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

Friday 30 October 2020 (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 **Figure 1(c)**, state **one** ecosystem found at sea level in Dominica. [1]

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- (b) With reference to **Figure 1(d)**, explain how the environmental conditions on Dominica result in high gross primary productivity. [2]

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2. (a) Using **Figure 2(a)**, state **one** physical characteristic that may be used to differentiate these two species from each other in an identification key. [1]

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- (b) With reference to **Figure 2(a)**, state the type of biotic interaction that occurs between the imperial amazon and the red-necked amazon parrots. [1]

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**(Question 2 continued)**

- (c) Compare and contrast the realized niches of the two parrot species. [3]

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- (d) With reference to **Figure 2(b)**, calculate the percent increase in red-necked amazon numbers between 1980 and 2012. [1]

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- (e) With reference to **Figures 2(a)** and **2(b)**, suggest **two** reasons why the red-necked amazon population has recovered more quickly than the imperial amazon population following Hurricane David in 1979. [2]

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3. (a) Using **Figure 3(a)**, identify why Hurricane Maria was so destructive. [1]

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(b) Describe the relationship between sea surface temperature in **Figure 3(b)** and hurricane wind speed in **Figure 3(a)**. [2]

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(c) With reference to **Figures 3(c)** and **3(d)**, outline how Hurricane Maria has reduced Dominica's food availability. [2]

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(d) With reference to **Figure 3(c)**, explain **three** ways in which Hurricane Maria has affected ecosystem services provided by Dominica's forests. [3]

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4. **Figure 3(d)** shows a landslide caused by heavy precipitation on a steep slope. Outline **one** technique that could be used by farmers in Dominica to reduce soil erosion. [3]

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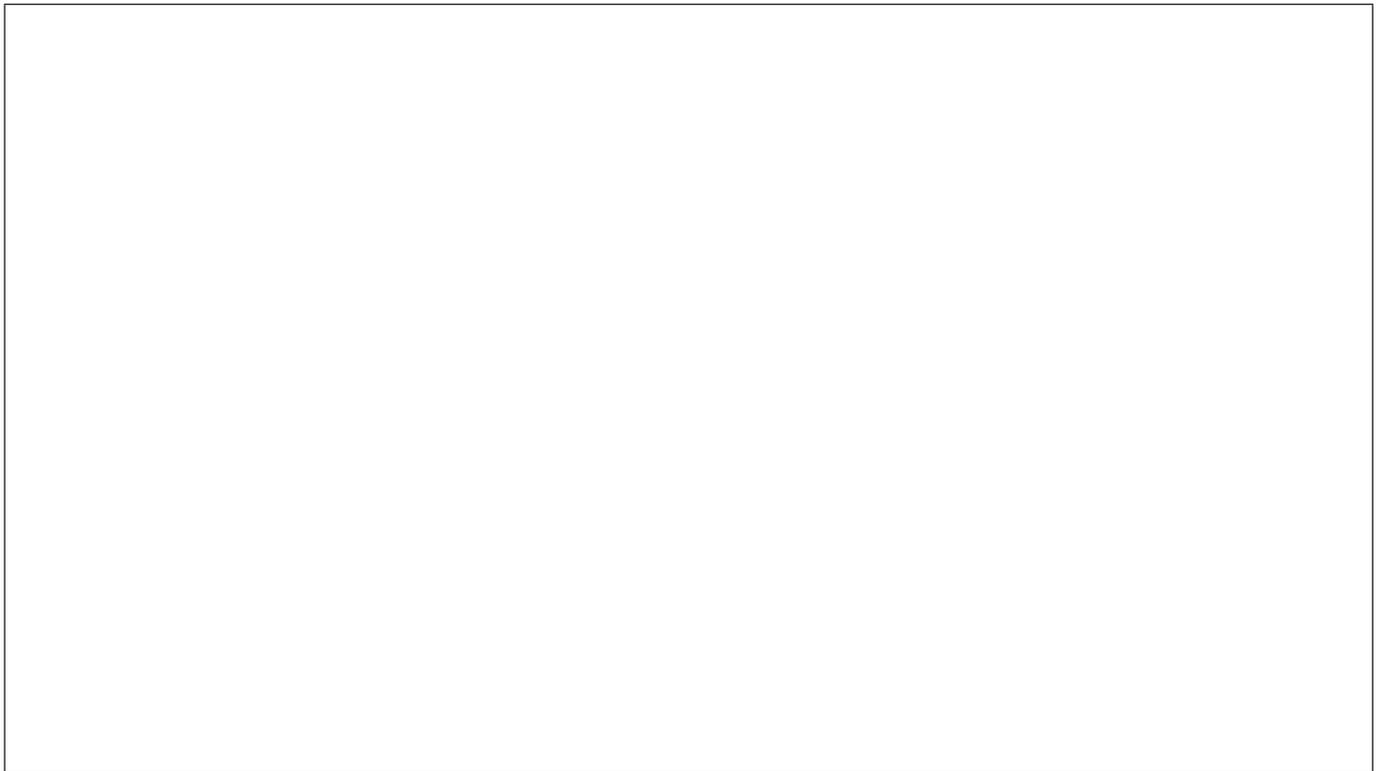
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5. (a) After the hurricane, thousands of men and women left Dominica in search of work. With reference to **Figure 4(a)**, draw a post-hurricane age-gender pyramid for Dominica to illustrate this outward migration. [2]



- (b) With reference to **Figures 4(a)** and **4(b)**, suggest how population change may impact resource use on Dominica in the future. [2]

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Answers written on this page  
will not be marked.



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