



Environmental systems and societies
Standard level
Paper 2

Thursday 19 November 2015 (morning)

Candidate session number

2 hours

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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 California condor. Use the resource booklet and your own studies to answer the following.

1. (a) Define the term *species*. [1]

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- (b) With reference to **Figure 2(b)** identify **two** ways in which scavengers such as condors play a role in an ecosystem. [2]

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- (c) With reference to **Figure 3** identify **two** features of the birds that could be used to construct a simple key to distinguish between condors and other large species of bird. [2]

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- (d) With reference to **Figures 2(b)** and **4(a)** explain **one** feature of condors that make them prone to extinction. [2]

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(Question 1 continued)

- (e) Identify **one** data collection method which may have been used by scientists to estimate the abundance of condors. [1]

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- (f) Justify whether condors should be classified as K or R strategists. [2]

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- (g) With reference to **Figures 4(b)** and **9(b)**:

- (i) Suggest a reason why a condor is likely to be poisoned even if a small proportion of the carcasses it consumes contain lead. [1]

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- (ii) State the term for a species that is used to measure pollution levels. [1]

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(Question 1 continued)

- (h) With reference to the resource booklet, complete the table by identifying strategies that reduce the effect of lead on the environment. [2]

Process of pollution	Strategy for reducing impacts from this case study.
Human activity producing pollutant	Replacing lead bullets with non-lead bullets
Release of lead into the environment
Long term impact of lead on the environment

- (i) With reference to **Figures 4(a), 7(a) and 7(b)** identify **one** similarity and **one** difference between the attitudes towards condors of Chumash Indians in the past and cattle farmers who shoot them now. [2]

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- (j) Identify **two** arguments for the conservation of California condors. [2]

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(Question 1 continued)

- (k) With reference to the resource booklet, complete the table by identifying **one** way in which each of the following are playing a role in the conservation of California condors. [3]

Individuals or organizations	How they are playing a role in the conservation of California condors.
Individual citizens
The Government of the state of California
NGO

- (l) Using evidence from the resource booklet evaluate the success of the conservation programme for California condors. [4]

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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) Distinguish between renewable and replenishable natural capital using examples. [4]
- (b) Explain how the global climate functions as a system. [6]
- (c) Discuss how different environmental philosophies can affect the choice of pollution management strategies in response to global warming. [8]
- Expression of ideas [2]
3. (a) Distinguish between a human carrying capacity and an ecological footprint of a population. [4]
- (b) Explain the factors which influence the choice of energy sources in **two** different societies. [6]
- (c) Evaluate the role of national and international development policies in reducing human population growth. [8]
- Expression of ideas [2]
4. (a) Distinguish between transfers and transformations using examples from the water cycle. [4]
- (b) Explain the role of climate in the distribution and relative productivity of a named biome. [6]
- (c) Evaluate the sustainability of freshwater use in a named case study and the environmental philosophy(ies) involved in this decision making process for the management of this resource. [8]
- Expression of ideas [2]



- 5. (a) Distinguish, using examples, between the processes of succession and zonation. [4]
- (b) Explain the relationship between ecosystem stability, diversity and succession. [6]
- (c) Discuss the relationship between social systems and food production systems with the help of named examples. [8]

Expression of ideas [2]

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