



Coimisiún na Scrúduithe Stáit
State Examinations Commission

Leaving Certificate Examination
Sample 1

Climate Action and Sustainable
Development

Ordinary Level

2 hours 30 minutes

300 marks

Examination Number

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Date of Birth

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For example, 3rd February
2005 is entered as 03 02 05

Centre Stamp

Instructions

Write your answers in blue or black pen. You may use pencil and colouring pencils for graphs and diagrams only.

Write your answers in the spaces provided in this booklet. There is space for extra work at the end of the booklet. Label any such extra work clearly with the question number and part.

This examination booklet will be scanned and your work will be presented to an examiner on screen. Anything that you write outside of the answer areas may not be seen by the examiner.

Section A 100 marks

There is one question in this section, answer **all** parts of this question.

Section B 160 marks

Answer any **four** questions in this section. Each question carries 40 marks.

Section C 40 marks

Answer **one** question in this section. Each question carries 40 marks.

Section A

100 marks

Answer **all** parts of this question.

Question 1

(100 marks)

- (a) **Figure 1** below shows a diagram of the greenhouse effect. Match each of the labels on the diagram with the description in the table that best matches it.

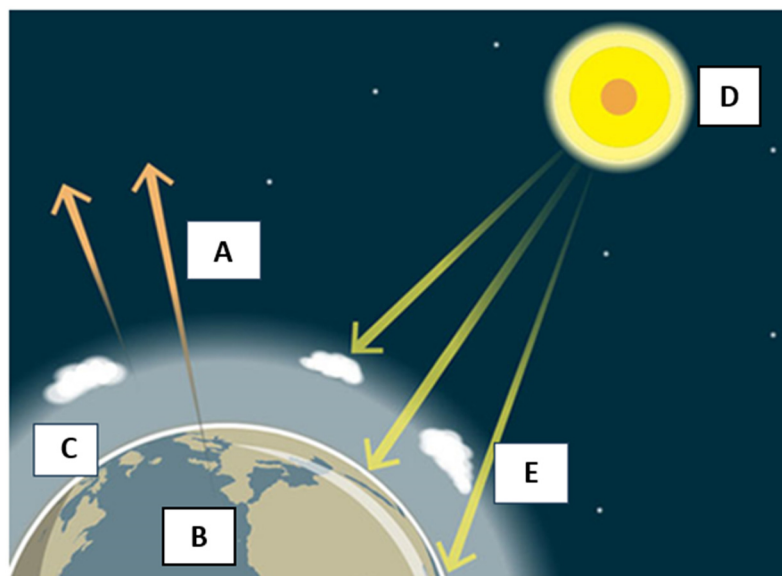


Figure 1

Description	Letter
In-coming solar radiation	
Out-going solar radiation	
The atmosphere	
The sun	
The Earth	

- (b) Indicate whether each of the following statements is true or false by ticking (✓) the correct box for each.

	True	False
(i) Political ideology is the set of principles or ideas held by a group or individual that explains how society should work.	☐	☐
(ii) Grassroot campaigning is a process of passing laws by a government.	☐	☐
(iii) A person's cultural values will never influence their decision-making ability.	☐	☐
(iv) Lobbying involves refusing to buy something or use a service as a way of protesting or expressing disapproval.	☐	☐
(v) A wide range of stakeholders should be involved in policy design if the policy implementation is to be successful.	☐	☐

- (c) Examine the diagram illustrating the framework of doughnut economics in **Figure 2** and answer the questions that follow.

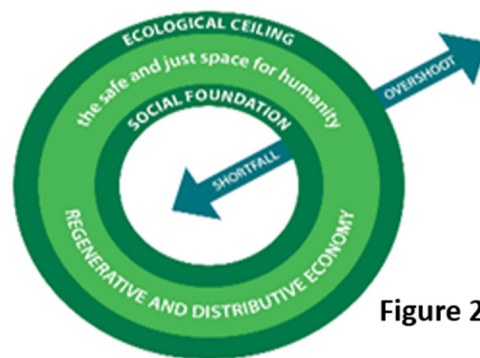


Figure 2

Indicate whether each of the following statements about doughnut economics is true or false by ticking (✓) the correct box for each.

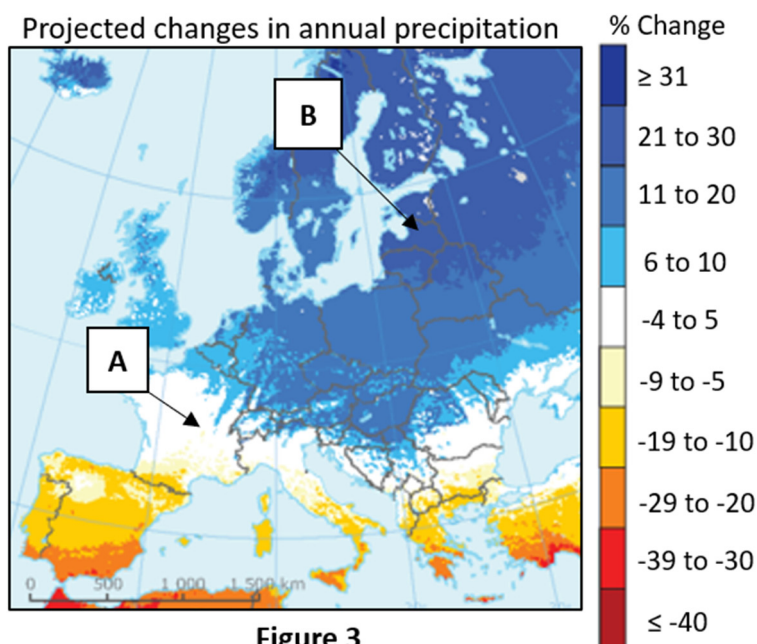
- | | True | False |
|---|--------------------------|--------------------------|
| (i) The framework was developed by economist Kate Raworth. | ☐ | ☐ |
| (ii) This framework promotes carrying out financial activities even if they negatively impact on the environment. | ☐ | ☐ |
| (iii) It provides a framework to measure the performance of an economy by how well the needs of people are met without going beyond planetary boundaries. | ☐ | ☐ |
| (iv) Social needs are not considered within this framework. | ☐ | ☐ |
| (v) It is an economic system where prices are determined by supply and demand. | ☐ | ☐ |

- (d) Match each of the terms below with the description in the table that best matches it.

Terms				
A	B	C	D	E
Climate debt	Ecological debt	Climate loss and damage	Climate justice	Small island developing states

Description	Letter
Term put forward by NGOs from the Global South since 1990s that describes the debt owed by wealthy countries because of their exploitation of resources, destruction of habitats and pollution.	
This refers to the negative effects of the climate crisis that occur despite mitigation and adaptation and which are unavoidable and irreversible.	
Owed to countries in the Global South by countries in the Global North for the damage caused by their disproportionately large contribution to climate change.	
This puts equity and human rights at the core of decision-making and action on climate change.	
A collection of countries in the Global South that share similar challenges relating to sustainable development and are often highly vulnerable to climate change.	

- (e) Study the map in **Figure 3** below showing projected changes in annual precipitation and answer the questions that follow.



- (i) Which country labelled on **Figure 3** is projected to have a larger percentage increase in precipitation? Tick (✓) the correct box.

A ☐ B ☐

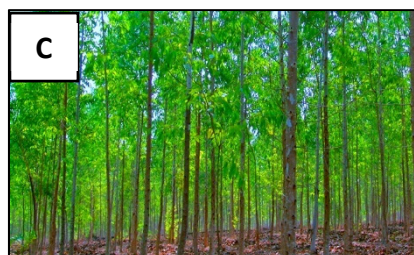
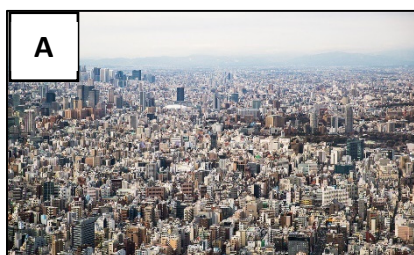
- (ii) Name **one** piece of data, other than precipitation, that can be used as evidence for climate change being caused by humans.

- (f) Match the example of an Earth system from the list with the description that best matches it in the table below.

Example of Earth System				
A Biosphere	B Cryosphere	C Geosphere	D Hydrosphere	E Atmosphere

Description	Letter
The parts of the Earth's surface where water is in solid form.	
This system includes the Earth's water in liquid form.	
This is the outer layer of the Earth and is composed of gases.	
The regions of the Earth occupied by living organisms.	
The system which includes only the solid part of Earth.	

- (g) Study the photographs below which show different examples of human activities that impact the environment and answer the questions that follow.



- (i) Match each of the images above to the human activity that best matches it in the table below.

Human activity	Photograph
Reforestation	
Increasing urbanisation	
Use of solar panels	
Rewetting of bogs	

- (ii) State **one** of the activities listed in the table above that is **not** a nature-based approach to decarbonising economies.

(h) Read the paragraph below and answer the questions that follow.

In 1992, the UN Conference on Environment and Development was held in Brazil. This meeting was also known as the Earth Summit and a number of key agreements were reached at it. One of these was an action plan for sustainable development, *Agenda 21*, which identified information, integration, and participation as key building blocks to help countries achieve development that recognises these interdependent pillars. Furthermore, *Agenda 21* emphasises that broad public participation in decision-making is a major requirement for achieving sustainable development.



- (i) In what year **and** in which location did the UN Conference on Environment and Development take place?

Year:
Location:

- (ii) List the **three** key building blocks to help countries achieve development that are identified in the text.

1.
2.
3.

- (i) Which **two** of the following human activities directly contribute to the enhanced greenhouse effect?

Tick (✓) the **two** correct boxes.

- | | |
|---------------------------------|--------------------------|
| Walking | ☐ |
| Driving a combustion engine car | ☐ |
| Afforestation | ☐ |
| Rewilding | ☐ |
| Factories burning fossil fuels | ☐ |

- (j) Examine the infographic in **Figure 4** below showing loss and damage associated with the impacts of climate change and answer the questions that follow.

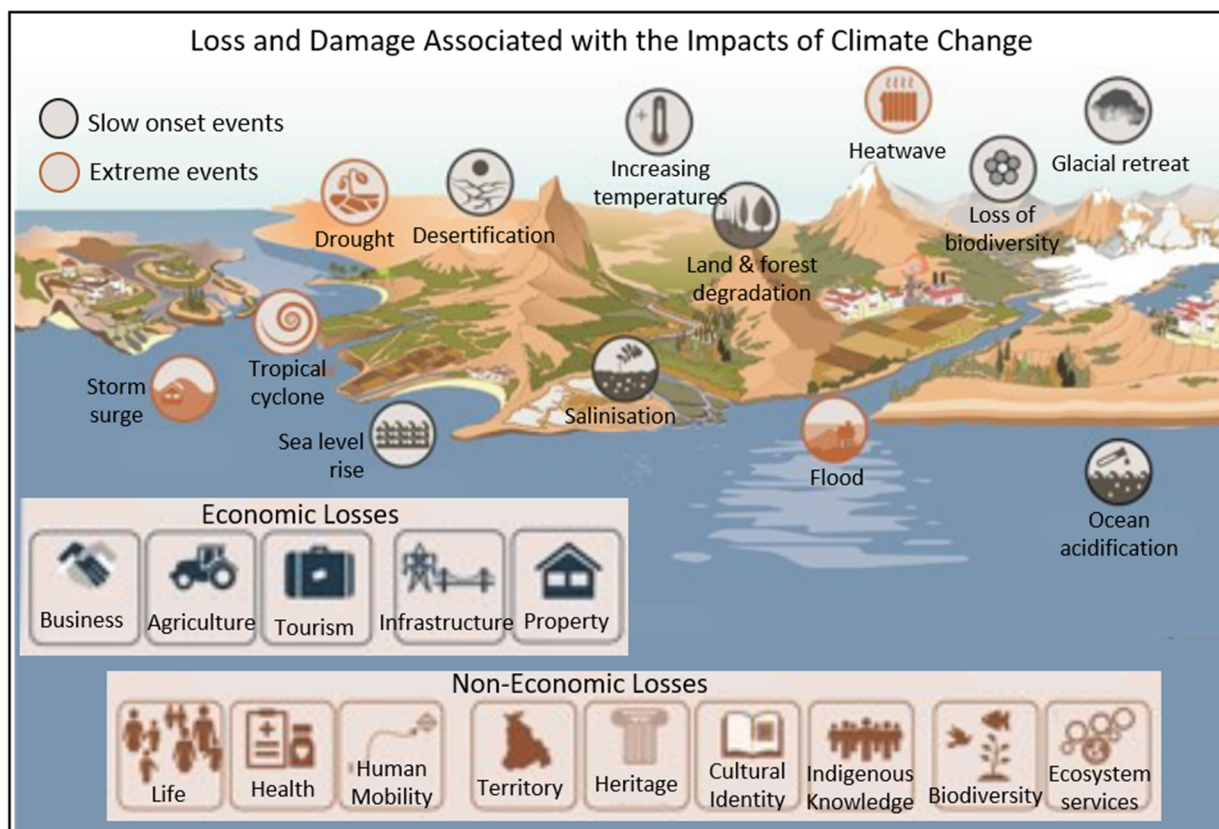


Figure 4

- (i) Name **one** extreme event associated with climate change that is shown in **Figure 4**.

Extreme Event:

- (ii) Name **one** economic loss associated with climate change that is shown in **Figure 4**.

Economic Loss:

Answer any **four** questions in this section. Each question carries 40 marks.

Question 2

(40 marks)

- (a) Read the article below about emissions from agriculture and answer the questions that follow.

Despite a slight reduction in overall emissions last year, Ireland is still 'well off track' in meeting its European Union (EU) and national climate targets for 2030, according to its Environmental Protection Agency – in large part due to the methane from Ireland's unchecked dairy production. The agriculture sector was responsible for over a third (37.8 percent) of the country's greenhouse gas emissions in 2023, the highest proportion in Europe.



The intensive farming lobby appears to be in the driving seat. The dairy industry in particular has been ramping up lobbying efforts around Ireland's exemption from the EU Nitrates Directive; a policy designed to tackle farming pollution. The country's exemption allows certain farms to use larger amounts of manure as fertiliser, despite the fact it releases significant amounts of nitrous oxide, a greenhouse gas that is 265 times stronger than carbon dioxide over a 100 year period.

- (i) Name **two** greenhouse gases mentioned in the text.

1.

2.

- (ii) According to the text, what percentage (%) of Ireland's greenhouse gas emissions come from the agriculture sector?

- (iii) Explain briefly how lobbying can influence decision making.

- (b) Examine **one** way the Irish government has taken action to reduce negative environmental impacts. In your answer state whether the action taken by the government has been successful.

- (c) Explain how vested interests, other than the one referenced in the text in part (a), can influence the decision to implement a national policy related to the environment. Name the national policy that you have studied in your answer.

- (d) Examine **one** example of a mitigation strategy in Ireland dealing with climate change. In your answer state the root cause(s) of a climate change problem that the mitigation strategy aims to address.

Question 3

(40 marks)

(a) Read the article below about the rights of nature and answer the questions that follow.

Reframing the law to recognise nature's value



Viewing nature as a commodity has long been the norm but giving it legal rights may force a change of outlook across the world.

Ecuador and Bolivia have given legal rights to nature to exist, persist, maintain and regenerate. In India, legal attempts have been made to give nature similar rights as humans so it can have legal protection.

(i) Name **two** countries mentioned in the article that have given legal rights to nature.

1.

2.

(ii) Explain briefly **one** benefit that arises when a country recognises the rights of nature.

(b) Describe **one** benefit for people of being in nature.

(c) Answer the following questions based on a nature-based participatory experience you designed as part of the applied learning tasks.

(i) What aspect(s) of nature were participants expected to interact with as part of your plan?

--

(ii) What group of people did you design your nature-based experience for? Explain why you chose them.

(iii) Discuss the nature-based experience that you designed. In your answer include information on the following:

- the location of the experience
- the activity(ies) you designed for the participants
- the reasons you chose this activity(ies).

Question 4**(40 marks)****(a)** Name **two** fossil fuels.

1.
2.

(b) Explain how the burning of fossil fuels causes the enhanced greenhouse effect.

(c) Examine the data below showing the percentage of people in selected countries who were interested in using sustainable transport in 2022.

Using the graph paper on the next page, draw a suitable graph to illustrate this data.

Percentage of people in selected countries
interested in using sustainable transport in 2022

Country	%
India	65%
Italy	55%
Great Britain	45%
France	35%

Question 5**(40 marks)**

- (a) Examine the data below showing the results of an ecological survey carried out by a group of students to investigate the effect of soil pH on the distribution of dandelions at five different sites and answer the questions that follow.



Site	Soil pH	Number of dandelions
1	7.0	84
2	3.8	30
3	6.1	62
4	4.2	45
5	6.5	66

- (i) Which site had the greatest number of dandelions?

- (ii) Complete the following sentence by ticking (✓) the correct box.

In this ecological survey, as soil pH increases, the number of dandelions_____.

Increase ☐ Decrease ☐

- (iii) State whether the type of data shown in the table is qualitative or quantitative.

(b) Describe how a local ecosystem you studied influences both of the following:

- livelihood
- culture.

Local ecosystem:
Influence on livelihood:
Influence on culture:

(c) Explain **one** impact of climate change on an ecosystem that you have studied.

- (d) Select **one** of the facilitation skills in the table below **and** explain the importance of using that skill when communicating with people about climate action and sustainable development.



Facilitation Skills				
Active listening	Questioning	Awareness of other people's behaviours	Self-awareness	Managing conflict

Chosen Skill:
Explanation:

Question 6**(40 marks)**

- (a)** Study the article below about improving energy ratings of homes in Ireland and answer the questions that follow.

Retrofitting buildings involves modifying them using features, materials or technology made available after they were originally built. Retrofitting our homes with good insulation would be a good first step in mitigating climate change. It would also improve life for people who currently are unable to afford the electricity, oil or gas needed to maintain a comfortable home. As well as the economic and environmental benefits, retrofitting a home improves air quality and the health and wellbeing of those who live there.



Residential buildings account for 27% of Ireland's total energy use and 12% of carbon emissions. The EU wants to improve energy efficiency by 27% by 2030.

- (i)** What percentage (%) of Ireland's carbon emissions are from residential buildings?

--

- (ii)** State **two** benefits mentioned in the article of insulating homes.

1.
2.

- (iii)** Suggest **one** other way to improve the energy rating of homes.

--

- (b)** Name **one** sector of the economy in Ireland, other than residential, that requires a just transition **and** describe an example of just transition in practice in that sector.

Sector requiring just transition:
Example of just transition in that sector:

- (c) At COP 29 for the United Nations Framework Convention on Climate Change (UNFCCC) 2024 a deal was reached offering at least \$300 billion a year to help countries with the least resources cope with the impacts of climate change. **Figure 5** and **Figure 6** show how this deal was reported in different ways.

World agrees to climate deal on financial assistance for countries most affected by climate change.  Figure 5	'Too little, too late': Activists and poorer nations criticise \$300bn COP29 deal.  Figure 6
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Do you think that climate justice was achieved through this deal? Explain your answer with reference to both **Figure 5** and **Figure 6**.

(d) Climate change can impact people differently depending on a variety of factors.
Discuss how **two** of the following factors can influence how people experience the impact of climate change:

- Age
- Ethnicity
- Gender.

Factor 1:
Factor 2:

Section C

40 marks

The questions in this section require an answer in the form of an essay.

Answer **one** question in this section. Each question carries 40 marks.

Question 7

(40 marks)

The ability of communities in the Global South to adapt to and mitigate against the impacts of climate change is influenced by climate injustices.



Discuss this statement with reference to each of the following:

- your understanding of climate justice
- root causes of climate injustice
- how a community from the Global South is adapting to and mitigating against the impacts of climate change.

Or

Question 8

(40 marks)



Across the globe various local community groups are engaging in climate and sustainability action.

Discuss how a group or organisation you have studied is engaged in positive action related to climate action and sustainable development.

Include each of the following in your discussion:

- the issue being addressed by that the group or organisation
- steps that were taken to ensure the action was effective
- the impact(s) of the action taken by the group or organisation.

Tick (✓) the relevant box to indicate which question from **Section C** you are answering.

Question 7 ☐

Question 8 ☐

Use this space for planning/roughwork.

Tick (✓) the relevant box to indicate which question from **Section C** you are answering.

Question 7 ☐

Question 8 ☐

[illegible]

Acknowledgements

Images

Image on page 3: <https://www.bgs.ac.uk/discovering-geology/climate-change/how-does-the-greenhouse-effect-work/>

Image on page 4: <https://www.briannwokedi.com/2018/12/doughnut-economics/.html>

Image on page 5: <https://www.eea.europa.eu/soer/2015/europe/climate-change-impacts-and-adaptation>

Images on page 6: <https://morphocode.com/global-trends-urbanisation/>; <https://www.mitie.com/insights-news/insight/installing-solar-panels-on-your-commercial-building-roof-heres-everything-you-need-to-know/>;
<https://www.agriland.ie/farming-news/dafm-launches-new-neighbourhood-forestry-scheme/>;
<https://www.agriland.ie/farming-news/midlands-project-supports-farmers-rewetting-peat-soils/>

Image on page 7: <https://www.un.org/esa/dsd/agenda21/>

Image on page 8: <https://www.climateforesight.eu/seeds/loss-and-damage/>

Image on page 9: <https://www.desmog.com/>

Image on page 12:

https://www.law.msu.edu/news/2023/msu_law_groundbreaking_conference_rights_of_nature.html

Image on page 14: <https://www.washingtonpost.com/news/energy-environment/wp/2015/06/08/were-still-waking-up-to-the-long-term-consequences-of-burning-fossil-fuels/>

Image on page 15: <https://www.irishmirror.ie/news/irish-news/pollution-cars-drops-50-across-22051745>

Image on page 16: <https://insideecology.com/2023/05/04/dandelions-are-a-lifeline-for-bees-on-the-brink-we-should-learn-to-love-them/>

Image on page 18: <https://agilewithjimmy.com/courses/mastering-workshop-facilitation/>

Image on page 19: <https://ofdesign.net/interior-design/tips-for-heating-ventilation-dams-in-winter-saving-energy-and-costs-2772>

Images on page 20: <https://edition.cnn.com/2024/11/23/climate/cop29-agreement/index.html>;
<https://www.rte.ie/news/world/2024/1123/1482526-cop29-climate/>

Images on page 22: https://www.apln.network/news/member_activities/is-there-such-a-thing-as-a-global-south;
https://www.appropedia.org/Climate_news; <https://www.change.org/p/sustainable-community-initiative>

Texts

Text on page 9: <https://www.desmog.com/2024/09/25/mapped-ireland-powerful-farming-lobby/?nowprocket=1>

Text on page 12: <https://360info.org/reframing-the-law-to-recognise-natures-value/>

Data on page 14: <https://www.statista.com/statistics/1310612/consumers-trying-to-change-their-transport-for-climate-change/>

Data on page 16: *State Examinations Commission*

Text on page 19: <https://www.irishtimes.com/news/environment/a-retrofitting-revolution-1.2671812>

Text on page 20: <https://edition.cnn.com/2024/11/23/climate/cop29-agreement/index.html>;
<https://www.rte.ie/news/world/2024/1123/1482526-cop29-climate/>

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Leaving Certificate Examination – Ordinary Level

Climate Action and Sustainable Development

Sample 1

2 hours 30 minutes