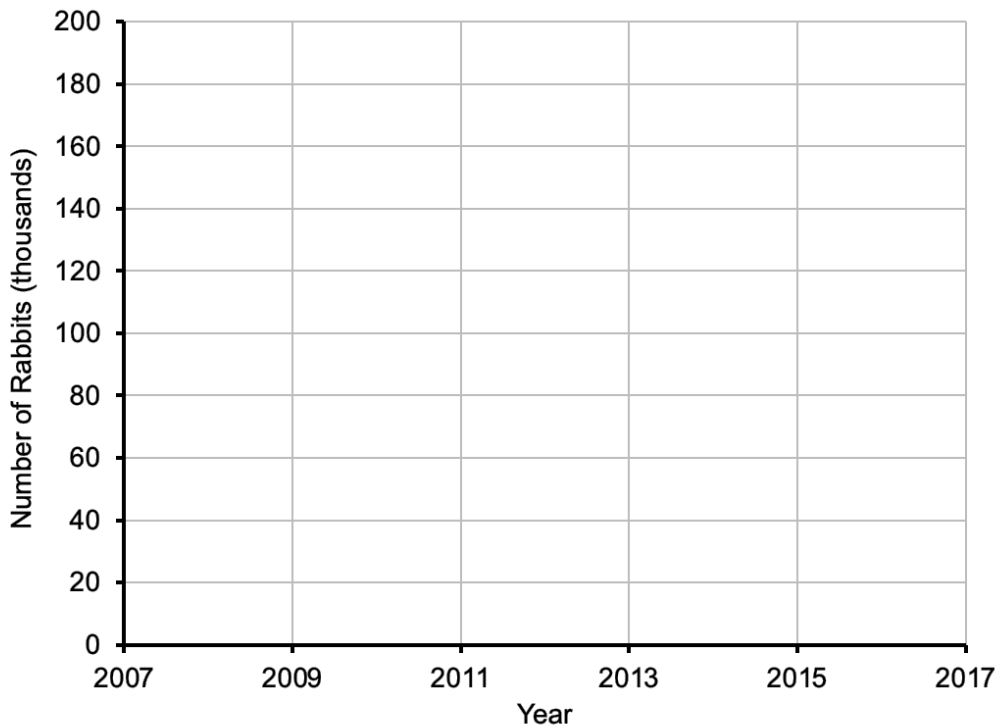


Figure 7: Graph for sketching your answer to Question 8 d).

Spare diagram used (X)

/2

ii. Explain the shape of your graph with respect to the ecology of the rabbit.

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**Total  
Q8**

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**Question 9**

Marker use

Figure 8 shows the pyramid of numbers and the pyramid of biomass for a grassland ecosystem.

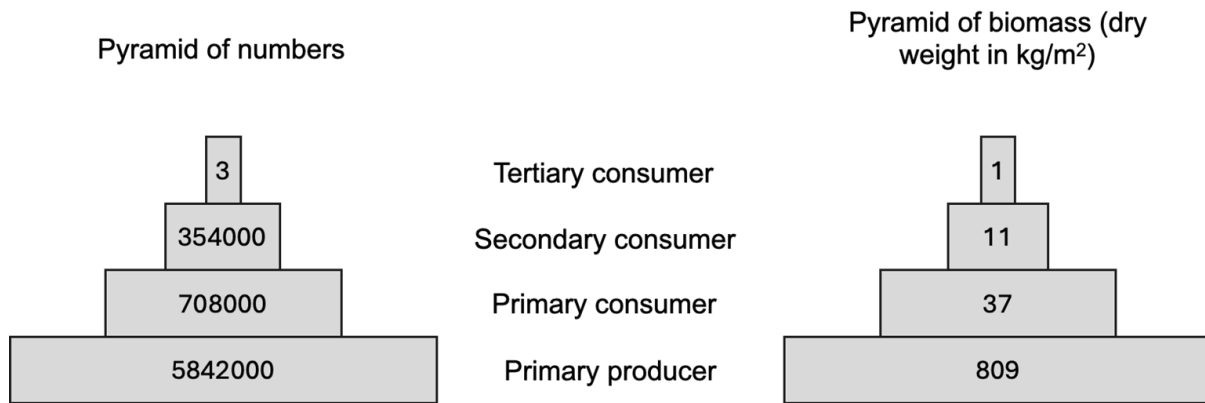


Figure 8: Pyramids of numbers and biomass for a grassland ecosystem diagram.

a) State the energy source for the ecosystem.

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b) Explain why both of these pyramids are misleading in terms of their representation of the ecosystem.

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c) Sketch a pyramid of energy for the grassland ecosystem.

/2

Question 9 continues

Question 9 continued

Marker use

Figure 9 shows the pyramid of numbers for a forest ecosystem which has the form of a spindle.

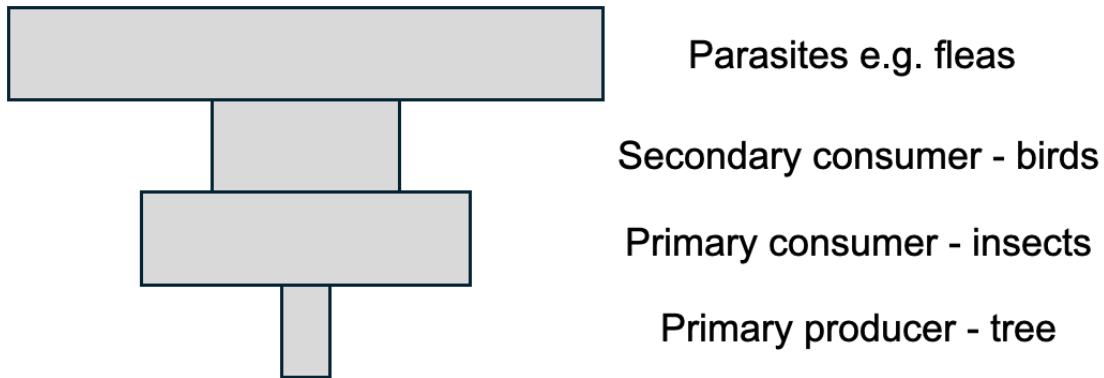


Figure 9: Pyramid of numbers for a forest ecosystem diagram.

- d) Although the pyramid of numbers for the grassland and forest ecosystem are different, explain why the pyramid of energy for both ecosystems must be similar.

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Total  
Q9  
/7

**Question 10**

Arc-eye hawkfish exist in three different colour forms as shown in Figure 10 – dark (A), light (C) and intermediate (B). Figure 10 shows the density of the different colour forms along one particular axis of resource use.

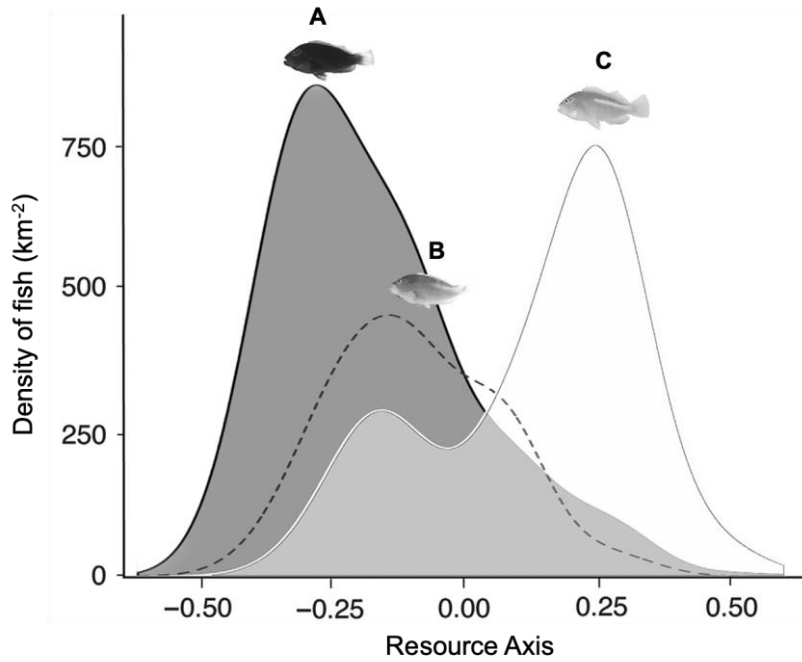


Figure 10: Graph of resource use of different colour forms of arc-eye hawkfish.

Adapted from Whitney et al. (2018), *Ecosphere* 9 e02015 CC-BY 3.0

a) State the term used to describe the range of conditions in which a species is found.

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b) State the type of relationship that occurs between the different colour forms of the arc-eye hawkfish.

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c) Explain how all the different forms of the arc-eye hawkfish can live in the same habitat.

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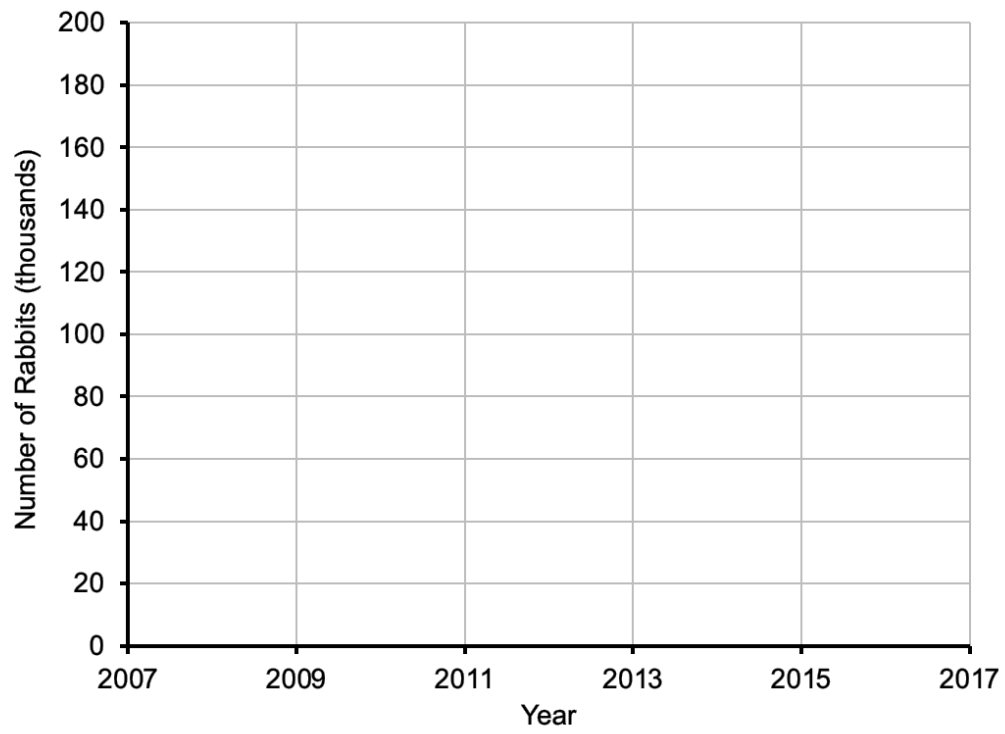
**Total  
Q10**

/4

# Spare Diagram

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Question 8 d) i.



End of Section B  
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External Assessment 2024

# ENVIRONMENTAL SCIENCE

ESS315118

## Section **C**

Pages: 12

Questions: 6

Information Sheet: 1

**Suggested working time:** 36 minutes

### Instructions:

- Answer **all** questions and **all** items within each question.
- Write your answers in the spaces provided in this exam paper.
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Marker use	
C6	/ 36

# Guide to Exam Structure

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	Questions available	Questions to answer	Suggested working time	Marks available
Section A	5	5	36 minutes	36 marks
Section B	5	5	36 minutes	36 marks
Section C	6	6	36 minutes	36 marks
Section D	6	6	36 minutes	36 marks
Section E	6	6	36 minutes	36 marks
<b>Totals</b>	<b>28</b>	<b>28</b>	<b>180 minutes (3 hours)</b>	<b>180 marks</b>

## Criterion

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You **must** make sure your answers address:

- Criterion 6 apply concepts and processes of ecosystem change.

**Question 11**

Marker use

The Tarn Shelf is in Mount Field National Park in southern Tasmania at an altitude of more than 1000 m. The ecosystem consists of a patchwork of small lakes, alpine grassland and short (<2 m tall), stunted conifers (Figure 11).



*Figure 11: View of Tarn Shelf in Mount Field National Park.*

*Brendan Heatley-Hart CC-SA 4.0*

- a) Describe how **one (1)** abiotic factor will change on a daily basis on the Tarn Shelf.

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- b) Explain which seasonal abiotic change will have the greatest influence on the Tarn Shelf.

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**Total  
Q11  
/4**

Question 12

Figure 12 shows the global temperature anomaly from 1850–2024. Values greater than 0 mean that the temperature was warmer than the long-term average, while values less than 0 mean that the temperature was cooler than the long-term average.

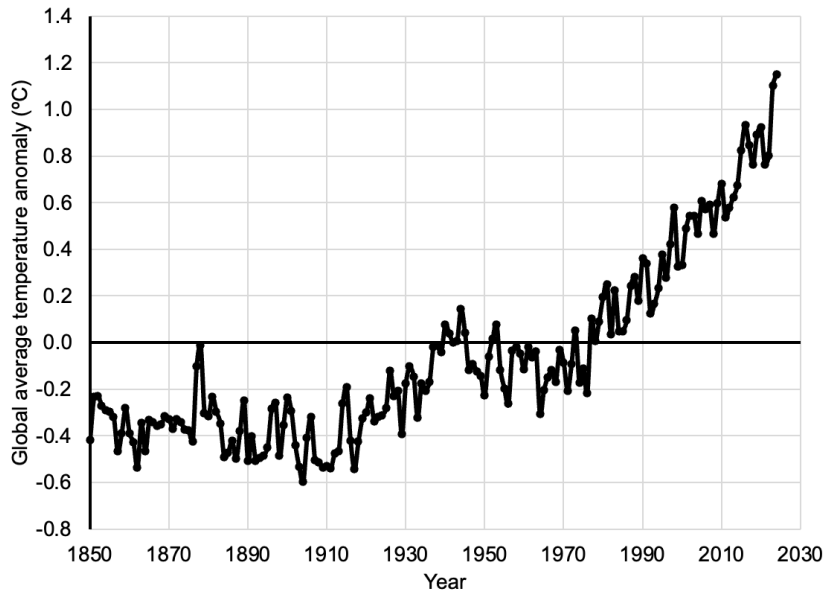


Figure 12: Graph of global temperature anomaly from 1850–2024.

Meteorological Office Hadley Centre CC-BY 4.0

- a) Summarise the pattern of the global temperature anomaly over the period shown.

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- b) Direct measurements of global temperatures have only been taken over the last 175 years. Explain **two (2)** ways in which scientists estimate global temperatures going back thousands or hundreds of thousands of years.

/3

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Question 12 continues

Question 12 continued

Marker use

The extent (area) of sea ice in the Arctic has been measured by satellite since 1979. Figure 13 shows the minimum extent of sea ice for each year from 1979–2024.

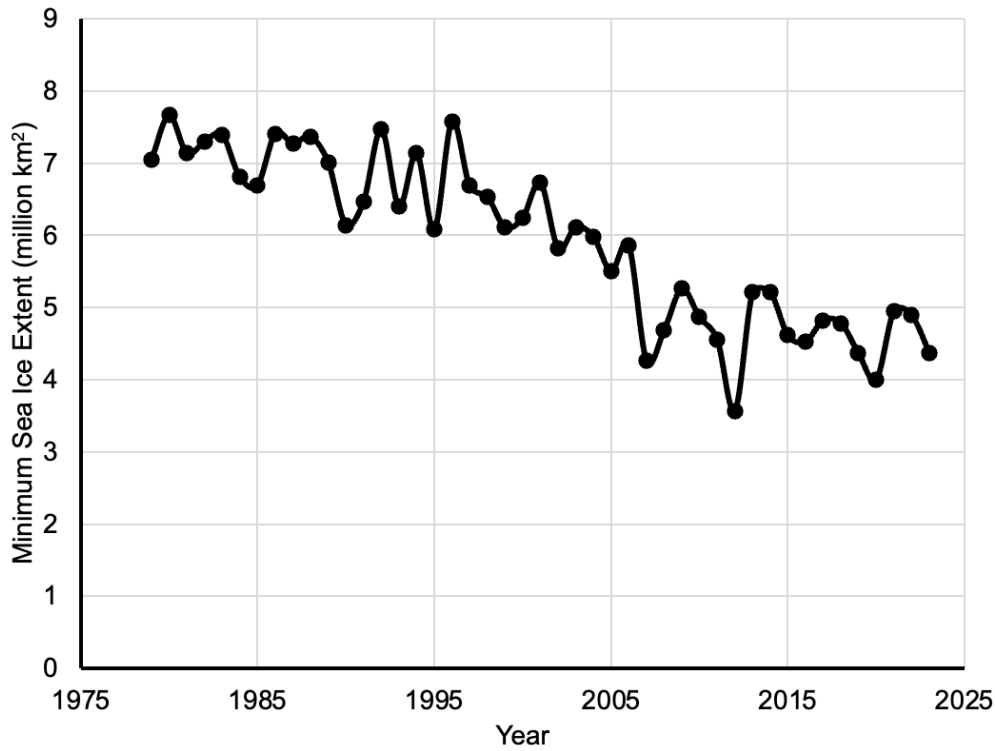


Figure 13: Graph of minimum sea ice extent from 1979–2024.

National Snow & Ice Data Center CC-BY 4.0

c) i. Circle on Figure 13 the year with the smallest ice extent.

/0.5

ii. State the minimum ice extent in the year from part i.

/0.5

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d) Ice, which is white, reflects a lot of incoming solar energy. Open water, which is dark, absorbs solar energy. Explain the relationship between ice cover and global temperatures.

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Total  
Q12  
/9

Question 13

Marker use

A simple diagrammatic explanation of the greenhouse effect is shown in Figure 14.

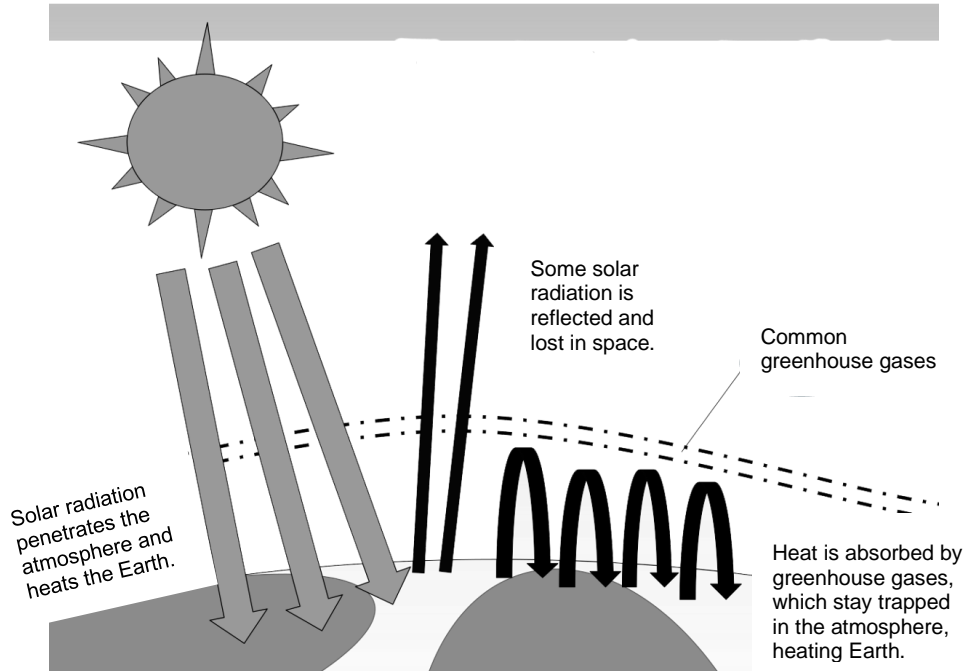


Figure 14: Diagram explaining the greenhouse effect.

Modified from Hungrypenguin459 on Wikimedia Commons CC-SA 4.0

a) State **two (2)** common greenhouse gases.

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b) Outline why it is called the 'greenhouse' effect.

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c) Explain how human activities have increased the amount of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) in the atmosphere since industrialisation (approximately the year 1850).

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Total  
Q13  
/5

**Question 14**

Marker use

Table 2 shows some population characteristics of selected Tasmanian species of animal and plant.

Species	Population size	Number of offspring per year	Life Span (years)	Only breeds in Tasmania (Y/N)
Orange-bellied parrot	<100	3-5	10	Y
Humpback whale	60 000	0.5-1	80-90	N
Blue gum	>1 000 000	>1000	>200	N
Forty-spotted pardalote	1500	3-5	3-5	Y

*Table 2*

a) On the basis of this information, rank these species from most endangered (1) to least endangered (4).

/2

Orange-bellied parrot:.....

Humpback whale: .....

Blue gum: .....

Forty-spotted pardalote:.....

b) State **one (1)** other factor that can affect the extinction risk of an organism.

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c) Explain **one (1)** type of biodiversity that is **not** shown in Table 2.

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/2

**Total Q14**

/5

**Question 15**

The National Council for Fire and Emergency Services (AFAC) produces seasonal bushfire outlooks each year. Figure 15 shows the bushfire risk across Australia for Summer 2023.

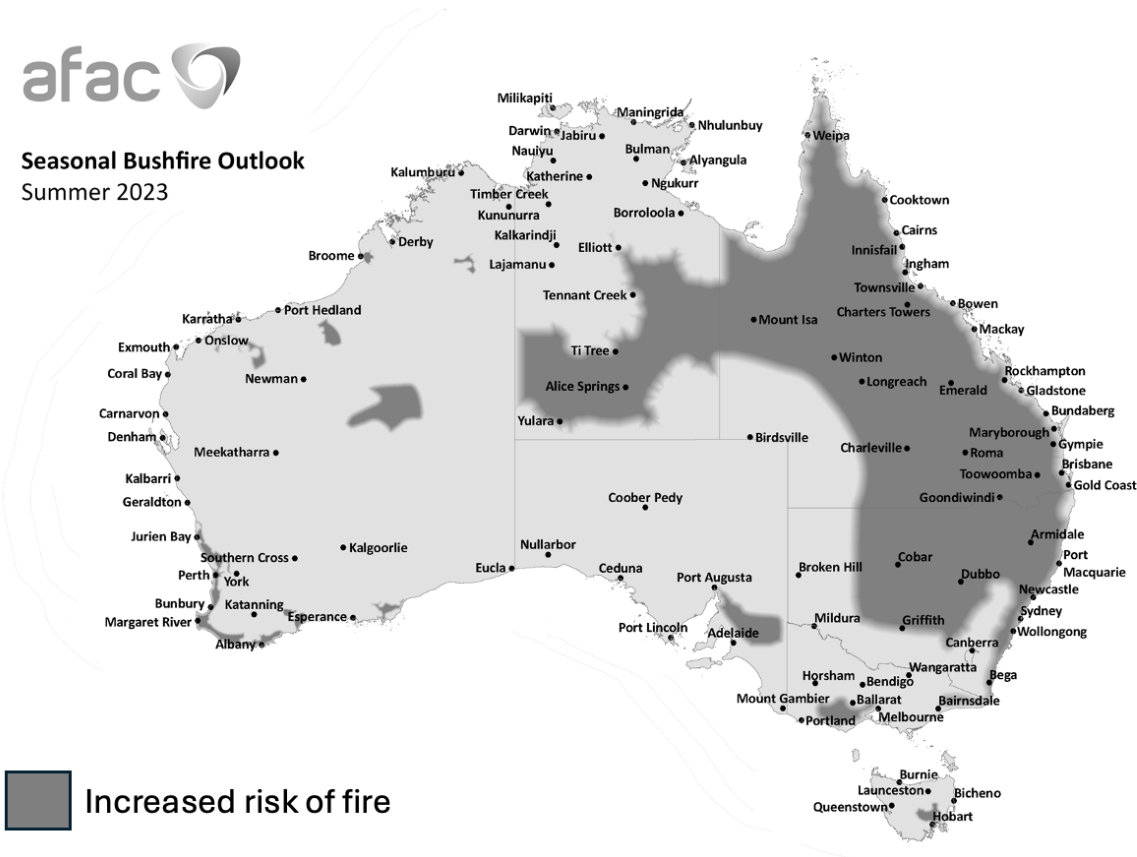


Figure 15: Diagram of seasonal bushfire risk in Australia for Summer 2023.

Modified from AFAC CC-BY 4.0

a) i. State whether Summer 2023 was during an El Niño or La Niña year.

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ii. Justify your decision with respect to the changes in climate observed in Australia during these different conditions.

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Question 15 continues

**Question 15 continued**

Marker use

- b) Explain how the changes in the frequency of bushfires affects the type of forest present in different parts of Tasmania.

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**Total  
Q15  
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**Question 16**

Cane toads were introduced into Queensland from tropical South America in 1935 to control beetles in sugarcane fields. Eggs, tadpoles and adult cane toads are all toxic. Since their introduction, cane toads have spread from Queensland into parts of the Northern Territory, New South Wales and Western Australia. The life cycle of the cane toad is shown in Figure 16.

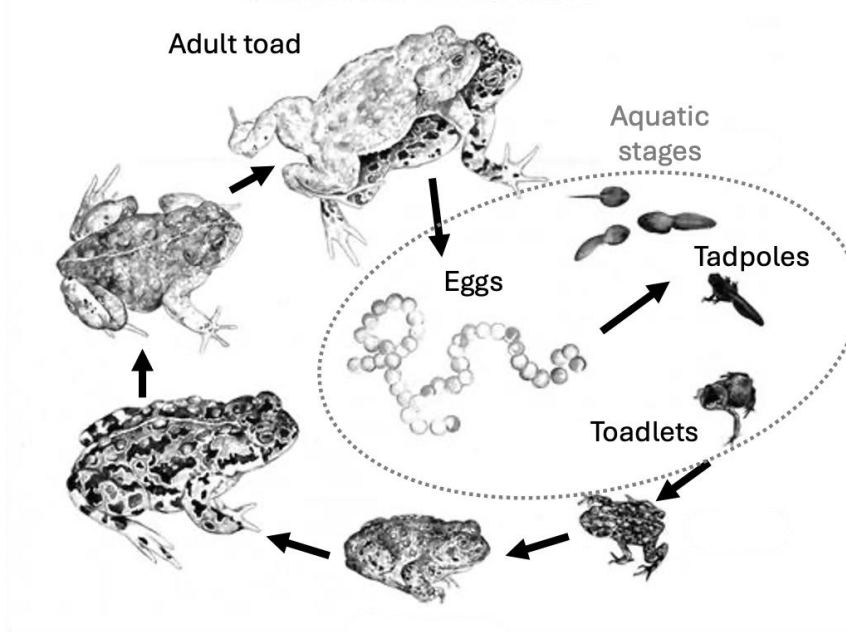


Figure 16: Diagram of the life cycle of cane toads.  
Adapted from Wikimedia Commons CC-SA 4.0

a) Describe **two (2)** possible impacts cane toads might have on Australian biodiversity.

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b) Explain why native predators have not been able to control cane toads.

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**Question 16 continues**

**Question 16 continued**

Marker use

- c) Explain why cane toads are not likely to establish breeding populations in Tasmania.

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End of Section C

**Total  
Q16  
/6**



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# ENVIRONMENTAL SCIENCE

ESS315118

## Section **D**

Pages: 12

Questions: 6

Information Sheet: 1

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Marker use	
C7	/ 36

# Guide to Exam Structure

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## Criterion

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You **must** make sure your answers address:

- Criterion 7 apply concepts relating to human dependence and impact on ecosystems.

**Question 17**

*Pecten fumatus* (scallops) are a popular catch, particularly in the D’Entrecasteaux Channel between Bruny Island and mainland Tasmania. Fisheries scientists have conducted regular surveys of scallop numbers since 2005 – shown in Figure 17. The fishery was closed in 2011 and has not reopened since.

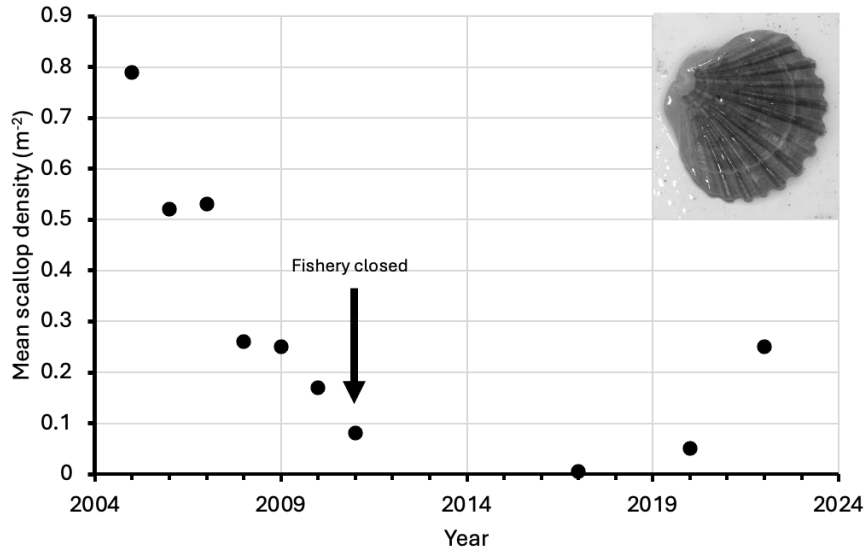


Figure 17: Scallop density in the D’Entrecasteaux Channel 2005–2022.

Redrawn from data in Ewing et al. (2022)

a) Estimate the approximate density of scallops in 2007.

/1

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b) Explain why the scientists closed the fishery in 2011.

/2

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c) If the fishery was reopened, suggest **two (2)** methods that could be used to ensure sustainable catches.

/2

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**Total**  
**Q17**  
**/5**

**Question 18**

Marker use

Two types of rat poison are available in Australia known as First Generation (FGARs) and Second Generation (SGARs). Rats that have been poisoned can be eaten by predatory animals, particularly birds of prey. Owls will usually eat the rat whole, while other birds of prey often avoid parts of the rat with high concentrations of poison, such as the gut.

Table 3 shows a summary of the two types of poison.

Type of poison	Number of doses needed	Kills other vertebrates (Y/N)	Found in owl droppings (Y/N)	Found in fish tissue (Y/N)
FGAR	multiple	Y	N	N
SGAR	one	Y	Y	Y

*Table 3*

a) Based on the information given, suggest which type of rat poison bioaccumulates.

/1

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b) Explain why SGARs might be a particular problem for owls.

/2

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c) Fish do not eat rats. Explain how rat poison can be found in fish tissue.

/2

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d) Describe **one (1)** potential alternative to using rat poison.

/1

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**Total Q18**

/6

**Question 19**

Marker use

The ecological footprint of a country can be calculated in different ways – either per person or a total for the whole country. Figure 18 shows the ecological footprint of six different countries – graph A is per person, while graph B shows the total for the entire country.

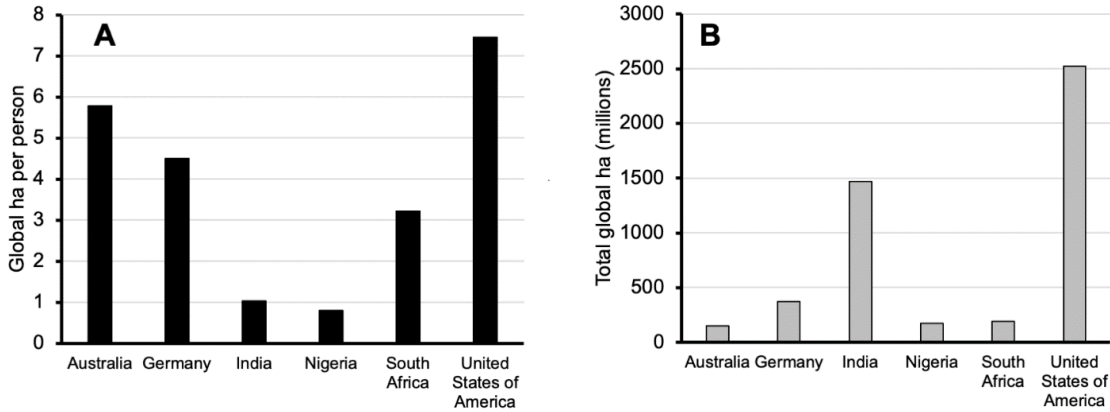


Figure 18: Graphs of the ecological footprint of six countries per person (A) and total (B).  
Data from [www.footprintnetwork.org](http://www.footprintnetwork.org)

a) Estimate the ecological footprint for the following:

South Africa per person: .....

Germany total: .....

/2

b) List **four (4)** major contributors to a country’s ecological footprint.

.....  
 .....  
 .....  
 .....

/2

c) Explain why Australia has the smallest total ecological footprint but the second-highest per person footprint.

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 .....  
 .....  
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/2

**Total**  
**Q19**  
**/6**

Question 20

Cars and trucks contribute to photochemical smog which builds up during the day as shown in Figure 19.

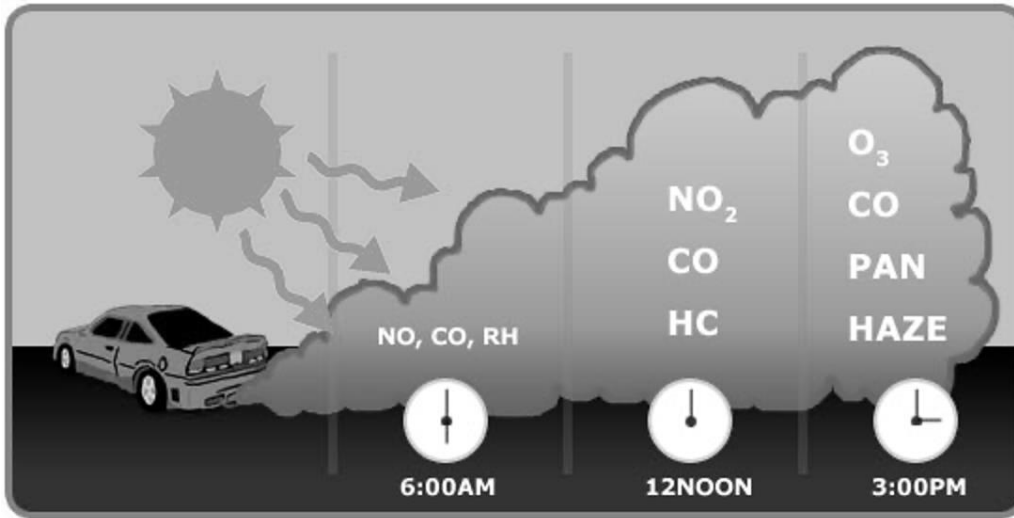


Figure 19: Diagram of the formation of photochemical smog over the course of a day.

Modified from Energy Education CC-BY 4.0

a) List **two (2)** adverse effects of photochemical smog.

/1

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.....

b) Describe why some pollutants such as ozone (O<sub>3</sub>) or nitrogen dioxide (NO<sub>2</sub>) do not increase in concentration until later in the day.

/2

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Question 20 continues

**Question 20 continued**

**Marker use**

- c) Explain how atmospheric ozone can be harmful or beneficial depending on where it is found in the atmosphere.

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**Total  
Q20  
/6**

**Question 21**

Saltmarshes are unique environments which are covered with seawater during the high tide and exposed to the air at low tide. Figure 20 shows a representation of some of the ecosystem services provided by saltmarshes.

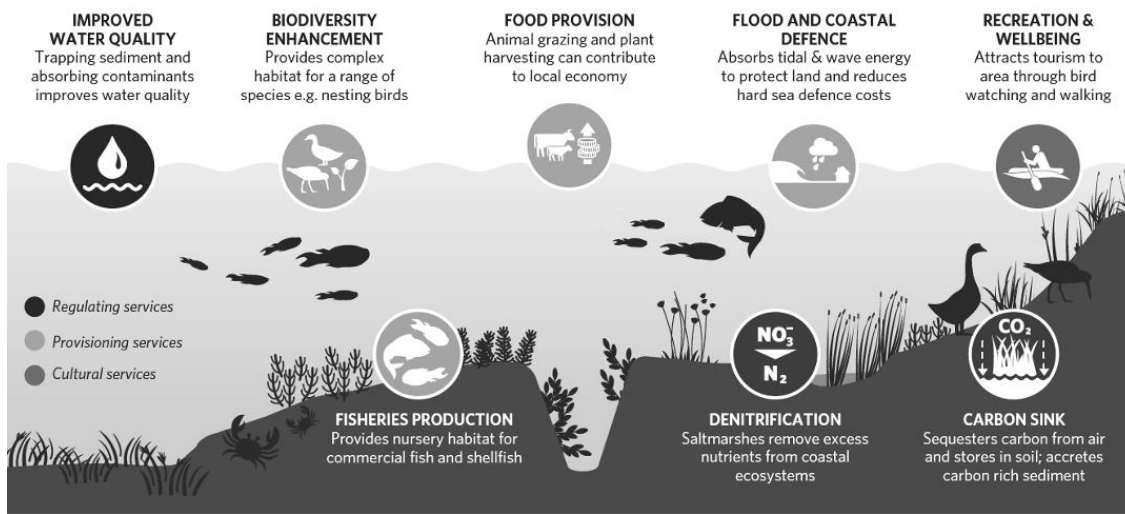


Figure 20: Diagram showing ecosystems services provided by saltmarshes.

Modified from Hudson et al. (2021) CC-BY 4.0

a) State **two (2)** regulating services provided by saltmarshes.

.....

.....

/1

b) Describe **one (1)** difference and **one (1)** similarity between the ecosystem services provided by a saltmarsh ecosystem and a forest ecosystem.

/2

Similarity: .....

.....

Difference: .....

.....

c) One important group of ecosystem services is missing from the diagram in Figure 20. Identify this group and explain why it is important.

/2

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**Total**  
**Q22**  
**/5**

**Question 22**

Household liquid waste in Australia is normally treated in sewage treatment plants. However, during heavy rain, the extra storm water flows through the same pipe system and the total amount of liquid can overflow. The mix of storm water and household waste will then flow untreated into the environment (Figure 21).

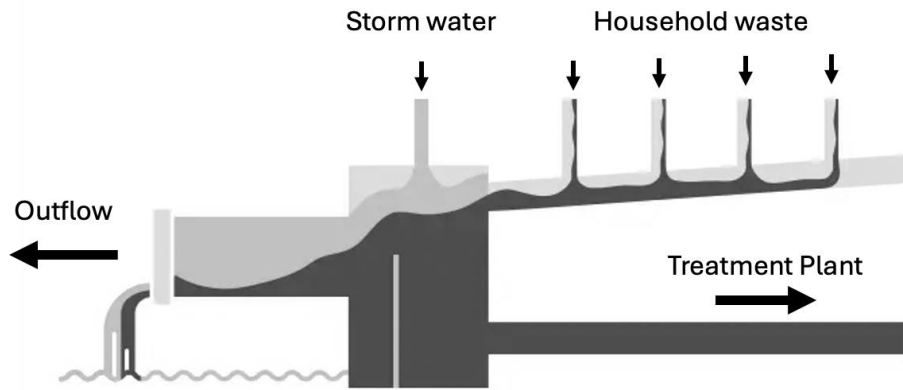


Figure 21: Diagram showing waste water system.

Modified from Wikimedia Commons CC-SA 4.0

a) Circle **four (4)** correct terms for this type of pollution from the following list.

- |              |                |           |
|--------------|----------------|-----------|
| PERSISTENT   | BIODEGRADABLE  | PRIMARY   |
| INORGANIC    | DIFFUSE SOURCE | SECONDARY |
| POINT SOURCE | SYNTHETIC      | ORGANIC   |

/2

b) Describe what will happen to the Biological Oxygen Demand (BOD) downstream of the outflow.

/2

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Question 22 continues

**Question 22 continued**

Marker use

c) Explain **two (2)** other negative effects of the sewage spill.

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**Total  
Q22  
/8**

End of Section D  
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External Assessment 2024

# ENVIRONMENTAL SCIENCE

ESS315118

## Section **E**

Pages: 12

Questions: 6

Information Sheet: 1

**Suggested working time:** 36 minutes

### Instructions:

- Answer **all** questions and **all** items within each question.
- Write your answers in the spaces provided in this exam paper.
- The exam is **three (3) hours** in length. The suggested working time for this section is **approximately 36 minutes**.
- The Environmental Science Information Sheet can be used throughout the exam.
- All answers must be written in **English**.
- You **must** make sure your answers address the listed criterion.

Marker use	
C8	/ 36

# Guide to Exam Structure

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	Questions available	Questions to answer	Suggested working time	Marks available
Section <b>A</b>	5	5	36 minutes	36 marks
Section <b>B</b>	5	5	36 minutes	36 marks
Section <b>C</b>	6	6	36 minutes	36 marks
Section <b>D</b>	6	6	36 minutes	36 marks
Section <b>E</b>	6	6	36 minutes	36 marks
<b>Totals</b>	<b>28</b>	<b>28</b>	<b>180 minutes (3 hours)</b>	<b>180 marks</b>

## Criterion

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You **must** make sure your answers address:

- Criterion 8 apply principles and processes related to ecologically sustainable management of the environment.

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**Question 23**

Marker use

Oil spills in the marine environment can have very serious effects on animals and plants (Figure 22). If an oil spill occurs in Australia, the company responsible must pay to clean up the spill and faces large fines.



*Figure 22: Photograph of an oil tanker leaking oil on a coral reef.*  
*Wikimedia Commons CC-SA 4.0*

a) State the term used to describe the responsibility for the costs of the spill.

/1

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b) Explain the purpose of fines in environmental management.

/2

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c) Another economic method of environmental management is full-cost pricing. Use a different example to explain how full-cost pricing works.

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**Total  
Q23  
/6**

**Question 24**

Marker use

The Great Artesian Basin (GAB) is Australia’s largest freshwater resource, covering more than one-fifth of the whole continent. At the edges of the basin, water emerges at freshwater springs (Figure 23). In other locations, the water can only be accessed by drilling.



Figure 23: Map of location of Great Artesian Basin.

Wikimedia Commons CC-SA 4.0

a) List **two (2)** uses for water from the GAB.

/1

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b) Explain how unregulated water use could lead to a ‘Tragedy of the Commons’ with respect to the GAB.

/3

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c) Describe **one (1)** strategy to support sustainable water use from the GAB.

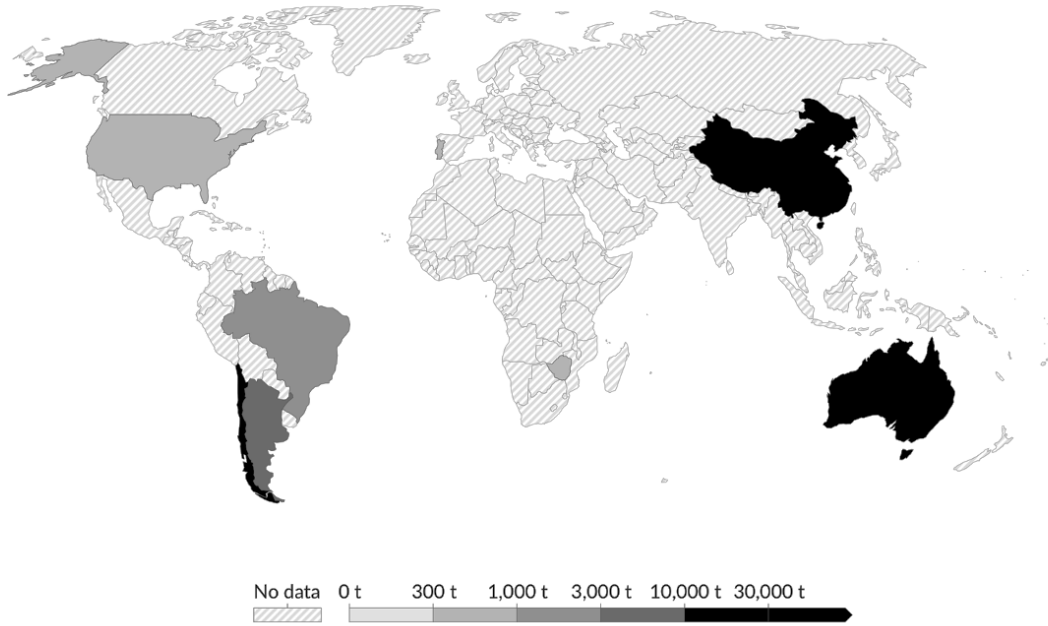
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Total  
Q24  
/6

**Question 25**

Lithium is a key element used in renewable batteries. The map in Figure 24 shows global lithium production in 2022.



*Figure 24: Map of world lithium production in 2022.*

*Modified from Our World in Data CC-BY 4.0*

Discuss whether lithium production satisfies the following principles of ecologically sustainable development.

i. Intragenerational Equity: .....

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.....

/2

ii. Intergenerational Equity:.....

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/2

**Total  
Q25  
/4**

**Question 26**

Marker use

a) State **one (1)** international convention or agreement that you have studied this year.

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b) Describe the operation of this convention or agreement. Include details of the objectives and methods.

/4

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c) Explain why we need international conventions and agreements.

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**Total  
Q26  
/8**

**Question 27**

Over the past few years there have been proposals to increase salmon farming on the east coast of Tasmania at places like Okehampton Bay (Figure 25).



*Figure 25: Photograph of salmon pens in Tasmania.*

*Modified from Wikimedia Commons CC-SA 4.0*

- a) State the term used to indicate that the community approves or accepts the proposal.

/1

.....  
.....

- b) Identify **two (2)** groups of stakeholders who might benefit from the proposal and **two (2)** groups who might be negatively impacted.

/2

Benefit Group 1: .....

Benefit Group 2: .....

Negative impact Group 1: .....

Negative impact Group 2: .....

**Question 27 continues**

**Question 27 continued**

Marker use

c) State who is responsible for preparing the Environmental Impact Statement (EIS).

/1

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.....

d) Explain the purpose of the following components of the Environmental Management Plan (EMP).

/4

i. Legal status of the area: .....

.....

ii. Management objectives: .....

.....

iii. Baseline study: .....

.....

iv. Ongoing monitoring: .....

.....

**Total  
Q27  
/8**

**Question 28**

Marker use

Tasmania has 19 National Parks including the Southwest Wilderness World Heritage Area, Ben Lomond NP, Freycinet NP and Mount Field NP. These parks cover approximately 40% of the land area of the state.

a) Describe **one (1)** reason for creating a National Park.

/1

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b) Explain how you could determine if Tasmania’s system of National Parks was Comprehensive, Adequate and Representative.

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**Total  
Q28  
/4**

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