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

28 October 2024

**Zone A** afternoon | **Zone B** afternoon | **Zone C** afternoon

Candidate session number

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) Using **Figures 2(a)** and **2(b)**, identify one type of vegetation found in Zermatt. [1]

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(b) With reference to **Figure 2(a)**, distinguish between the climates of Montana and Zermatt. [2]

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(c) With reference to **Figure 2(a)**, outline why the vegetation in mountain zones changes with altitude. [2]

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2. (a) Describe the snowfall data shown in **Figure 3**. [2]

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(b) Outline how a reduction in snow cover in the Alps can act as a positive feedback loop for climate change. [2]

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3. (a) With reference to **Figure 4(a)**, outline how Swiss glacier retreat will impact the river Rhine. [1]

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- (b) With reference to **Figure 4(b)**, calculate the percent decrease in ice volume between 2010 and 2019. [1]

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- (c) Describe the processes leading to the development of a pioneer community as the glacier retreats, as shown in **Figures 4(c)** and **4(d)**. [2]

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- (d) Describe a method used to collect the data on percent cover vegetation shown in **Figure 4(d)**. [3]

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4. (a) Using **Figure 5**, calculate the proportion of electricity generated by renewable sources. [1]

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(b) Suggest **two** reasons why the majority of Switzerland's electricity is generated by hydropower. [2]

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5. (a) With reference to **Figure 6(b)**, state the ecological relationship between the marmot (*Marmota flaviventris*) and the moss campion (*Silene acaulis*). [1]

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- (b) Predict how increasing numbers of the Eurasian wolf (*Canis lupus lupus*) will impact the alpine ecosystem. [2]

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- (c) With reference to **Figures 6(c)** and **6(d)**, evaluate the effectiveness of the protection given to the Eurasian wolf (*Canis lupus lupus*) in Switzerland. [3]

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6. (a) With reference to **Figure 7**, explain how Swiss dairy farming can be considered sustainable.

[3]

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(b) Suggest **one** method which could be used to encourage dairy farmers to support conservation of wolves.

[1]

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12EP10

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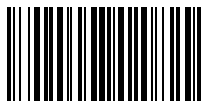
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