Diploma Programme
Programme du diplôme
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Markscheme

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Environmental systems and societies

Standard level

Paper 2

15 pages

Section A

1. (a) (i) Define the term *carrying capacity*. **[1]**

the maximum number of individuals/load of a species that can be sustainably supported by a given area/habitat/environment ***OWTTE***;

*NB. Definition needs to make clear that cc is associated with a single species. This means that: "The maximum **number of a species** that can...etc" is acceptable, but "the maximum **number of species** that can…" is incorrect, and should not be credited.*

(ii) Identify **three** reasons why carrying capacity can be difficult to estimate. **[3 max]**

Generally:
there are many different potential limiting factors for natural populations;
populations' needs may change through time due to genetic changes/evolution;
environmental conditions may change *eg* climate change/introduced species;
it takes extensive/long-term study to identify a precise relationship between a species and given environmental factor;
For human populations:
human populations exploit/depend upon a far greater range of different resources than most other species;
(human ingenuity) humans are able to substitute one resource/material for another;
variations in lifestyle/culture/economic status between human populations mean different resources/amounts of resources are used/needed;
the importation of resources from other ecosystems/regions can offset a lack of resources in an area;
technological developments cause changes in resources required/available over time;

*Award **[1]** for each correct reason identified, up to **[3 max]***

Do not credit responses addressing changing population size (has no influence on carrying capacity).

(b) (i) With reference to **Figure 1** calculate the DT for India (X). **[1]**

50 (years);

(ii) With reference to **Figure 1** calculate the NIR for Japan (Y). **[1]**

−0.2 (%);

(c) Identify **two** reasons why Uruguay has the biggest ecological footprint. **[2 max]**

high usage of resources / high standard of living;
limited local vegetation/natural habitat/primary productivity to absorb CO_2/wastes;
local food production is limited/unsustainable/poorly managed;
high usage of/dependence upon fossil fuels/high CO_2 emissions / lack of alternative/renewable energy sources;
unregulated/high production of industrial/domestic pollution/waste products;
meat-rich diet;
Do not credit responses suggesting "limited land/high pop density" ...not valid.

*Award **[1]** for each correct reason identified, up to **[2 max]**.*

2. (a) (i) Define *biodiversity*. **[1]**

biodiversity is a broad concept encompassing the total diversity of living systems / biodiversity includes the species, habitat and genetic diversity within an area / the amount of biological diversity per unit area; ***OWTTE***;
*Award **[1 max]** for a correct definition.*

(ii) With reference to **Figure 2** identify **three** factors that could explain the high biodiversity in Ecuador. **[3 max]**

close to the equator/high primary productivity/favourable climate/high rainfall/insolation;
(Ecuador is in latitude of) tropical rainforest biome (which is a biodiversity hotspot);
(greater species/genetic diversity due to) high habitat diversity/climatic zones/biomes/range of coastal/lowland/forest systems;
active plate tectonics creating barriers to populations (and so encourages speciation);
altitude variation on mountains (create zonation/diversity of habitats);
active plate tectonics enabling succession (from volcanic material/lava/ lahars *etc)*;
large protected area/national park;

*Award **[1]** for each correct factor identified, up to **[3 max]**.*

(b) Describe a method that may have been used for collecting the tree data in **Figure 3**. **[2 max]**

aerial photograph;
identify from the leaf canopy the different species seen;

OR

use quadrat sampling/sampling points along a transect;
identify and count all the different species seen in quadrats/along transect;

OR

collect live specimens of leaves/fruits/seeds etc from the unit area;
have them identified (in labs) using keys/expert botanists;

*Award **[1]** for each step identified up to **[2 max]**.*

Do not credit responses that address abundance rather than number of different species.

(c) With reference to **Figure 4** estimate the population size of ocelots in Yasuni National Park for Site B. **[1]**

$(\frac{40 \times 35}{30} =)$ 46.67 *Accept answers from* 46 - 47 *(ocelot population size)*;

(d) Outline **two** reasons for the differences in population size and density of ocelots at Site A and B of Yasuni National Park as shown in **Figure 4**. **[4 max]**

traps in area A may be more easily avoided/too obvious/have traces of disturbance/be located in spots less used by ocelots/in area B be less easily avoided/better hidden/cause less disturbance/be located close to ocelot nests/hunting routes;
...causing trap-shy individuals in A/trap-happy individuals in B/overestimating population in A/underestimating population in B;

population may be greater in site A because it provides greater quantity/quality of resources/favourable factors *eg* food/shelter/water (or converse for site B *ie* less food/shelter/water);
...leading to greater immigration of ocelots/more successful reproduction/population growth in site A (or converse for Site B);

population may be lower in site B due to presence of more adverse factors *eg* disease/competitors (or converse for site A *ie* less disease/competition);
...leading to less immigration of ocelots/greater death rate/lower fertility in site B (or converse for site A);

population may be lower in site B due to higher levels of human disturbance (or converse for site A *ie* less disturbance);
...leading to more emigration of ocelots/greater death rate/reduced reproduction/loss of nesting sites in site B (or converse for site A);

Award 1 max for the possible cause and 1 max for linking it appropriately to either higher density in site A or lower density in site B.

N.B. If candidate has miscalculated population size of site B in part c, such that it is GREATER than for site A, then apply ECF and credit responses that provide valid reasons for B>A.

3. (a) (i) Identify **one** human factor that contributes to photochemical smog. **[1]**

(intensive) combustion of fossil fuels/organic matter/through high density traffic/urbanisation/industrialisation/forest burning/release of VOCs from aerosols;

(ii) Identify **one** natural factor that contributes to photochemical smog. **[1]**

local topography/high insolation/sunlight/low wind/thermal inversion;

(b) Explain why the formation of photochemical smog may have harmful effects on the environment of cities such as Santiago (Chile). **[4 max]**

reduced growth and productivity of plants/reduces crop yields by damaging them;
leads to the reduction of the air quality/visibility/ambience within the urban area;
particulates/chemicals within the smog enter the lungs and irritate respiratory system/cause respiratory disease/lung cancer;
particulates/chemicals within the smog may cause irritation of eyes/eye diseases;
the chemicals within the smog react with plastic/rubber causing it to perish/become hard/inflexible;
tropospheric ozone (a secondary pollutant) is a greenhouse gas/contributes to global warming/climate change;
smog pollutants reduce immune system of humans and animals (become more susceptible to diseases);

*Award **[1]** for each correct explanation, up to **[4 max]**.*

Section B

4. (a) Describe the role of primary producers in ecosystems. **[4 max]**

producers are plants that convert light energy into chemical energy by photosynthesis;
photosynthesis/primary producers convert carbon dioxide and water into glucose/sugar and oxygen;
this conversion/glucose forms the raw material of biomass/the basis of food chains;
producers (thereby) provide food for consumers/energy in a form that can be passed along food chains;
the production of oxygen by producers is vital for the majority of ecosystems;
the absorption of CO_2 maintains a balance of CO_2 in atmosphere/reduces global warming;
primary producers may alternatively generate biomass through chemosynthesis;
chemosynthetic bacteria use chemical energy to produce food without using sunlight;
plants may also provide other resources/services for ecosystem *eg* habitats/soil conservation/cycling of matter;

*Award **[1]** for each correct role described, up to **[4 max]**.*

(b) Explain the potential impact of ocean acidification on environmental systems and societies. **[7 max]**

ocean acidification is caused by increased CO_2 levels in atmosphere leading to more CO_2 absorbed into ocean;
the CO_2 reacts with the water forming an acid (carbonic acid)/decreasing the pH/changing pH from about 8.2 to 8.1;
macro-algae/seagrasses may benefit from higher CO_2 conditions in the ocean;
some organisms are adapted to a narrow pH range/very sensitive to pH changes;
low pH/reduces ability of shelled organisms to maintain their shells/reduces reproductive ability in fish/shellfish;
producers *eg* phytoplankton/corals in ocean environments can be particularly sensitive to low pH;
corals are more prone to bleaching/less able to recover from damage in acidified water;
reduction in producers reduces the resilience of an ecosystem/impacts entire food webs/is a potential tipping point for marine systems/reduces biodiversity;
collapse of a natural ecosystem may lead to collapse of fisheries/collapse of aquaculture (*eg* oysters)/overfishing of diminishing fish populations;
loss of fisheries can lead to limited food supply for indigenous communities/need to import food;
decline in fishing/aquaculture would result in reduced employment/socio-economic hardship;
coral reefs support economically valuable ecotourism that may be lost/decline;
loss of corals will bring an aesthetic loss/infringe biorights of organisms;

Do not credit responses that mistakenly address acid deposition.
Award 2 max for describing process of acidification.
Award 5 max if impacts are limited only to ecosystems or only to societies.

*Award **[1]** for each correct explanation, up to **[7 max]**.*

(c) To what extent do anthropocentric value systems dominate the international efforts to address climate change? **[9 max]**

The following guide for using the markbands suggests certain features that may be offered in responses. The five headings coincide with the criteria given in each of the markbands (although "ESS terminology" has been conflated with "Understanding concepts"). This guide simply provides some possible inclusions and should not be seen as requisite or comprehensive. It outlines the kind of elements to look for when deciding on the appropriate markband and the specific mark within that band.

Answers may include:

- **understanding concepts and terminology** of anthropocentric/technocentric/ecocentric values, sustainability, climate change, global warming, C emission, international NGOs/GOs, international agreements/protocols, mitigation, adaptation, MEDCs v LEDCs *etc*
- **breadth in addressing and linking** international strategies addressing climate change relevant EVS e.g. anthropocentric with environmental regulations, carbon tax, international agreements/protocols *eg* technocentric with carbon storage, alternative energies, vaccination programmes, desalinisation, flood defences, *eg* ecocentric with afforestation, energy reduction, reduced consumerism, more sustainable/localised agricultural systems *etc*
- **examples** of international strategies *eg* Kyoto protocol, Paris Agreement, UN Convention on Climate Change, carbon trading, REDD (Reduced Emissions from Deforestation & Degradation), and range of strategies employed internationally *eg* desalinisation in areas of water scarcity, flood defences in coastal regions, shifting cultivation to more appropriate latitudes, Greenpeace global aim for 100% renewable energy *etc*
- **balanced analysis** of the extent to which international efforts are dominated by anthropocentric values, acknowledging relevant counter-arguments/alternative viewpoints
- **a conclusion that is consistent with, and supported by, analysis and examples given** *eg* "All value systems have a valuable contribution in addressing climate change, but anthropocentric values are particularly critical in achieving a more concerted effort internationally in that technological solutions are often limited to MEDCs and ecocentric solutions tend to be very localised." *NB This is only an example of a possible conclusion. Candidates' conclusions do not have to agree.*

Please see markbands on page 20.

5. (a) Distinguish between the concept of a "charismatic" (flagship) species and a keystone species using named examples. **[4 max]**

Award 1 mark for two valid examples (one of each kind)
charismatic/flagship *eg* Panda/Tiger and keystone *eg* Northern Spotted Owl/Sea Stars/Fig Trees/Sea Otters/Jaguar;

Award 3 max for valid points of distinction:
charismatic/flagship species are used to publicise/advertise conservation campaigns/stimulate public action/raise economic support;
...they are selected because they appeal to humans/have ideological/cultural/religious significance;
their value is primarily subjective/relative to a society rather than ecological;
keystone species have a disproportionately large effect on their environment/may determine structure of an ecosystem/have many other species dependent on them;
keystone species may be publicly unpopular/threat to locals/considered pests/killed for fur/trophy;
they are identified through ecological/scientific/objective study of their relationships with the entire ecosystem;

While it is acceptable to award a mark for stating a discriminatory feature of just one kind of species (without referring to contrasting feature of the other), do not credit directly converse statements twice e.g. "flagship are X ...keystone are not X" would gain only 1 mark if X was valid.

(b) Explain the role of **two** historical influences in shaping the development of the environmental movement. **[7 max]**

eg Rachel Carson – Author of *Silent Spring* (1962);
Silent Spring documented/highlighted the problems caused by the widespread use of synthetic pesticides;
focus was placed on the activities of chemical companies;
explained impact of use of insecticides/pesticides on birds of prey;
led to widespread awareness amongst (American) public of environmental issues/bioaccumulation/biomagnification;
was a focal point for the social/environmental movements of the 1960s;
inspired many other environmentalists;
led to ban on DDT for agricultural uses;
inspired the formation of the U.S. Environmental Protection Agency;

eg Fukushima Daiichi nuclear disaster of 2011;
a natural disaster/earthquake/tsunami led to the biggest nuclear disaster since Chernobyl at Fukushima Nuclear Power Plant;
estimates vary about the number of people affected by the disaster/no direct deaths initially/over 600 deaths by workers/thousands with increased risk of cancers;
as the disaster was able to happen in a "developed" country like Japan, many societies came to the conclusion that nuclear power could not be "safe";
this has led to increased public pressure to phase out nuclear power generation;
eg Germany sped up plans to close nuclear reactors/over 90 % of Italy voted against government plans to expand nuclear power/Switzerland also decided to phase out nuclear power;

*Award **[1max]** for correctly identifying/naming two historical influences.*
Award credit for valid statements that describe the personality/event; explain how it has influenced the movement; and explain exactly what gave rise to the influence.
If more than two events/personalities are addressed credit only the highest-scoring two.
*Award **[4max]** for each explanation of how historical influences shaped the development of environmentalism up to max of **7 marks**.*

(c) Discuss the implications of environmental value systems for the protection of tropical biomes. **[9 max]**

The following guide for using the markbands suggests certain features that may be offered in responses. The five headings coincide with the criteria given in each of the markbands (although "ESS terminology" has been conflated with "Understanding concepts"). This guide simply provides some possible inclusions and should not be seen as requisite or comprehensive. It outlines the kind of elements to look for when deciding on the appropriate markband and the specific mark within that band.

Answers may include:
- **understanding concepts and terminology** of environmental value systems, tropical biomes, biodiversity, conservation, habitat v species approach, reserves, ecotourism, flagship species, sustainable development/exploitation, goods/services.
- **breadth in addressing and linking** environmental value systems with each other and ecocentric values with biorights, wilderness reserves, restrained resource use, *etc* and anthropocentric values with laws/regulations/quotas, public consultation/agreements, sustainable exploitation, ecotourism *etc* and technocentric values with economic development, habitat restoration, economic value of natural goods and services, gene banks *etc*
- **examples** of tropical biomes e.g. tropical forests, grasslands, savannas, lakes & rivers, coral reefs *etc* and environmental value systems *eg* ecocentrism, anthropocentrism, technocentrism, *etc* and habitat/species protection strategies *eg* reserves, managed sustainable harvesting, ecotourism, fishing quotas, *etc* and value systems in specific tropical societies *eg* rights of nature enshrined in constitutions of Ecuador/Bolivia, human rights to a healthy environment in laws of Costa Rica/Brazil, *etc*
- **balanced analysis** of the ways in which different value systems are likely to impact/influence the protection of tropical biomes, acknowledging relevant counter-arguments/alternative viewpoints.
- **a conclusion that is consistent with, and supported by, analysis and examples given** *eg* "Because ecocentric values embrace the biorights of all living species and habitats their implications are bound to be the most fundamentally protective, however, to be practical in current society, more is likely to be achieved in protecting tropical biomes through some compromise with other value systems." *NB This is only an example of a possible conclusion. Candidates' conclusions do not have to agree.*

Please see markbands on page 20.

6. (a) Outline the reasons why natural capital has a dynamic nature. **[4 max]**

the value and status of natural capital may vary regionally;
eg cork may be highly valued in areas where grapes for wine are grown;
the value may also vary over time;
eg cork has been used for millennia as bottle stoppers for wine and other products but in the last 20 years its value has decreased as other resources have been used to seal wine bottles;
the value may vary due to other reasons, *eg* social/political;
eg uranium's value decreased quickly after the Fukushima nuclear disaster when public pressure led to several countries declaring they would phase out nuclear power;
the value may vary due to environmental/technological reasons;
eg lithium's value has increased as it is used to make batteries for electric cars and personal devices;

*Award **[1]** for each correct reason and/or example, up to **[4 max]**. N.B. Credit may be allowed for alternative egs of equivalent validity, detail and relevance.*

(b) Explain how the inequitable distribution of natural resources can lead to conflict. **[7 max]**

natural resources like water/food/productive land/fossil fuel/ore deposits are distributed unequally around the globe/some countries have a lot, some others have few;
eg sub-Saharan African countries face water shortages/Middle East countries have a huge surplus of oil;
which may lead one country to invade another for its resources *eg* ore deposits in Congo/Afghanistan;
inequitabilities may also arise from changes within societies due to overconsumption/population growth/lack of technology (agricultural/extraction/mining)/unsustainable development;
…or from changes in their surroundings *eg* climatic change/international politics/economics/war/embargoes;
eg food price crisis in 2008 causing protests/riots/political/economic/social unrest (in both LEDCs & MEDCs);
eg water scarcity due to climate change in Syria is argued to be a major cause of civil war in 2011;
Inequitability often leads to conflict when a resource is shared across national borders (usually water storages or oil deposits);
eg sharing the Nile's water resources between Ethiopia, Sudan and Egypt;
inequitability in energy/fuel reserves is particularly significant to economics/national security;
eg leading to, and promulgating many conflicts in the Middle East;
conflicts can also occur between constituencies within a country *eg* social classes/ethnic groups/resentments over government regulations/bans/taxation/private ownerships v public;
eg when cost of clean water is prohibitive for lower social classes;

Award 1 mark for any argument/valid eg connecting unequal resource distribution to conflict;
Allow 4 max for outlining inequality in resource distribution without clear reference on how it is leading to conflict.

(c) The management of a resource can impact the production of solid domestic waste.

To what extent have the three levels of the pollution management model been successfully applied to the management of solid domestic waste? **[9 max]**

The following guide for using the markbands suggests certain features that may be offered in responses. The five headings coincide with the criteria given in each of the markbands (although "ESS terminology" has been conflated with "Understanding concepts"). This guide simply provides some possible inclusions and should not be seen as requisite or comprehensive. It outlines the kind of elements to look for when deciding on the appropriate markband and the specific mark within that band.

Answers may include:

- **understanding concepts and terminology** of pollution management model and its "three levels" *ie* A. altering human activity/reducing production, B. regulating/limiting release, C. clean-up/restoration, economic incentives/disincentives, legislation, emission standards, pollutant extraction, habitat restoration, solid domestic waste, e-waste, hazardous waste, reduce/reuse/recycle, landfills, incineration, composting, biodegradable/non-biodegradable, zero-waste, waste to energy, *etc*
- **breadth in addressing and linking** different levels with each other and with relevant management strategies to each *ie* A. educational campaigns/legislation for reduced packaging/non-biodegradable products, product longevity, *etc* and B. promotion of reuse/recycling, composting, landfills, incineration, waste to energy schemes, *etc* and C. landfill reclamation, litter collection, bioremediation, detoxification of hazardous waste, restocking, *etc*
- **examples** of specific schemes *eg* A. tax on plastic bags/waste collection (*eg* Germany/Rwanda), San Francisco zero waste by 2020, rewards for low-waste manufacturing, B. government waste to energy schemes, sponsored recycling schemes, C. mining landfills to remove hazardous waste (e.g. Switzerland), clean-up schemes for Pacific Garbage Patch, *etc*
- **balanced analysis** of the success or otherwise i.e. relative strengths & weaknesses of a range of strategies from all three levels of the pollution management model acknowledging relevant counterarguments/alternative viewpoints.
- **a conclusion that is consistent with, and supported by, analysis and examples given** *eg* "Logically, it must be most effective to manage waste at the first level which prevents problems arising but, due to the inevitable inertia in changing people's perceptions, values and activities, more is currently being successfully achieved through the next two levels." *NB This is only an example of a possible conclusion. Candidates' conclusions do not have to agree.*

Please see markbands on page 20.

7. (a) Outline how soil can be viewed as an ecosystem. **[4 max]**

Like an ecosystem, soil is an open system with inputs and outputs;
(inputs of) *eg* water/O_2 (and outputs of) *eg* CO_2/nitrogen;
...and storages and flows/processes;
(storages of) *eg* nitrates/water (and flows of) *eg* leaching/decomposition;
like an ecosystem, soil is a community of living/biotic and abiotic elements;
(biotic) *eg* bacteria/fungi/earthworms (and abiotic) *eg* clay/sand/silt/water/heat;
...with the many complex interactions/interrelationships/*eg* mineral cycling/leguminous plants;
interacts with/supports other systems/*eg* vegetation growth, animal movement/burrowing/human development;

Award marks as above for identifying relevant common features, and also for giving examples (provided it is clear what is being exemplified).

(b) Compare and contrast the impact of humans on the carbon and nitrogen cycles. **[7 max]**

in both cycles combustion (of forests/fossil fuels) increases concentration of oxides in atmosphere;
in both cycles deforestation/agriculture/SDW lead to decomposition that also releases oxides;
...but carbon dioxide released (by respiration) into atmosphere/(whereas) nitrous oxides are released into soil water (by nitrification);
both oxides will increase impact of global warming/climate change;
...but NOx to a smaller degree;
both oxides result in the acidification of water/aquatic bodies;
...but only NOx may cause acid deposition/acidify soils;
deforestation removes organic storages of both N and C (stored in plant biomass);
…and reduces absorption of C from atmosphere (via photosynthesis) (but not N);
…causes soil erosion which reduces inorganic N storages in soil (but not C);
use of inorganic fertilisers increases N in soil (but not C);
…and run-off may cause excessive inorganic N in aquatic systems (but not C);
pesticide/herbicide use in agriculture might kill organisms thus reducing both C and N organic storages (stored in their biomass);
… thus reducing nitrification/denitrification/decomposition process/(whereas) effect on C cycle is limited to reducing respiration by soil animals;
extraction of oil/coal/gas reduces underground (ancient) C storages/transfers C storages on surface (for human use)/(whereas) effect to N cycle is limited to a few organic compounds/aromatics found in oil;

Award 5 max if only similarities or only differences are identified.

(c) Discuss the role of humans in the destabilization of ecological systems. **[9 max]**

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Answers may include:

- **understanding concepts and terminology** of steady state and dynamic equilibria, stability, resilience, tipping-points, diversity, storage size, productivity, negative/positive feedback, complexity, community interdependence/interaction, human impacts of overexploitation/unsustainable harvesting, pollution, habitat degradation/destruction, unsustainable development, *etc*
- **breadth in addressing and linking** factors that provide stability/resilience *eg* storage size, diversity, productivity, complexity, *etc* with human activities that either weaken/reduce them *eg* overfishing, intensive agriculture, C emissions/global warming, water/atmospheric pollution, deforestation, urbanisation, mining/resource extraction, *etc* or activities that strengthen/protect them *eg* legislation setting pollution limits/standards/fishing quotas, sustainable development schemes, alternative/renewable energies, conservation efforts/reserves, *etc*
- **examples** of specific negative impacts on stability of ecological systems e.g. overfishing reduces the storage size of targeted fish populations reducing their stability, C emissions lead to climate change that reduces primary productivity of systems, eutrophication will interfere with negative feedback loops in freshwater systems, atmospheric pollutants may eliminate sensitive species of lichen reducing diversity, *etc* and positive impacts on stability e.g. in-situ conservation protects complexity of relationships in system, agricultural techniques conserving soils maintain high productivity, *etc*
- **balanced analysis** of the extent to which human activities promote or prevent destabilisation of ecological systems with acknowledgement of relevant counter-arguments/alternative viewpoints.
- **a conclusion that is consistent with, and supported by, analysis and examples given** *eg* "The role of humans in destabilising ecological systems is very diverse, and with the current size and growth of population, the magnitude of that role is becoming immense, calling for urgent and wide-scale efforts to adopt a proactive role in re-stabilising those systems." *NB This is only an example of a possible conclusion. Candidates' conclusions do not have to agree. Their value should be assessed simply according to the criteria given in the markband descriptors.*

Please see markbands on page 20.

Section B, part (c) markbands

Marks	Level descriptor
0	The response does not reach a standard described by the descriptors below and is not relevant to the question.
1–3	The response contains: • minimal evidence of knowledge and understanding of ESS issues or concepts • fragmented knowledge statements poorly linked to the context of the question • some appropriate use of ESS terminology • no examples where required, or examples with insufficient explanation/relevance • superficial analysis that amounts to no more than a list of facts/ideas • judgments/conclusions that are vague or not supported by evidence/argument.
4–6	The response contains: • some evidence of sound knowledge and understanding of ESS issues and concepts • knowledge statements effectively linked to the context of the question • largely appropriate use of ESS terminology • some use of relevant examples where required, but with limited explanation • clear analysis that shows a degree of balance • some clear judgments/conclusions, supported by limited evidence/arguments.
7–9	The response contains: • substantial evidence of sound knowledge and understanding of ESS issues and concepts • a wide breadth of knowledge statements effectively linked with each other, and to the context of the question • consistently appropriate and precise use of ESS terminology • effective use of pertinent, well-explained examples, where required, showing some originality • thorough, well-balanced, insightful analysis • explicit judgments/conclusions that are well-supported by evidence/arguments and that include some critical reflection.