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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]**.

Option	Questions
Option A — Freshwater	1 – 2
Option B — Oceans and coastal margins	3 – 4
Option C — Extreme environments	5 – 6
Option D — Geophysical hazards	7 – 8
Option E — Leisure, tourism and sport	9 – 10
Option F — Food and health	11 – 12
Option G — Urban environments	13 – 14

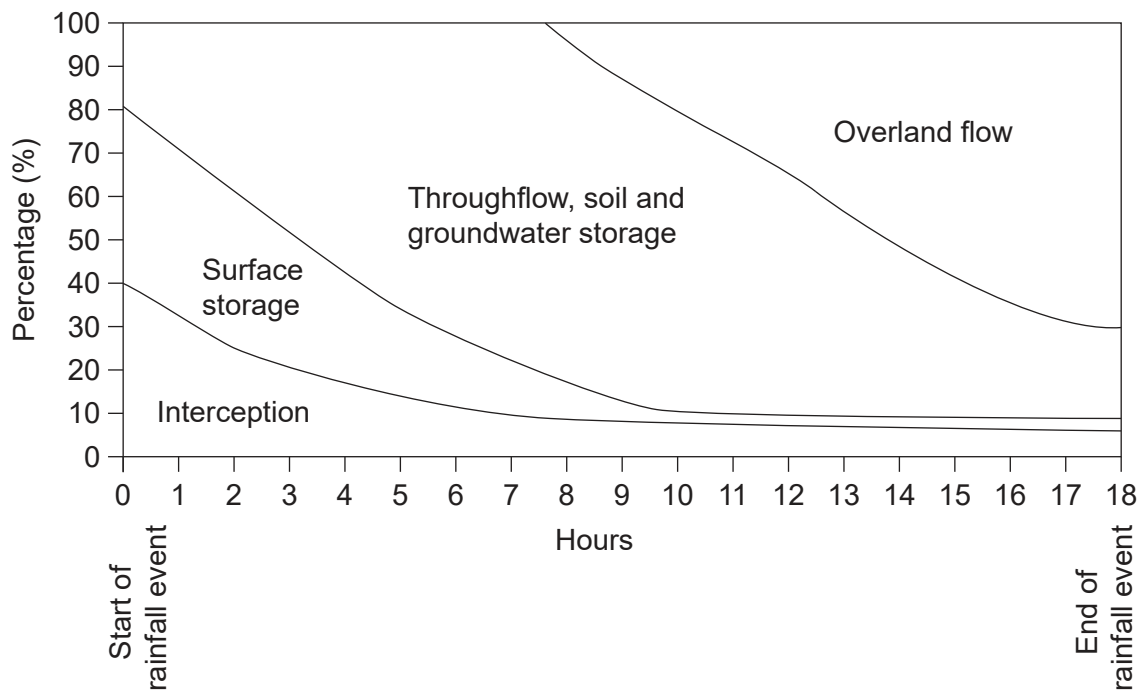
Answer the questions in **three** options.

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.



[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**

**Turn over**

**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**

**Turn over**

**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**

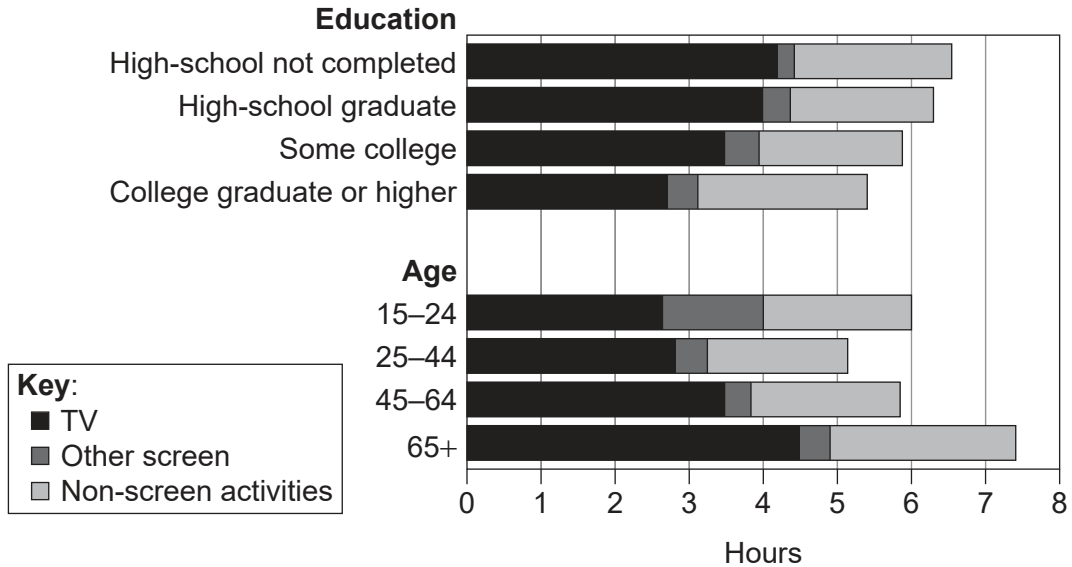
- 8. (b) Examine the relative importance of economic and social factors in the vulnerability of local communities to geophysical hazards. [10]

**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.



[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]

**End of Option E**

Turn over



**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**

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