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**Environmental systems and societies**  
**Standard level**  
**Paper 1**

Tuesday 11 May 2021 (afternoon)

Candidate session number

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1 hour

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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.
- Answer all questions. Refer to the resource booklet which accompanies this question paper.
- Answers must be written within the answer boxes provided.
- A calculator is required for this paper.
- The maximum mark for this examination paper is **[35 marks]**.



Answer **all** questions. Answers must be written within the answer boxes provided.

1. (a) With reference to **Figure 2(a)**, identify the most widespread biome in Siberia. [1]

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- (b) Using **Figures 2(a)** and **2(c)**, identify the agricultural activity that covers the greatest area in the taiga. [1]

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2. With reference to **Figure 3**, suggest **two** reasons why primary productivity is greater in the taiga than in the tundra. [2]

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3. With reference to **Figures 5(b)** and **5(c)**, outline **one** reason why the yaranga is more sustainable than the modern city house. [1]

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4. (a) With reference to **Figure 6(b)**, identify **one** strategy that might have been used to achieve the trend in sulphur dioxide emissions since the early 1980s. [1]

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**(Question 4 continued)**

- (b) Explain the distribution of vegetation damage shown in **Figure 6(c)**. [3]

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5. (a) Describe a practical strategy using a biotic index to provide evidence that the Daldykan River (**Figures 6(d)** and **6(e)**) is damaged by effluent from the metal processing plant. [3]

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- (b) When measuring levels of pollution, state **one** advantage and **one** disadvantage of using a biotic index compared to measuring the pollutants directly.

- (i) Advantage [1]

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- (ii) Disadvantage [1]

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6. (a) Outline **one** ecological service provided by the Siberian taiga. [1]

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- (b) With reference to **Figure 7(b)**, calculate the percentage of timber exports to China between the years 2012–2014. [1]

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- (c) Explain how deforestation in the taiga may impact the world's oceans. [3]

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- (d) State **one** natural limiting factor to the successful restoration of taiga through replanting. [1]

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7. (a) Outline the impact that a reduction in the tiger population may have on other populations in the food web shown in **Figure 8(c)**. [2]

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- (b) Outline why a reduction in the Siberian tiger's population may increase its probability of extinction. [2]

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8. Conservation measures for the Siberian tiger between 1940–2010 involved tagging, setting up reserves, and bans on hunting and trade.
- With reference to **Figures 8(a), 8(d) and 8(e)**, evaluate the relative success of these measures. [3]

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9. With reference to **Figures 8(e) and 8(f)**, outline how the decision to remove logging roads in 2015 may benefit the tiger populations. [2]

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Answers written on this page  
will not be marked.



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