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Geography
Higher level
Paper 1

Friday 15 November 2019 (afternoon)

2 hours 15 minutes

Instructions to candidates

- Do not open this examination paper until instructed to do so.
- Answer the questions in three options.
- The accompanying geography resource booklet is required for this examination paper.
- The maximum mark for this examination paper is [60 marks].

<table>
<thead>
<tr>
<th>Option</th>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option A — Freshwater</td>
<td>1 – 2</td>
</tr>
<tr>
<td>Option B — Oceans and coastal margins</td>
<td>3 – 4</td>
</tr>
<tr>
<td>Option C — Extreme environments</td>
<td>5 – 6</td>
</tr>
<tr>
<td>Option D — Geophysical hazards</td>
<td>7 – 8</td>
</tr>
<tr>
<td>Option E — Leisure, tourism and sport</td>
<td>9 – 10</td>
</tr>
<tr>
<td>Option F — Food and health</td>
<td>11 – 12</td>
</tr>
<tr>
<td>Option G — Urban environments</td>
<td>13 – 14</td>
</tr>
</tbody>
</table>
Answer the questions in **three** options.

When relevant, answers should refer to case studies or examples, and where appropriate include well-drawn maps or diagrams.

**Option A — Freshwater**

Answer the following question.

1. The following diagram shows the rainfall stores and flows within a drainage basin during a rainfall event.

   ![Diagram of rainfall stores and flows](source)

   [Source: International Baccalaureate Organization, 2019]

   (a) (i) Estimate the percentage of rainfall shown as surface storage at the start of the rainfall event. [1]

   (ii) Estimate the number of hours during which overland flow is present in the drainage basin. [1]

   (b) Outline one reason why interception decreases over time during the rainfall event shown in the diagram. [2]

   (c) Explain three possible ways in which urban development might change how rainwater moves through a drainage basin such as this. [2+2+2]

   (Option A continues on the following page)
(Option A continued)

Answer either part (a) or part (b).

Either

2. (a) Evaluate the strategies used to manage the growing pressures on one named major wetland. [10]

Or

2. (b) Examine the relative severity of the different effects of agriculture on freshwater quality. [10]

End of Option A
Option B — Oceans and coastal margins

Answer the following question.

3. Refer to the map and key on pages 2 and 3 of the accompanying resource booklet.

   The map shows part of the south-western coastline of the United Kingdom. The scale of the map is 1:25000 and the contour interval is 5 metres.

   (a) (i) State the six-figure grid reference of the Dawlish Warren railway station. [1]
   (ii) Estimate the distance, in km, between X and Y on the map. [1]

   (b) Outline two physical reasons why urban development has not occurred in area A. [2+2]

   (c) Explain two ways in which vegetation contributes to the development of sand dunes in coastal areas such as this. [2+2]

Answer either part (a) or part (b).

Either

4. (a) Examine why the management of coral reefs and mangrove swamps can become a source of conflict. [10]

Or

4. (b) Evaluate the success of actions to reduce overfishing. [10]

End of Option B
Option C — Extreme environments

Answer the following question.

5. Refer to the map on page 4 of the accompanying resource booklet.

The map shows the ways in which the Arctic is being used by various countries.

(a) Briefly describe two main features of the pattern of the gas and oil extraction sites shown on the map. [1+1]

(b) Outline one physical reason why permafrost causes challenges for the industries shown on the map. [2]

(c) Explain three possible conflicts over the use of cold environments (such as the Arctic) for mineral extraction. [2+2+2]

Answer either part (a) or part (b).

Either

6. (a) Examine the opportunities and challenges associated with tourism in hot, arid environments. [10]

Or

6. (b) Examine possible ways of managing the impacts of global climate change on local populations in hot, arid environments. [10]

End of Option C
Option D — Geophysical hazards

Answer the following question.

7. Refer to the map on page 5 of the accompanying resource booklet.

The map shows the movements of internally displaced persons (IDPs) out of Port-au-Prince, Haiti, following the earthquake of January 2010.

(a) (i) Estimate the number of internally displaced persons (IDPs) moving to Artibonite. [1]

(ii) Estimate the furthest distance, in km, from Port-au-Prince at which very strong earthquake intensity was experienced. [1]

(b) Outline how the distance from the epicentre of an earthquake can determine the severity of two associated secondary hazards. [2+2]

(c) Explain two reasons why internally displaced persons may have to wait a long time to return home after a major earthquake event such as this. [2+2]

Answer either part (a) or part (b).

Either

8. (a) Examine pre-event management strategies designed to reduce human vulnerability to mass movement hazards. [10]

Or

8. (b) Examine the relative importance of economic and social factors in the vulnerability of local communities to geophysical hazards. [10]

End of Option D
Option E — Leisure, tourism and sport

Answer the following question.

9. The graph shows the total leisure time in hours per day spent according to education and age in a high-income country.

![Graph showing leisure time by education and age](image)

**Key:**
- TV
- Other screen
- Non-screen activities

[Source: From 1843 magazine © 2017 The Economist Newspaper Limited. All rights reserved.]

(a) (i) Estimate the number of hours per day that people aged 65+ spend watching TV. [1]

(ii) Estimate the percentage of leisure time that 15–24-year-olds spend on non-screen activities. [1]

(b) Outline one possible reason why people in this high-income country have a large amount of leisure time. [2]

(c) Explain three factors not shown in the graph that may affect the amount of leisure time for different groups of working people in a country like this. [2+2+2]

Answer either part (a) or part (b).

**Either**

10. (a) Examine reasons why the growth of tourism hotspots can become unsustainable. [10]

**Or**

10. (b) Examine ways in which international sporting events have become more inclusive over time. [10]
Option F — Food and health

Answer the following question.

11. Refer to the map on page 7 of the accompanying resource booklet.

   The map shows the global pattern of type 2 diabetes (sometimes classified globally as a disease of affluence) in 2000 and the numbers of people affected by this disease in 2000 and 2030 (projected).

   (a) (i) Identify the percentage of people affected by diabetes in Europe in 2000. [1]

   (ii) State the region with the highest rate of increase in diabetes between 2000 and 2030. [1]

   (b) Suggest two reasons, other than population growth, why the number of people suffering from diseases of affluence is projected to increase globally. [2+2]

   (c) Explain one global and one local action that could be undertaken to manage a pandemic such as diabetes. [2+2]

Answer either part (a) or part (b).

   Either

12. (a) Examine how different factors have contributed to famine in one or more countries or areas. [10]

Or

12. (b) Examine possible ways to improve food availability in different places. [10]

End of Option F
Option G — Urban environments

Answer the following question.

13. Refer to the maps on pages 8 and 9 of the accompanying resource booklet.

The maps show the growth of Lagos, a megacity in Nigeria, from 1984 to 2013.

(a) (i) Using map evidence, identify one factor that has limited the expansion of Lagos towards the west. [1]

(ii) Estimate how far (in km) Lagos has grown along the southern part of the lagoon between points X and Y from 1984 to 2013. [1]

(b) Suggest two social reasons for the rapid growth of a megacity such as Lagos. [2+2]

(c) Explain two reasons why the informal economic sector is important in a megacity such as Lagos. [2+2]

Answer either part (a) or part (b).

Either

14. (a) Examine the varying impact of human activity on urban microclimates and air pollution. [10]

Or

14. (b) Examine the interrelationships between the growth of cities and their infrastructure development. [10]

End of Option G