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ENVIRONMENTAL SYSTEMS AND SOCIETIES
STANDARD LEVEL
PAPER 2

Candidate session number

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Tuesday 7 May 2013 (afternoon)

2 hours

Examination code

2	2	1	3	–	6	3	0	2

INSTRUCTIONS TO CANDIDATES

- Write your session number in the boxes above.
- Do not open this examination paper until instructed to do so.
- Section A: answer all questions. Refer to the resource booklet which accompanies this question paper.
- Section B: answer two questions.
- Write your answers in the boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is *[65 marks]*.

SECTION A

*Answer **all** questions. Write your answers in the boxes provided.*

The resource booklet provides information on the Pacific Ocean. Use the resource booklet and your own studies to answer the following.

1. (a) (i) State the source of energy that drives the Earth's ocean currents. *[1]*

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(ii) List **two** possible sources of plastic garbage in the oceans. *[1]*

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2. . . . . .
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(iii) Describe a method to estimate the quantity of garbage in the Great Pacific Garbage Patch (GPGP). *[3]*

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(Question 1 continued)

(iv) Describe and evaluate **two** pollution management strategies that could be used to reduce the GPGP. *[4]*

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(b) (i) Explain why albatross chicks may starve if they eat plastic. *[1]*

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(ii) Explain why organisms at the top of the food web in the GPGP are likely to accumulate high concentrations of POPs (persistent organic pollutants). *[2]*

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(Question 1 continued)

(iii) State the purpose of the Red List. *[1]*

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(iv) List **two** possible threats to albatross species. *[1]*

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(c) (i) Using Figure 6, calculate the average frequency of El Niño events between 1990 and 2010. *[1]*

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(ii) Suggest **two** reasons why both El Niño and La Niña events may be having a greater impact on human populations today than in the past. *[2]*

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(Question 1 continued)

(d) (i) State the **two** material inputs of photosynthesis. *[1]*

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(ii) Suggest **two** factors that may have contributed to the severe Amazon droughts of 2005 and 2010. *[2]*

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(iii) Construct a flow diagram showing a positive feedback loop caused by a human activity on the carbon cycle in the Amazon rainforest. *[3]*

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(Question 1 continued)

(e) (i) Outline the trend shown in the data in Figure 9. *[1]*

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(ii) Suggest **one** reason why there are variations between the published data of the three organizations in Figure 9. *[1]*

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SECTION B

*Answer **two** questions. Write your answers in the boxes provided.*

*Each essay is marked out of **[20]** of which **[2]** are for clarity of expression, structure and development of ideas:*

[0] *Quality of expression, structure and development is poor.*
[1] *Quality of expression, structure and development is limited.*
[2] *Quality of expression is clear, structure is good and ideas are well developed.*

2. (a) State **three** reasons why global energy use continues to rise. *[3]*

(b) (i) Explain why some countries are trying to reduce their carbon dioxide emissions levels. *[2]*

(ii) Suggest **three** ways in which carbon dioxide emissions could be reduced, giving examples. *[6]*

(c) Compare and contrast the reasons for the choice of energy sources used in **two named** countries. *[7]*

Expression of ideas [2]

3. (a) Distinguish between *anthropocentrism* and *technocentrism*. *[4]*

(b) Explain how environmental value systems can help to achieve sustainable development. *[6]*

(c) Compare and contrast the role and activities of a **named** intergovernmental organization and a **named** non-governmental organization in conserving and restoring ecosystems and biodiversity. *[8]*

Expression of ideas [2]

4. (a) Distinguish between *biotic* and *abiotic* factors. *[2]*

(b) Outline **two** reasons for the extinction of a **named** species and suggest how intervention measures can improve the conservation status of a species. *[8]*

(c) (i) Discuss the potential ecological services and goods provided by a **named** ecosystem. *[6]*

(ii) Explain whether or not you believe it is justified to place an economic value on natural systems. *[2]*

Expression of ideas *[2]*

5. (a) Distinguish between the terms *point source pollution* and *non-point source pollution*. *[2]*

(b) Discuss the environmental problems caused by food production systems and suggest possible solutions. *[10]*

(c) Outline the concept of an ecological footprint and evaluate its use as a model for assessing the sustainability of freshwater resource use. *[6]*

Expression of ideas *[2]*

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