

LEAVING CERTIFICATE · ORDINARY LEVEL · SAMPLE PAPER 1 · 2027

Climate Action and Sustainable Development

Total marks
300

Duration
2h 30m

Sections
A · B · C

About this document

A practice marking scheme produced by SimpleStudy to help students and teachers prepare for the Leaving Certificate examination in Climate Action and Sustainable Development.

Not an official State Examinations Commission document.

Marking Scheme

This marking scheme accompanies SimpleStudy's Sample Paper 1 in Climate Action and Sustainable Development (Ordinary Level). It is intended to support candidates and teachers preparing for the Leaving Certificate examination in this subject. It is not an official State Examinations Commission document.

General Marking Guidelines

- Accept all reasonable responses not explicitly listed in this scheme.
- Award marks for relevant content even if poorly expressed.
- Do not penalise for poor spelling or grammar unless meaning is unclear.
- Where a candidate contradicts themselves, award the lower mark.
- A named example is required where specified — no marks without one.
- For diagrams and graphs: credit accuracy, labelling, and appropriate choice of chart type.

Grading Descriptors (Section B extended answers and Section C)

High (H)	Accurate, well-developed, specific and relevant.
Mid (M)	Mostly accurate, some development, relevant.
Low (L)	Partially accurate, limited development, broadly relevant.

Paper Structure

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**

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

Question 1 — 100 marks (Answer ALL parts)

(a) Greenhouse effect — Figure 1 label matching. (20 marks)

4 marks per correct match × 5 = 20 marks. Award marks for each correct match. Do not penalise incorrect matches beyond not awarding marks for them.

Part	Acceptable Answer(s)	Marks
In-coming solar radiation	The arrow showing solar energy travelling from the sun toward the Earth (incoming shortwave radiation).	4
Out-going infra-red (heat) radiation	The arrow showing solar energy reflected back away from the Earth (e.g. by clouds, ice, or the atmosphere) — not absorbed.	4
The atmosphere	The layer of gases surrounding the Earth that absorbs and re-emits infra-red radiation — shown as the layer between the Earth's surface and space.	4
The sun	The source of incoming solar radiation — shown as the star/energy source in the diagram.	4
The Earth	The surface of the planet that absorbs incoming solar radiation and re-emits it as infra-red (heat) radiation.	4

(b) True or False. (10 marks)

2 marks per correct answer × 5 = 10 marks. No partial marks per statement.

Part	Acceptable Answer(s)	Marks
(i) 2 marks	TRUE Political ideology is indeed the set of principles or ideas held by a group or individual that explains how society should work (e.g. socialism, liberalism, conservatism).	2
(ii) 2 marks	FALSE Grassroots campaigning is not a process of passing laws — it is a form of activism where ordinary citizens organise from the bottom up to influence political or social change. Passing laws is a legislative/governmental process.	2
(iii) 2 marks	FALSE Cultural values do influence decision-making. People's beliefs, traditions, and cultural background shape their attitudes and choices — including on environmental issues.	2
(iv) 2 marks	FALSE The description given (“refusing to buy something or use a service as a way of protesting”) describes a boycott, not lobbying. Lobbying involves attempting to directly influence government or policymakers.	2
(v) 2 marks	TRUE Involving a wide range of stakeholders in policy design increases legitimacy, improves buy-in, and helps identify practical obstacles — making successful implementation more likely.	2

(c) Doughnut Economics — True or False. (10 marks)

2 marks per correct answer × 5 = 10 marks.

Part	Acceptable Answer(s)	Marks
(i) 2 marks	TRUE Doughnut Economics was developed by economist Kate Raworth, first published in a 2012 Oxfam paper and expanded in her 2017 book.	2
(ii) 2 marks	FALSE Doughnut Economics explicitly argues that economic activity should NOT negatively impact the environment — it must remain within planetary boundaries (the outer ring of the doughnut).	2
(iii) 2 marks	TRUE The doughnut framework measures economic performance by how well human needs (social foundation) are met without exceeding ecological limits (planetary boundaries).	2
(iv) 2 marks	FALSE Social needs are central to the Doughnut framework — the inner ring (the social foundation) represents essential human needs such as food, water, health, education, housing, and political voice.	2
(v) 2 marks	FALSE The description of prices being determined by supply and demand describes a market economy / capitalism, not Doughnut Economics. Doughnut Economics is a framework for sustainable development, not a market pricing mechanism.	2

(d) Match the terms — climate justice concepts. (20 marks)

4 marks per correct match × 5 = 20 marks. Award marks for each correct match. Accept any response that demonstrates understanding of the correct match.

Part	Acceptable Answer(s)	Marks
Ecological debt (B)	Term put forward by NGOs from the Global South since the 1990s that describes the debt owed by wealthy countries because of their exploitation of resources, destruction of habitats and pollution. Ecological debt is the broader concept of environmental debt accumulated through unsustainable exploitation of the global commons.	4
Climate loss and damage (C)	This refers to the negative effects of the climate crisis that occur despite mitigation and adaptation and which are unavoidable and irreversible. e.g. permanent loss of land for small island states; irreversible ecosystem destruction; loss of cultural heritage.	4
Climate debt (A)	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. Climate debt is the specific debt arising from disproportionate historical greenhouse gas emissions.	4
Climate justice (D)	This puts equity and human rights at the core of decision-making and action on climate change. Climate justice recognises that those least responsible for climate change are most affected and must be included in solutions.	4
Small island developing states (E)	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.g. Tuvalu, Kiribati, Maldives, Fiji — facing existential threats from sea level rise.	4

(e) Projected changes in annual precipitation — Figure 3. (8 marks)

Part	Acceptable Answer(s)	Marks
(e)(i) 4 marks	Country B Country B (in the higher latitudes / northern region of the map) is projected to have a larger percentage increase in precipitation. Higher latitudes are generally projected to receive more rainfall as global temperatures rise and the water cycle intensifies. Award 4 marks for selecting B with any reasonable supporting explanation drawn from the map.	4
(e)(ii) 4 marks	Any ONE valid piece of evidence for human-induced climate change other than precipitation data, e.g.: <ul style="list-style-type: none"> • Rising global average temperature records • Ice core data showing CO₂ and temperature correlation • Shrinking glaciers and Arctic ice extent • Rising sea levels (tide gauges and satellite data) • Ocean heat content measurements • Atmospheric CO₂ concentration records (Keeling Curve) • Phenological changes (shifts in seasonal timing of plant flowering, migration) 	4

(f) Match the Earth system. (10 marks)

2 marks per correct match × 5 = 10 marks.

Part	Acceptable Answer(s)	Marks
Parts of Earth's surface where water is in solid form	Cryosphere (B) — includes ice sheets, glaciers, sea ice, permafrost, and snow cover.	2
Earth's water in liquid form	Hydrosphere (D) — includes oceans, rivers, lakes, groundwater, and liquid water vapour.	2
Outer layer composed of gases	Atmosphere (E) — the layer of gases (nitrogen, oxygen, CO ₂ , water vapour, etc.) surrounding the Earth.	2
Regions occupied by living organisms	Biosphere (A) — all living organisms on Earth and their interactions with each other and other Earth systems.	2
Solid part of Earth	Geosphere (C) — the solid Earth: lithosphere, mantle, and core. Includes rocks, soils, and minerals.	2

(g) Human activities and environment — photographs. (14 marks)

Part	Acceptable Answer(s)	Marks
(g)(i) 8 marks	<p>Award 2 marks per correct match × 4 = 8 marks.</p> <p>Reforestation: Image showing tree planting / young trees being planted in open ground. Reforestation is the replanting of trees on land that was previously forested.</p> <p>Increasing urbanisation: Image showing expansion of a city / construction of buildings / aerial view of dense urban development. Urbanisation is the process by which rural areas become urban.</p> <p>Use of solar panels: Image showing solar panels installed on a roof or in a field. Solar panels convert sunlight directly into electricity.</p> <p>Rewetting of bogs: Image showing waterlogged peatland / bog landscape with standing water. Rewetting restores drained bogs by blocking drainage channels.</p>	8
(g)(ii) 6 marks	<p>One activity from the list that is NOT a nature-based approach to decarbonising economies (6 marks)</p> <p>Primary answer: Increasing urbanisation — urbanisation is clearly not a nature-based approach. It replaces natural land with built infrastructure, typically increases energy demand and emissions, and does not use natural ecosystems to achieve decarbonisation. This is the expected answer.</p> <p><i>Also accept:</i> Use of solar panels — but only if the candidate provides a clear justification that solar panels are a technological/engineering solution rather than a nature-based one. Award full marks only where the reasoning is explicit. Do not award marks for solar panels without justification at OL.</p> <p>Do NOT accept: Reforestation or Rewetting of bogs — both are nature-based approaches that use natural processes to sequester carbon.</p>	6

(h) UN Conference on Environment and Development / Agenda 21. (8 marks)

Part	Acceptable Answer(s)	Marks
(h)(i) 4 marks	Year: 1992 Location: Brazil (Rio de Janeiro) — also known as the Rio Earth Summit. Award 2 marks for the year + 2 marks for the location. Accept “Rio” or “Rio de Janeiro” or “Brazil”.	4
(h)(ii) 4 marks	The three key building blocks identified in the text are: 1. Information 2. Integration 3. Participation Award 1 mark + 1 mark + 2 marks (for all three correct) or apportion as examiner judges fit. All three must be present for full marks.	4

(i) Two human activities that directly contribute to the enhanced greenhouse effect. (6 marks)

3 marks per correct selection × 2 = 6 marks. Award marks for each correct selection. Do not award marks for incorrect selections.

Part	Acceptable Answer(s)	Marks
Correct ×2	Driving a combustion engine car — burning petrol or diesel releases CO ₂ directly into the atmosphere, increasing the concentration of greenhouse gases. Factories burning fossil fuels — combustion of coal, oil, or gas in industrial processes releases large quantities of CO ₂ and other greenhouse gases. Do NOT accept: <ul style="list-style-type: none">• Walking — no greenhouse gas emissions.• Afforestation — plants absorb CO₂; this reduces greenhouse gases, not increases them.• Rewilding — restoring natural ecosystems; reduces emissions.	3 + 3

(j) Loss and damage — Figure 4 infographic. (8 marks)

Part	Acceptable Answer(s)	Marks
(j)(i) 4 marks	<p>Any ONE extreme event associated with climate change shown in Figure 4, e.g.:</p> <ul style="list-style-type: none">• Floods / flooding• Droughts• Wildfires / forest fires• Storms / tropical cyclones / hurricanes• Heatwaves• Sea level rise <p>Accept any extreme weather or climate event shown in the infographic.</p>	4
(j)(ii) 4 marks	<p>Any ONE economic loss associated with climate change shown in Figure 4, e.g.:</p> <ul style="list-style-type: none">• Damage to infrastructure (roads, buildings, bridges)• Loss of agricultural land or crops• Destruction of property / housing• Loss of tourism revenue• Damage to fisheries• Loss of business / livelihoods <p>Accept any economic/financial loss clearly shown or implied in the infographic.</p>	4

Section B**160 marks**

Answer any **four** questions in this section. Each question carries 40 marks. Candidates answer all parts of whichever four questions they choose.

Question 2 — Agriculture, Lobbying and Environmental Policy (40 marks)

(a) Agricultural emissions article. (14 marks)

(a)(i) Name two greenhouse gases mentioned in the text. (4 marks)

Part	Acceptable Answer(s)	Marks
2 gases 2 marks each	<ul style="list-style-type: none">• Methane (CH₄) — mentioned in reference to dairy/livestock production.• Nitrous oxide (N₂O) — mentioned in the context of manure and fertiliser use. <p>Both must be named for full marks. Accept “methane” and “nitrous oxide” or their chemical formulae.</p>	2 + 2

(a)(ii) Percentage of Ireland's GHG emissions from agriculture. (4 marks)

Part	Acceptable Answer(s)	Marks
4 marks	37.8% (or “over a third” / “approximately 38%”) The text states the agriculture sector was responsible for over a third (37.8%) of Ireland's greenhouse gas emissions in 2023.	4

(a)(iii) Explain briefly how lobbying can influence decision making. (6 marks)

Part	Acceptable Answer(s)	Marks
6 marks	<p>Lobbying is when a group or organisation tries to directly influence the decisions made by politicians or government officials in order to benefit their own interests.</p> <p>How it influences decision making:</p> <ul style="list-style-type: none">• Lobby groups arrange meetings with politicians to put forward their case and share information that supports their position.• They may use media campaigns or public pressure to persuade decision-makers.• Powerful lobby groups (e.g. the dairy farming industry in the text) can influence government to make exemptions or delay policies that might hurt their industry — such as Ireland's exemption from the EU Nitrates Directive. <p>Award marks for any clear explanation of how lobbying can shape government decisions. At OL, a straightforward explanation with one or two clear examples is sufficient for full marks.</p>	6

(b) Irish government action to reduce negative environmental impacts. (14 marks)

Candidate must name a specific government action/policy. Award marks for: naming the action (2) + examining the action in detail (8) + stating whether it has been successful and justifying that view (4). Accept any valid Irish government environmental policy or action.

Part	Acceptable Answer(s)	Marks
14 marks	<p>Examples of valid government actions (2 + 8 + 4):</p> <p>Plastic bag levy (2002): The government introduced a tax on plastic bags, initially set at 15c, to reduce plastic bag use and litter. The action has been widely regarded as highly successful — plastic bag use fell by over 90% within weeks of introduction, dramatically reducing plastic litter in the environment. It has been cited as one of Europe’s most effective single-use plastic reduction measures.</p> <p>Carbon tax: Ireland introduced a carbon tax (now €80/tonne of CO₂) on fossil fuels to reduce emissions by making fossil fuels more expensive. Revenue is used partly to fund social protections and climate action. Success is mixed — emissions have been slow to fall in transport and agriculture.</p> <p>Deposit Return Scheme (2024): A scheme where consumers pay a deposit on plastic bottles and cans and receive it back when they return the container for recycling. Early results show high return rates, reducing packaging litter significantly.</p> <p>ACRES (Agri-Climate Rural Environment Scheme): Payments to farmers for environmentally beneficial land management practices. Success is ongoing — large uptake in 2023.</p> <p>Award marks for any clearly explained, real Irish government action with a genuine assessment of success.</p>	2 + 8 + 4

(c) Vested interests and national environmental policy. (6 marks)

Must name a specific national policy studied. Must describe a vested interest OTHER than the farming/dairy lobby already discussed in (a). Award marks for: naming the policy (2) + clearly explaining how a different vested interest has influenced it (4).

Part	Acceptable Answer(s)	Marks
6 marks	<p>What are vested interests? Groups or organisations with a strong personal or financial stake in a particular outcome — e.g. corporations, trade unions, industry bodies — who use their resources and influence to shape policy in their favour.</p> <p>Examples (2 + 4):</p> <p>Fossil fuel industry + Climate Action Plan: Fossil fuel companies have lobbied against aggressive carbon pricing and renewable energy mandates, seeking to protect their existing investments and market position. Their financial resources allow them to fund think tanks, media campaigns, and political donations that can slow or dilute climate policy.</p> <p>Construction industry + planning/housing policy: Developers may lobby for planning exemptions or weaker environmental standards in construction, influencing housing and development policies that have environmental consequences.</p> <p>Transport lobby + EV transition policy: Conventional vehicle manufacturers and fuel suppliers have a financial interest in slowing the transition to electric vehicles and may influence the pace of policy change.</p> <p>Accept any valid vested interest (other than farming) clearly linked to a named Irish policy.</p>	2 + 4

(d) One mitigation strategy in Ireland and the root cause(s) it addresses. (6 marks)

Must name a specific Irish mitigation strategy. Award marks for: naming and describing the strategy (3) + explaining the root cause(s) of the climate problem it addresses (3).

Part	Acceptable Answer(s)	Marks
6 marks	<p>Examples (3 + 3):</p> <p>Offshore wind energy development (e.g. South Coast ORESS): Ireland is developing large-scale offshore wind farms to generate renewable electricity. <i>Root cause addressed:</i> The burning of fossil fuels (coal, gas, oil) for electricity generation releases CO₂, the main driver of the enhanced greenhouse effect. Replacing fossil fuel generation with wind reduces these emissions at source.</p> <p>Peatland restoration / rewetting of bogs: Bord na Mona and other bodies are rewetting drained peatlands by blocking drainage channels. <i>Root cause addressed:</i> Draining peatlands for peat extraction releases centuries of stored carbon as CO₂ and CH₄. Rewetting halts these emissions and restores the peatland's role as a carbon sink.</p> <p>EV charging infrastructure / SEAI EV grants: Government investment in electric vehicle charging and purchase grants. <i>Root cause addressed:</i> Transport is one of Ireland's largest emission sectors; combustion engine vehicles burn fossil fuels releasing CO₂. EVs eliminate tailpipe emissions.</p> <p>Accept any valid, specifically named Irish mitigation strategy with a clearly explained root cause.</p>	3 + 3

Question 3 — Rights of Nature and Applied Learning (40 marks)

(a) Rights of Nature article. (10 marks)

(a)(i) Two countries that have given legal rights to nature. (4 marks)

Part	Acceptable Answer(s)	Marks
2 countries 2 marks each	<p>The article mentions:</p> <ul style="list-style-type: none"> • Ecuador • Bolivia <p>(India is mentioned as making legal attempts but not yet fully granting rights.)</p> <p>Award 2 marks per country for Ecuador and Bolivia. Accept India if the candidate notes the attempted/partial legal recognition.</p>	2 + 2

(a)(ii) One benefit of recognising the rights of nature. (6 marks)

Part	Acceptable Answer(s)	Marks
6 marks	<p>Any ONE clearly explained benefit, e.g.:</p> <ul style="list-style-type: none"> • Legal protection for ecosystems: Giving nature legal rights means ecosystems can be represented in court — allowing citizens or guardians to take legal action against those who damage natural environments, providing a stronger deterrent than existing environmental regulations. • Shift in values: Recognising nature's rights challenges the view of nature as merely a resource to be exploited; it promotes an ecocentric worldview that values ecosystems for their own sake, not just their usefulness to humans. • Intergenerational justice: Legal rights for nature protect ecosystems for future generations who cannot currently advocate for themselves. • Indigenous rights: Rights of nature laws often align with and strengthen indigenous peoples' relationships with and stewardship of their lands. 	6

(b) One benefit for people of being in nature. (6 marks)

Part	Acceptable Answer(s)	Marks
6 marks	<p>Any ONE clearly explained benefit, e.g.:</p> <ul style="list-style-type: none">• Mental health: Time spent in nature (green spaces, woodland, coastlines) is associated with reduced stress, anxiety, and depression. Studies show that even short periods in natural environments lower cortisol levels and improve mood.• Physical health: Being in nature encourages physical activity (walking, cycling, swimming) which improves cardiovascular health, reduces obesity risk, and strengthens the immune system.• Cognitive benefits: Nature exposure improves concentration, creativity, and cognitive function — sometimes called “attention restoration.”• Social connection: Shared outdoor experiences build community bonds and reduce loneliness.• Sense of place and identity: Engagement with local natural environments can strengthen cultural identity and a sense of belonging.	6

(c) Nature-based participatory experience — Applied Learning Task. (24 marks)

This is a personal applied learning response. Award marks for quality of description, reasoning, and reflection — not for any particular choice of activity or group. All three sub-parts must be addressed for full marks.

Part	Acceptable Answer(s)	Marks
(c)(i) 4 marks	<p>Any valid aspect(s) of nature that participants were expected to interact with, matched to the activity described, e.g.:</p> <ul style="list-style-type: none">• Local woodland / trees / leaves / biodiversity• A river, beach, or coastal environment• School garden / vegetable patch• Bog / wetland• Wildlife / birds / insects• Weather / seasons <p>Award marks for a clearly identified, specific aspect of nature.</p>	4

Part	Acceptable Answer(s)	Marks
(c)(ii) 6 marks	<p>Any valid group with a clearly explained reason for choosing them. Award 2 marks for naming the group + 4 marks for the explanation. e.g.:</p> <p>Elderly residents of a care home — chosen because they may have limited access to outdoor natural environments; research shows nature exposure has particular benefits for older people's mental and physical health.</p> <p>Young children from a local primary school — chosen because early exposure to nature develops environmental values and supports wellbeing at a formative age.</p> <p>Teenagers / peers — chosen because young people are often disconnected from nature despite being most affected by climate change.</p> <p>Award marks for any group with a justified, coherent reason.</p>	2 + 4
(c)(iii) 14 marks	<p>Award marks for: location (2) + description of activity (6) + reasons for choosing the activity (6).</p> <p>Location (2): Any specific, named location — e.g. local park, school grounds, forest, beach, bog, nature reserve.</p> <p>Activity (6): Any clearly described nature-based activity appropriate to the group and location — e.g. guided nature walk and species identification; sensory nature experience (textures, sounds, smells); planting trees or wildflowers; litter picking in a natural area; creating a wildlife habitat; outdoor art inspired by nature; mindfulness in nature.</p> <p>Reasons (6): Why this activity was chosen — e.g. accessible for the group; linked to specific nature benefits (mental health, biodiversity awareness, climate connection); builds environmental values; practical and achievable; safe and inclusive.</p>	2 + 6 + 6

Question 4 — Fossil Fuels, Greenhouse Effect and Sustainable Transport (40 marks)

(a) Name two fossil fuels. (4 marks)

Part	Acceptable Answer(s)	Marks
2 marks each	<p>Any TWO of:</p> <ul style="list-style-type: none"> • Coal • Oil (petroleum) • Natural gas • Peat <p>Award 2 marks per correctly named fossil fuel.</p>	2 + 2

(b) Explain how burning fossil fuels causes the enhanced greenhouse effect. (10 marks)

Part	Acceptable Answer(s)	Marks
10 marks	<p>Award marks for a clear, step-by-step explanation covering:</p> <ul style="list-style-type: none"> • Burning fossil fuels releases CO₂ and other greenhouse gases (methane, nitrous oxide, water vapour) into the atmosphere. • Greenhouse gases accumulate in the atmosphere — their concentration rises above natural background levels. • The Earth receives solar radiation and re-emits some of this energy as infra-red (heat) radiation back toward space. • Greenhouse gases trap some of this outgoing infra-red radiation, re-emitting it back toward the Earth's surface — this is the greenhouse effect. • The enhanced greenhouse effect occurs because human activities have increased the concentration of greenhouse gases beyond natural levels, trapping more heat than the natural greenhouse effect alone. • This causes global average temperatures to rise — global warming — driving climate change. <p>Award marks progressively for each logical step in the explanation. Award H-band marks for a response that clearly links burning → emissions → accumulation → heat trapping → enhanced warming.</p>	10

(c) Draw a suitable graph to illustrate the sustainable transport data. (12 marks)

A bar chart (vertical or horizontal) is the appropriate graph type for this categorical comparative data. Award marks for accuracy, labelling, and presentation as below. Mark split applies to bar charts; apply reduced marks for other chart types as noted.

Part	Acceptable Answer(s)	Marks
Graph type 2 marks	Bar chart (vertical or horizontal): full marks available. Do not accept a line graph — the data is categorical, not continuous. If a candidate draws a pie chart or pictograph, award a maximum of 6/12 overall (data accuracy and labels only) — these are less appropriate for comparing values across countries.	2
Title 2 marks	A relevant title — e.g. “Percentage of people interested in using sustainable transport by country, 2022”.	2
Axes labelled 2 marks	X-axis: Country names (India, Italy, Great Britain, France). Y-axis: Percentage (%) — scale must be appropriate (0–70% or 0–100%).	2
Data accuracy 4 marks	All four bars/segments drawn to the correct height/proportion: India 65%, Italy 55%, Great Britain 45%, France 35%.	4
Neatness 2 marks	Graph is clearly drawn, bars are of uniform width, scale is consistent.	2

(d) Approach to reduce negative environmental impact of transport. (14 marks)

Part	Acceptable Answer(s)	Marks
<p>(d)(i) Approach 4 marks</p>	<p>Any ONE valid approach to reducing the environmental impact of transport, e.g.:</p> <ul style="list-style-type: none"> • Switching to electric vehicles (EVs) • Expanding and improving public transport • Active travel (cycling and walking infrastructure) • Car-sharing / car-pooling schemes • Switching freight from road to rail • Aviation carbon offsetting / SAF (sustainable aviation fuel) <p>Award 4 marks for clearly naming and briefly identifying the approach.</p>	<p>4</p>
<p>(d)(ii) Two environmental benefits 10 marks (5 each)</p>	<p>Two specific environmental benefits of the chosen approach. Award 5 marks per benefit (2 for identifying + 3 for explaining).</p> <p>Example — Electric vehicles:</p> <ol style="list-style-type: none"> 1. Reduced CO₂ emissions: EVs produce no tailpipe emissions, reducing the concentration of CO₂ in the atmosphere when charged from renewable electricity — directly reducing the contribution of transport to the enhanced greenhouse effect. 2. Improved air quality: Unlike petrol/diesel vehicles, EVs emit no NOx or particulate matter at the point of use, reducing air pollution in urban areas and improving respiratory health. <p>Example — Cycling/active travel:</p> <ol style="list-style-type: none"> 1. Zero emissions: Cycling produces no greenhouse gas emissions, directly reducing transport-related CO₂. 2. Reduced noise and air pollution: Replacing motor vehicle journeys with cycling reduces both air pollutants and noise pollution. <p>Accept any two distinct, clearly explained environmental benefits appropriate to the named approach.</p>	<p>5 + 5</p>

Question 5 — Ecology, Ecosystems and Facilitation Skills (40 marks)

(a) Ecological survey — dandelions and soil pH. (14 marks)

(a)(i) Site with greatest number of dandelions. (4 marks)

Part	Acceptable Answer(s)	Marks
4 marks	Site 1 — with 84 dandelions, Site 1 had the greatest number.	4

(a)(ii) As soil pH increases, the number of dandelions... (4 marks)

Part	Acceptable Answer(s)	Marks
4 marks	Increase Looking at the data: the highest dandelion counts (84, 66, 62) correspond to the highest pH values (7.0, 6.5, 6.1). The lowest counts (30, 45) correspond to the lowest pH values (3.8, 4.2). As soil pH increases (becomes less acidic / more neutral), dandelion numbers increase.	4

(a)(iii) Qualitative or quantitative data? (6 marks)

Part	Acceptable Answer(s)	Marks
6 marks	Quantitative The data consists of numerical measurements (soil pH values and counts of dandelions) — this is quantitative data. Quantitative data is data that can be measured and expressed as numbers. Qualitative data would be descriptive (e.g. “healthy/unhealthy”, “many/few”) rather than numerical.	6

(b) How a local ecosystem influences livelihood and culture. (16 marks)

Candidate must name a specific local ecosystem. Award 8 marks per aspect (livelihood and culture). For each: 2 marks for naming a specific influence + 6 marks for explaining it clearly with reference to the named ecosystem.

Part	Acceptable Answer(s)	Marks
<p>Livelihood 8 marks</p>	<p>Any clearly explained way the chosen ecosystem supports people's livelihoods, e.g.:</p> <p>Coastal ecosystem: Local fishing communities depend on healthy fish stocks and marine biodiversity for their income. Overfishing, pollution, or ocean warming threatens these livelihoods directly.</p> <p>Bogland/peatland: Communities traditionally depended on peat for domestic fuel and turf cutting was a source of income. The transition away from peat cutting has changed livelihoods, requiring alternative income sources.</p> <p>Woodland/forest: Provides timber for construction and furniture industries; supports eco-tourism; non-timber forest products (berries, mushrooms) can supplement rural incomes.</p> <p>Award marks for any ecosystem with a clearly described, specific livelihood connection.</p>	<p>8</p>
<p>Culture 8 marks</p>	<p>Any clearly explained way the chosen ecosystem is connected to cultural identity, traditions, or values, e.g.:</p> <p>Bogland: Peat cutting is deeply embedded in rural Irish cultural identity — associated with community work, memory, and connection to the land. Traditional practices (turf stacking, slane cutting) are part of cultural heritage.</p> <p>Coastal ecosystem: Fishing communities have distinct cultural traditions, festivals, and identities tied to the sea. Maritime heritage includes boat-building skills, songs, and stories.</p> <p>River/lake: May be a site of traditional practices (fishing, swimming, gathering) that form part of community identity; local folklore and place names often reflect relationships with waterways.</p> <p>Award marks for any clear and specific cultural connection to the named ecosystem.</p>	<p>8</p>

(c) One impact of climate change on a studied ecosystem. (10 marks)

Must name a specific ecosystem. Award marks for: naming the ecosystem (2) + describing the impact of climate change on it (4) + explaining the consequences of this impact (4).

Part	Acceptable Answer(s)	Marks
10 marks (2+4+4)	<p>Examples:</p> <p>Coral reef: Rising ocean temperatures cause coral bleaching — corals expel their symbiotic algae and turn white. If temperatures remain elevated, corals die. This destroys habitat for thousands of marine species, collapses local fisheries, and removes coastal protection.</p> <p>Irish peatland: Drier summers due to climate change dry out bogland, making it more susceptible to wildfire and disrupting the waterlogged conditions peat requires. This releases stored carbon, reducing the bog's carbon sequestration capacity and threatening specialist bog species (e.g. sundew, curlew).</p> <p>Arctic sea ice ecosystem: Warming temperatures are dramatically shrinking Arctic sea ice extent. This destroys habitat for polar bears, walruses, and seals; disrupts food chains; and threatens indigenous Arctic communities' ways of life.</p> <p>Irish coastal ecosystem: Sea level rise and more intense storms erode beaches, sand dunes, and coastal habitats, displacing nesting birds and marine invertebrates.</p> <p>Accept any clearly named ecosystem with a logically explained climate change impact and consequences.</p>	2 + 4 + 4

(d) One facilitation skill and its importance in communicating about climate action. (10 marks)

Candidate selects ONE skill from: Active listening / Questioning / Awareness of other people's behaviours / Self-awareness / Managing conflict. Mark split: 2 marks for correctly naming the skill + 8 marks for explaining its importance in the context of communicating about climate action and sustainable development. Total: 10 marks.

Part	Acceptable Answer(s)	Marks
<p>10 marks (2 + 8)</p>	<p>Active listening: Paying full attention to what participants say, including body language and emotion — not just waiting for your turn to speak. Important because climate discussions can be emotionally charged; participants need to feel genuinely heard before they will engage or change their views.</p> <p>Questioning: Using open questions to draw out people's views, deepen understanding, and encourage reflection. Important because it helps facilitators explore assumptions and open minds without imposing a particular viewpoint.</p> <p>Awareness of other people's behaviours: Noticing group dynamics — who is dominating, who is quiet, who seems uncomfortable. Important for ensuring equitable participation in climate dialogues where power imbalances (age, status, education) may silence some voices.</p> <p>Self-awareness: Understanding your own biases, values, and emotional responses. Important because facilitators must not let their own climate views dominate the conversation or dismiss those of participants.</p> <p>Managing conflict: Navigating disagreement constructively. Important because climate action often involves conflicting interests (e.g. economic vs. environmental); a skilled facilitator keeps dialogue productive even when people disagree strongly.</p> <p>Award marks for any skill with a clearly explained, specific rationale for its importance in climate communication.</p>	<p>2 + 8</p>

Question 6 — Energy, Just Transition and Climate Justice (40 marks)

(a) Retrofitting homes — article. (14 marks)

(a)(i) Percentage of Ireland's carbon emissions from residential buildings. (4 marks)

Part	Acceptable Answer(s)	Marks
4 marks	12% The article states: "Residential buildings account for 27% of Ireland's total energy use and 12% of carbon emissions."	4

(a)(ii) Two benefits of insulating homes mentioned in the article. (4 marks)

Part	Acceptable Answer(s)	Marks
2 benefits 2 marks each	<p>From the article, accept any TWO of:</p> <ul style="list-style-type: none"> • Economic benefit: Helps people who cannot afford electricity, oil or gas to maintain a comfortable home (reduces energy costs / addresses energy poverty). • Environmental benefit: Mitigates climate change (reduces energy consumption and associated carbon emissions). • Health and wellbeing benefit: Improves air quality and the health and wellbeing of those who live there. <p>Must be drawn from or clearly derived from the article text.</p>	2 + 2

(a)(iii) One other way to improve the energy rating of homes. (6 marks)

Part	Acceptable Answer(s)	Marks
6 marks	<p>Any ONE valid approach to improving home energy ratings, OTHER than insulation, e.g.:</p> <ul style="list-style-type: none"> • Installing a heat pump (replacing oil/gas boiler with a more efficient electric heat pump) • Installing solar photovoltaic (PV) panels to generate renewable electricity • Replacing single-glazed windows with double or triple glazing • Installing a solar thermal system (for hot water) • Smart meters and energy management systems to reduce waste • Switching from fossil fuel heating to a biomass boiler • Draught-proofing doors and windows <p>Award 6 marks for any clearly identified and briefly explained alternative improvement.</p>	6

(b) One sector requiring a just transition — and an example of just transition in practice. (12 marks)

Must name a sector OTHER than residential buildings (already covered in (a)). Award marks for: naming the sector (2) + describing a specific example of just transition in practice in that sector (10).

Part	Acceptable Answer(s)	Marks
<p>12 marks (2 + 10)</p>	<p>Valid sectors and examples:</p> <p>Energy / Peat sector + Midlands Just Transition: Former Bord na Mona workers in the Midlands faced job losses as peat extraction ended. Ireland's Just Transition Commissioner oversaw a programme including: retraining for green economy jobs (e.g. wind turbine technicians, solar installation); investment in new renewable energy projects on former boglands; community investment funds to support new businesses in affected areas; income supports during the transition period.</p> <p>Agriculture: Farmers facing pressure to reduce livestock numbers and methane emissions need support. Just transition in practice: ACRES payments compensate farmers for environmentally beneficial practices; retraining in organic farming, agri-tourism, or renewable energy hosting (e.g. wind turbines on farmland).</p> <p>Transport / fossil fuel distribution: Workers in petrol stations, vehicle mechanics, and fuel distribution face displacement as EVs grow. Just transition: retraining mechanics for EV maintenance; investment in EV charging infrastructure creating new jobs.</p> <p>Accept any valid sector with a specific, clearly explained example of just transition in practice.</p>	<p>2 + 10</p>

(c) Was climate justice achieved through the COP29 \$300bn deal? (8 marks)

Candidates must refer to both Figure 5 (positive headline) and Figure 6 (critical headline) in their answer. Award marks for: a clearly stated position (2) + use of Figure 5 in the argument (3) + use of Figure 6 in the argument (3).

Part	Acceptable Answer(s)	Marks
<p>8 marks (2+3+3)</p>	<p>YES argument (using both figures): Figure 5 suggests climate justice was partially achieved — a global deal was reached with financial assistance for countries most affected by climate change, representing recognition by wealthy nations of their responsibility. This is a step toward climate justice. However, Figure 6 complicates this — activists and poorer nations called the deal “too little, too late”, suggesting the \$300bn is insufficient given the scale of climate impacts and the debt owed. True climate justice would require much larger sums and faster disbursement.</p> <p>NO argument (using both figures): Figure 6’s headline — “too little, too late” — indicates that from a climate justice perspective the deal falls short. Global South nations and activists argued the amount is inadequate relative to their needs and the historical responsibility of wealthy nations. While Figure 5 frames it as progress, the deal may not meet the standard of climate justice, which requires equitable burden-sharing proportional to historical emissions and the damage caused.</p> <p>Award marks for any coherent position clearly supported by reference to both headlines. Do not require a definitive yes/no — nuanced answers using both figures should be rewarded.</p>	<p>2 + 3 + 3</p>

(d) How two factors influence how people experience climate change impacts. (6 marks)

Candidate chooses TWO factors from Age, Ethnicity, and Gender. Award 3 marks per factor for a clear, explained discussion.

Part	Acceptable Answer(s)	Marks
<p>Two factors 3 marks each</p>	<p>Age: Elderly people are more physically vulnerable to extreme heat (heatwaves can be life-threatening), flooding, and disease. They may have less mobility to evacuate and less financial flexibility to adapt. Young children are more vulnerable to air pollution and waterborne diseases intensified by climate change. Young people also face the greatest long-term climate impacts and may experience climate anxiety.</p> <p>Ethnicity: Ethnic minorities are disproportionately located in more exposed or lower-quality housing (e.g. flood-prone areas, urban heat islands). Structural racism in housing, healthcare, and employment reduces their resilience and access to adaptation resources. Language barriers can limit access to emergency warnings and government support.</p> <p>Gender: Women globally are more vulnerable to climate impacts — they are more likely to be responsible for food and water provision, which climate change disrupts. In the Global South, women face greater exposure to extreme heat and disaster risk due to social norms around mobility and work. However, women are also key agents of climate solutions when given resources and voice.</p>	<p>3 + 3</p>

Section C**40 marks**

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

Section C Assessment Criteria

Criterion	Descriptor	Max	Band Marks
Knowledge & Understanding	Accurate, relevant factual content; understanding of key CASD concepts; appropriate use of terminology.	16	H: 13–16 M: 8–12 L: 0–7
Analysis & Evaluation	Ability to discuss the topic with some depth; use of evidence; engagement with the question statement.	14	H: 11–14 M: 7–10 L: 0–6
Use of Examples	Named, specific, relevant examples used to support points; local and/or global examples.	6	H: 5–6 M: 3–4 L: 0–2
Communication	Clarity of expression; logical structure; appropriate register; coherent response.	4	H: 3–4 M: 2 L: 0–1

Question 7 — Climate Justice and Global South Communities (40 marks)

All three bullet points must be addressed. Assess holistically using the four criteria above.

Required Element	Expected Content — High-Band Response
<p>Understanding of climate justice</p>	<p>Climate justice is the recognition that climate change is not just an environmental issue but a deeply moral one. Those who have contributed least to greenhouse gas emissions — especially communities in the Global South — are experiencing the most severe impacts. Key principles: historical responsibility of wealthy nations; equitable distribution of burdens and benefits; meaningful participation of affected communities in decision-making; protection of human rights in climate policy. At OL, candidates are not expected to go into the depth required at HL — clear understanding of the basic concept of justice (who causes it, who suffers) with one or two supporting points is sufficient for Mid-band marks. High band requires a nuanced explanation with reference to specific inequalities.</p>
<p>Root causes of climate injustice</p>	<p>Root causes are the underlying systemic reasons why climate injustice exists:</p> <ul style="list-style-type: none"> • Historical emissions inequality: Wealthy industrialised nations (Global North) have produced the vast majority of cumulative CO₂ emissions since industrialisation, yet the impacts fall hardest on the Global South. • Colonialism and global economic inequality: Colonial exploitation left many Global South nations economically weaker with less capacity to adapt. • Power imbalances: Wealthy nations dominate international negotiations; Global South voices are marginalised in climate decision-making. • Fossil fuel dependency: Global economic systems built on fossil fuels create powerful vested interests that resist change. • Lack of finance: Global South nations cannot afford adaptation and mitigation without external support.

Required Element	Expected Content — High-Band Response
<p>How a Global South community is adapting and mitigating</p>	<p>Candidates name and describe a specific Global South community studied. Award marks for: naming the community/country + describing specific adaptation measures + describing mitigation efforts where applicable.</p> <p>Example — Bangladesh: Adaptation: Communities in low-lying coastal areas have developed floating gardens (baira) to grow food on floodwater; built raised homes; created community early-warning systems for cyclones. The government has built cyclone shelters along the coast. Mitigation: Bangladesh has set targets to expand renewable energy; solar home systems have brought electricity to millions of off-grid rural households, replacing kerosene and reducing emissions.</p> <p>Example — Small island states (e.g. Fiji, Tuvalu): Adaptation: Managed relocation of coastal villages inland; mangrove restoration to protect shorelines; rainwater harvesting to reduce dependence on groundwater threatened by saltwater intrusion. Mitigation: Fiji committed to 100% renewable electricity by 2030; Pacific island states are vocal advocates for global emissions reductions.</p> <p>Example — Kenya/East Africa: Adaptation: Drought-resistant crop varieties; community water harvesting; pastoralist communities adapting traditional migration patterns. Mitigation: Kenya's expanding geothermal energy sector; the Great Green Wall initiative (tree planting across the Sahel).</p> <p>Accept any valid, specifically named Global South community with clearly described adaptation and/or mitigation measures.</p>

Question 8 — Local Group/Organisation in Climate and Sustainability Action (40 marks)

All three bullet points must be addressed. Assess holistically using the four criteria above.

Required Element	Expected Content — High-Band Response
<p>The issue being addressed</p>	<p>Candidates name a specific group or organisation they have studied and describe the climate or sustainability issue it is addressing. Examples of valid groups:</p> <ul style="list-style-type: none"> • A local Tidy Towns / Green Schools committee addressing litter, biodiversity, or energy use • A community energy co-operative (e.g. Cloughjordan Community Cooperative) • A youth climate group (e.g. local Fridays for Future group, school climate action group) • A community garden or food growing project addressing food sustainability • A local biodiversity group replanting hedgerows or creating wildflower meadows • An Irish NGO (e.g. Friends of the Earth Ireland, Stop Climate Chaos) <p>The issue: Should be specific — not just “climate change” but e.g. “loss of pollinator habitats in the local area”, “high energy costs and carbon emissions from buildings in the community”, “lack of sustainable transport options”.</p>
<p>Steps taken to ensure the action was effective</p>	<p>Candidates describe specific steps the group took to plan, implement, and evaluate their action effectively. Key elements to look for:</p> <ul style="list-style-type: none"> • Research and planning: Did the group identify and understand the issue before acting? • Stakeholder engagement: Did they involve relevant people (community members, local authority, businesses)? • Communication: Did they use media, social media, events, or campaigns to raise awareness? • Collaboration: Did they work with other organisations, schools, or local government? • Evaluation: Did they measure or reflect on the impact of their actions? <p>Award marks for any clearly described, logical steps that show intentional effort to make the action effective.</p>

Required Element	Expected Content — High-Band Response
<p>Impact(s) of the action</p>	<p>Candidates describe the actual or expected outcomes of the group's action. Impacts can be:</p> <ul style="list-style-type: none"> • Environmental: e.g. area of land rewilded; tonnes of CO₂ saved; species returning to an area; reduction in plastic waste. • Social: e.g. increased community awareness; new conversations started; people feeling empowered to act. • Policy: e.g. local authority changed a planning decision; school adopted a new environmental policy. • Educational: e.g. students learned about biodiversity; community better informed about climate. <p>High-band responses will describe specific, concrete impacts with evidence or examples. Mid-band responses will describe general or expected impacts. Accept impacts that are plausible and clearly linked to the named group's actions.</p>

This marking scheme is indicative. Examiners should use professional judgement when awarding marks and credit all reasonable responses not listed here. Prepared by SimpleStudy for revision purposes — not an official State Examinations Commission document.