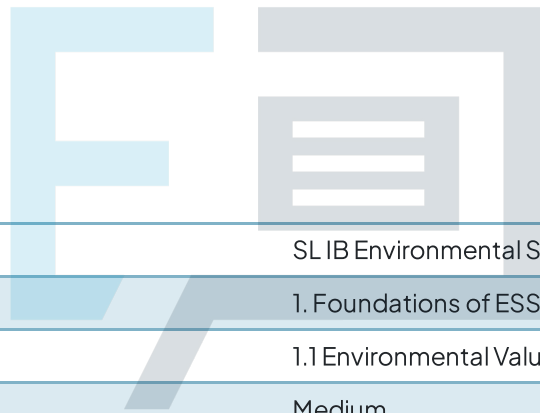




1.1 Environmental Value Systems

Mark Schemes



Course	SL IB Environmental Systems & Societies (ESS)
Section	1. Foundations of ESS
Topic	1.1 Environmental Value Systems
Difficulty	Medium

Exam Papers Practice

To be used by all students preparing for
SL IB Environmental Systems & Societies (ESS)
Students of other boards may also find this useful

1a

Indicative Content

The term environmental value system can be explained as follows:

Any **two** from the following:

- Refers to a worldview or paradigm; [1 mark]
- Shapes the way an individual/group perceives/evaluates environmental issues; [1 mark]
- Represents an individual's/group's environmental values/attitudes; [1 mark]
- Influenced by cultural, religious, economic, and socio-political contexts; [1 mark]
- Includes a set of interrelated premises/values/arguments that guide decision-making and evaluation regarding environmental matters; [1 mark]
- Environmental value systems generate consistent decisions and evaluations, resulting in similar actions/policies/perspectives related to the environment; [1 mark]

Model Answer	Commentary
<i>An environmental value system is a worldview or paradigm that shapes how individuals or groups perceive and evaluate environmental issues [1 mark]. It represents their environmental values and attitudes, and is influenced by factors like culture, religion, economics, and socio-political contexts [1 mark].</i>	The command word 'explain' requires you to give a detailed account, including reasons or causes

1b

Indicative Content

Inputs of environmental value systems include:

Any **two** from the following:

- Education: influence of formal and informal education on shaping environmental values and attitudes; [1 mark]
- Experience: personal experiences, such as direct interaction with nature or exposure to environmental issues, that shape an individual's environmental values; [1 mark]
- Culture: cultural beliefs, norms, and traditions that influence how individuals perceive and evaluate environmental issues; [1 mark]
- Media: influence of mass media, including news, television, and social media, in shaping environmental values and awareness; [1 mark]
- Economic status: the financial resources and economic conditions that may shape an individual's environmental values and priorities; [1 mark]
- Political context: the political system, policies, and governance structures that influence environmental values and decision-making; [1 mark]
- Social influences: influence from family, peers, and social networks that shape an individual's environmental values; [1 mark]

Outputs of environmental value systems include:

Any **two** from the following:

- Decisions: consistent decisions made by individuals or groups; [1 mark]
- Evaluations: assessments and judgments of environmental issues; [1 mark]
- Actions: behavioural responses, such as conservation practices or advocacy; [1 mark]
- Policies: development and implementation of environmental policies and regulations influenced by the values of a society or institution; [1 mark]



- Perspectives: different viewpoints and interpretations of environmental issues; [1 mark]

Model Answer	Commentary
<p><i>Two inputs of environmental value systems are education and cultural influences. Education shapes an individual's understanding of the environment and its value. For example, environmental education programs in schools can increase environmental awareness and create a sense of responsibility towards nature [1 mark]. Cultural influences, such as religious beliefs and traditional practices, also shape environmental values. For example, indigenous cultures often have deep connections to the land and prioritise its preservation [1 mark].</i></p> <p><i>Two outputs of environmental value systems are decision-making and evaluations. Decision-making involves making choices and taking actions that align with the values and principles of a particular EVS. For instance, an EVS influenced by ecocentrism may prioritise conservation efforts, leading to decisions to establish protected areas or promote sustainable resource management [1 mark]. Evaluations refer to the assessment and judgement of environmental issues based on the premises and values of a particular EVS. For example, a technocentric EVS may evaluate the potential of technological innovations, such as renewable energy solutions, to address climate change and reduce environmental impacts [1 mark].</i></p>	<p>The command word 'outline' requires you to give a brief account or summary</p> <p>In order to gain full marks you should include a brief example for each input and output, as instructed, to help illustrate your points and put them into context</p>

2a

Indicative Content	Commentary
<p><i>Anthropocentrism and technocentrism can be compared in the following ways:</i></p> <p>Any two from the following:</p> <ul style="list-style-type: none"> • Both shape the way individuals perceive and evaluate environmental issues; [1 mark] • Both recognise the importance of addressing environmental challenges and seeking solutions; [1 mark] • Both consider the relationship between humans and the environment; [1 mark] • Both acknowledge the influence of cultural, economic, and socio-political factors on environmental values and decision-making; [1 mark] • Both recognise the significance of scientific research and knowledge in understanding environmental issues; [1 mark] • Both may involve debates and discussions to reach consensual approaches in solving environmental problems; [1 mark] <p><i>Anthropocentrism and technocentrism can be contrasted in the following ways:</i></p> <p>Any two from the following:</p> <ul style="list-style-type: none"> • Anthropocentrism places humans at the centre / gives priority to human needs/interests/welfare, whereas technocentrism focuses on the role of technological developments and innovations in addressing environmental challenges; [1 mark] 	<p>The command 'compare and contrast' requires you to give an account of similarities and differences between two items or situations, referring to both of them throughout</p> <p>Whenever you are asked to compare two factors, a good technique is to use the word 'both' at the start of each point you make, to demonstrate to the</p>



- Anthropocentrism encourages sustainable management of the global system through taxes/regulations/pragmatic approaches, whereas technocentrism encourages scientific research and manipulation/control of environmental systems through technology; [1 mark]
- Anthropocentrism allows for economic growth if exploitation of natural resources is managed carefully, whereas technocentrism sees a pro-growth agenda as essential for societal improvement; [1 mark]
- Anthropocentrism may prioritise shorter-term human benefits and immediate economic gains, whereas technocentrism may focus on long-term environmental sustainability and innovative technological solutions; [1 mark]

examiner that you are directly **comparing** one factor with the other

Similarly, whenever you are asked to contrast two factors, a good technique is to use the word '**whereas**' in each of your contrasting points, to demonstrate to the examiner that you are directly **contrasting** one factor with the other

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2b

Indicative Content

An ecocentric approach can be used in the management of global warming in the following ways:

Any **two** from the following:

- Emphasises/promotes education about global warming as a means to change human behaviours that contribute to the problem of global warming; [1 mark]
- Advocates for/promotes the implementation of energy-efficient strategies to reduce the production of greenhouse gases/GHG; [1 mark]
- Encourages/promotes the adoption of sustainable transportation practices such as increased use of public transport, reduced flights, walking, and car-sharing to minimise greenhouse gas/GHG emissions; [1 mark]
- Highlights the importance of dietary changes, particularly reducing meat consumption, to mitigate the contribution of the meat industry to greenhouse gas/GHG emissions; [1 mark]
- Considers the benefits of small communities fostering self-sufficiency, reducing food miles, and embracing reduced consumerism, leading to decreased greenhouse gas/GHG production; [1 mark]

Model Answer	Commentary
<p><i>Firstly, promoting education about global warming raises awareness of its causes and effects. By understanding the environmental impact of human activities, individuals can make informed choices to reduce their carbon</i></p>	<p>The command 'discuss' requires you to offer a considered and balanced review that includes a range of arguments, factors or hypotheses - any opinions or conclusions you make should be presented clearly and supported by appropriate evidence</p>

Exam Papers Practice

footprint and adopt more sustainable behaviours [1 mark]. Secondly, advocating for energy-efficient strategies, such as using renewable energy sources and improving energy efficiency in buildings, helps reduce greenhouse gas emissions. These efforts support the transition to a low-carbon economy and contribute to mitigating the impacts of global warming [1 mark].

In a discussion type answer, like the one required here, it is a good idea to follow up each broader point you make with a **supporting statement**, that backs-up your original point - you can see two examples of this in the model answer given here

Always consider how many marks the question is worth before writing your answer - as this is worth 2 marks, you only need to make two, well-supported points - you can make this clear to the examiner by using terms such as '**firstly**' and '**secondly**' to indicate your separate points

3a

Indicative Content	Commentary
<p><i>Rachel Carson's book Silent Spring shaped the development of the environmental movement in the following ways:</i></p> <p>Any three from the following:</p> <ul style="list-style-type: none"> • Documented/highlighted/raised awareness of the detrimental effects of synthetic pesticides [1 mark] • Specifically highlighted the activities of chemical companies and their impact on the environment [1 mark] • Explained the adverse effects of insecticides and pesticides on bird populations, particularly birds of prey [1 mark] • Its publication led to increased public awareness of environmental issues, including the concepts of bioaccumulation and biomagnification [1 mark] 	<p>The command 'discuss' requires you to offer a considered and balanced review that includes a range of arguments, factors or hypotheses</p> <p>The environmental movement was inspired and driven by a wide variety of factors, from industrial accidents, to writers and other forms of media to</p>



- Silent Spring played a significant role in inspiring the social/environmental movements of the 1960s [1 mark]
- It served as a source of inspiration for many other environmentalists and influenced their work [1 mark]
- The book's impact (partly) contributed to the ban of the pesticide DDT for agricultural uses [1 mark]
- The methods used for controlling mosquitoes and other insect pests, including in agriculture, were changed (partly) as a result of the book's influence [1 mark]
- It also (partly) contributed to the formation of the U.S. Environmental Protection Agency (EPA), an important regulatory body [1 mark]

forms of media, to international conferences and agreements - you need to revise a variety of examples

You could choose three or four of the events outlined [here](#) (it would be a good idea to select at least one from each of the tables), learn what happened, and make sure you can explain why each one was important in shaping the environmental movement

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3b

Indicative Content

Some of the major environmental disasters that have influenced the development of the modern environmental movement include:

- Minamata disease in Minamata, Japan; [1 mark]
- Release of toxic methyl mercury into wastewater by a chemical factory led to mercury poisoning in local people through the consumption of contaminated fish and shellfish; [1 mark]
- Raised awareness of the risks of industrialisation and the need for environmental regulations and checks to be imposed on industries; [1 mark]

- Highlighted the importance of preventing toxic pollution and protecting human health, contributing to the development of environmental regulations and advocacy for stricter industry practices; [1 mark]

OR

- Industrial accident in Bhopal, India; [1 mark]
- An explosion at a pesticide plant released a massive amount of toxic gas, resulting in thousands of immediate deaths and long-term health impacts; [1 mark]
- Raised global awareness about the dangers of industrial accidents, chemical safety, and corporate responsibility; [1 mark]
- Increased calls for (strict) regulations on industrial operations and the need for better safety practices, leading to the strengthening of environmental regulations and corporate accountability; [1 mark]

OR

- Chernobyl nuclear meltdown, Soviet Ukraine; [1 mark]
- A nuclear reactor explosion released a large amount of radioactive fallout, contaminating extensive areas and causing long-term health and environmental impacts; [1 mark]
- Reinforced society's fear and negative perceptions surrounding nuclear power; [1 mark]
- Highlighted the potential risks and catastrophic consequences of nuclear accidents, leading to increased scrutiny of nuclear energy, stricter safety protocols, and a shift towards renewable and alternative energy sources; [1 mark]

Model Answer	Commentary
<p><i>Following an earthquake-generated tsunami, multiple reactors at the Fukushima nuclear power station in Japan experienced a meltdown, resulting in radioactive contamination and the need for mass</i></p>	<p>The command word 'explain' requires you to give a detailed account, including reasons or causes</p>

evacuations [1 mark]. This environmental disaster intensified concerns about the safety of nuclear power and raised awareness of its potential consequences, sparking debates about the risks and benefits of nuclear energy and leading to increased public pressure for improved safety standards, stricter regulations, and a reevaluation of national energy policies [1 mark]. The incident prompted some countries to reconsider their reliance on nuclear power, as seen in Germany's decision to phase out nuclear energy [1 mark].

There may be other environmental disasters you have studied and revised, not outlined here, that could be used for this answer

Make sure you name the environmental disaster, provide a brief description, and then focus on how it has affected the environmental movement

4a

Indicative Content

The Gaia hypothesis acts as a model of the global ecosystem in the following ways:

Any **three** from the following:

- (The Gaia hypothesis) presents the Earth as a self-regulating system or a living organism; [1 mark]
- (The Gaia hypothesis) suggests that the Earth maintains life-supporting conditions and equilibrium...; [1 mark]
- ...through negative feedback mechanisms; [1 mark]
- These (negative feedback) mechanisms respond to changes in global temperature, ocean salinity, and oxygen concentration by inhibiting or reversing those changes; [1 mark]
- (The Gaia hypothesis) emphasises the interaction between living organisms and non-living elements (to create habitable conditions on Earth); [1 mark]
- (The Gaia hypothesis) proposes that the evolution of life on Earth has contributed to stabilising global temperatures/atmospheric composition/ocean salinity / making the planet more hospitable; [1 mark]

- An example of this concept is demonstrated through the "Daisy World" model, where high temperatures promote the growth of more reflective daisies, maintaining a stable environment; [1 mark]
- (The Gaia hypothesis) recognises humans as part of the living system, highlighting that they should not dominate it / do not have an intrinsic right to exploit it; [1 mark]
- However, human activities can contribute to positive feedback mechanisms that may disrupt the equilibrium in the short term; [1 mark]

4b

Indicative Content	Commentary
<p><i>Traditional anthropocentric ideas about Earth differ from the Gaia model in the following ways:</i></p> <p>Any two from the following:</p> <ul style="list-style-type: none"> • (Traditional/anthropocentric perspectives) often divide/fragment/break up the Earth into smaller systems / many separate ecosystems; [1 mark] • (These views) may perceive the Earth in a more static manner; [1 mark] • (These views) may consider the Earth primarily as a provider of resources for human use; [1 mark] • (These views) often exaggerate / place a greater emphasis/significance on the role of humans in shaping the Earth's functioning; [1 mark] • (These views) may acknowledge the possibility of humanity causing irreversible harm to the planet's life-supporting conditions, whereas the Gaia hypothesis suggests that Earth will continue despite us / the planet can (in time) reverse any changes (caused by humans); [1 mark] • (These views) believe that using a systems approach to understanding the Earth is possible, without suggesting that Earth is like a living organism; [1 mark] 	<p>The command term 'suggest' requires you to propose a solution, hypothesis or other possible answer</p> <p>Look at the number of marks available for the question - you only need to provide two brief suggestions in your answer</p>