

Geography

Higher level

Paper 2

Wednesday 8 November 2017 (morning)

2 hours

Instructions to candidates

- Do not open this examination paper until instructed to do so.
- Answer three questions. Each question is worth **[20 marks]**.
- Each question must be selected from a different optional theme, A – G.
- Do not answer two questions on the same optional theme.
- Use case studies, examples, maps and/or diagrams where relevant.
- A copy of the geography paper 2 resources booklet is required for this paper.
- The maximum mark for this examination paper is **[60 marks]**.

Option	Questions
Option A — Freshwater – issues and conflicts	1 – 2
Option B — Oceans and their coastal margins	3 – 4
Option C — Extreme environments	5 – 6
Option D — Hazards and disasters – risk assessment and response	7 – 8
Option E — Leisure, sport and tourism	9 – 10
Option F — The geography of food and health	11 – 12
Option G — Urban environments	13 – 14

Answer **three** questions. Each question must be selected from a different optional theme.
(Do not answer two questions on the same optional theme.)

Wherever possible, answers should include case studies and examples, and where relevant, large, well drawn maps and diagrams.

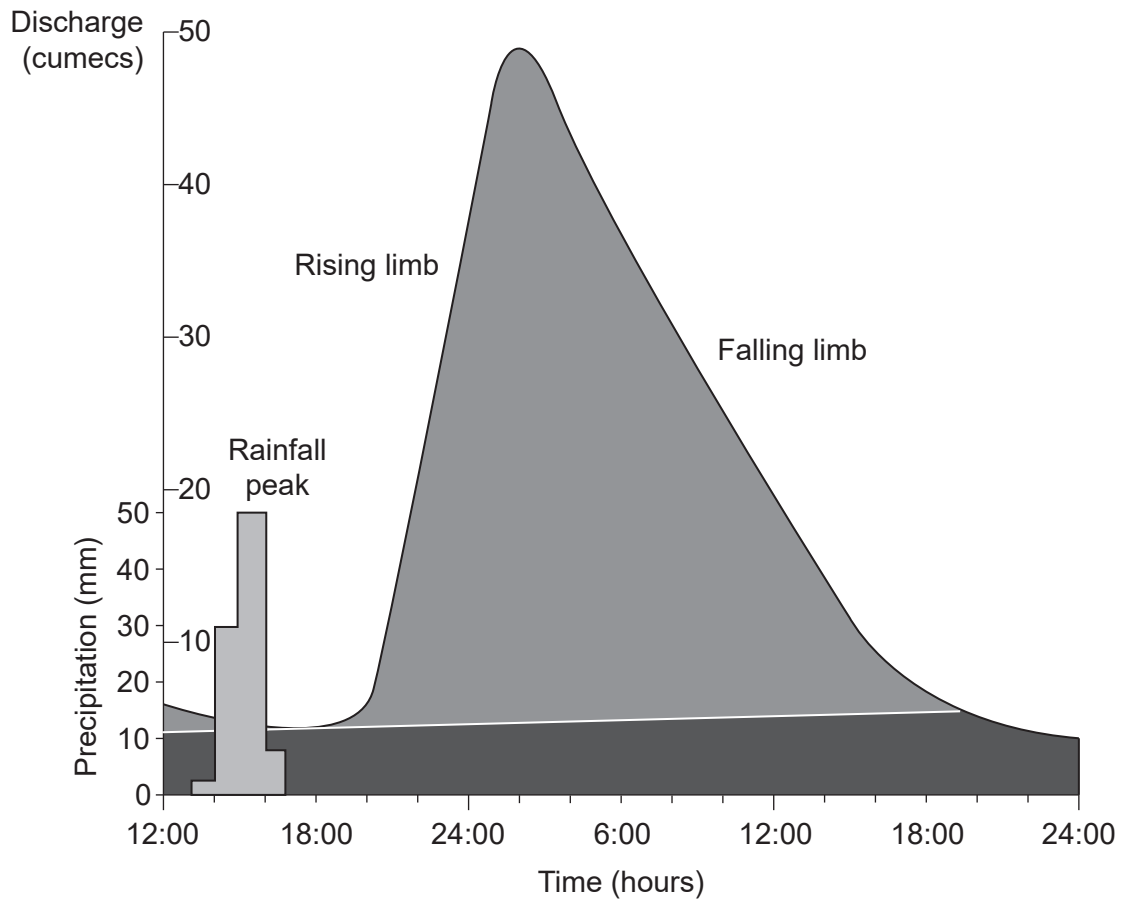
Option A — Freshwater – issues and conflicts

1. (a) Briefly outline **two** processes of river erosion. [2+2]
- (b) (i) Explain how irrigation can lead to salinization. [2]
- (ii) Explain **two** consequences of salinization for farmers. [2+2]
- (c) Discuss the positive **and** negative **hydrological** impacts of dam and reservoir construction. [10]

(Option A continues on the following page)

(Option A continued)

2. The diagram shows a storm hydrograph for a river.



[Source: © International Baccalaureate Organization 2017]

- (a) (i) State the lag time for the storm event shown on the hydrograph. [1]
- (ii) State how many hours the discharge was over 40 cumecs. [1]
- (iii) Outline why the rising limb on this hydrograph is steeper than the falling limb. [2]
- (b) Explain the formation of **two** landforms on a river floodplain. [3+3]
- (c) Discuss the environmental consequences of eutrophication and the pollution of aquifers. [10]

End of Option A

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Option B — Oceans and their coastal margins

3. If you choose to answer this question refer to the map on page 3 in the resources booklet.

The map shows part of the North Atlantic sea floor.

- (a) Identify and briefly describe **two** landforms in box X. [2+2]
- (b) Using examples, explain **two** positive economic impacts that El Niño events can bring. [3+3]
- (c) “Geopolitical conflict is the inevitable outcome of human use of oceans.” Discuss this statement. [10]

- 4.
- (a) (i) State **two** causes of a negative change in sea level. [2]
 - (ii) Briefly describe **one** landform associated with an advancing coast. [2]
 - (b) Using examples, explain **two** effects of the oceanic conveyor belt on different places. [3+3]
 - (c) “The loss of coral reefs has more serious effects than the loss of mangrove swamps.” Discuss this statement. [10]

End of Option B

Option C — Extreme environments

5. If you choose to answer this question refer to the key on page 6 and the map on pages 4 and 5 in the resources booklet.

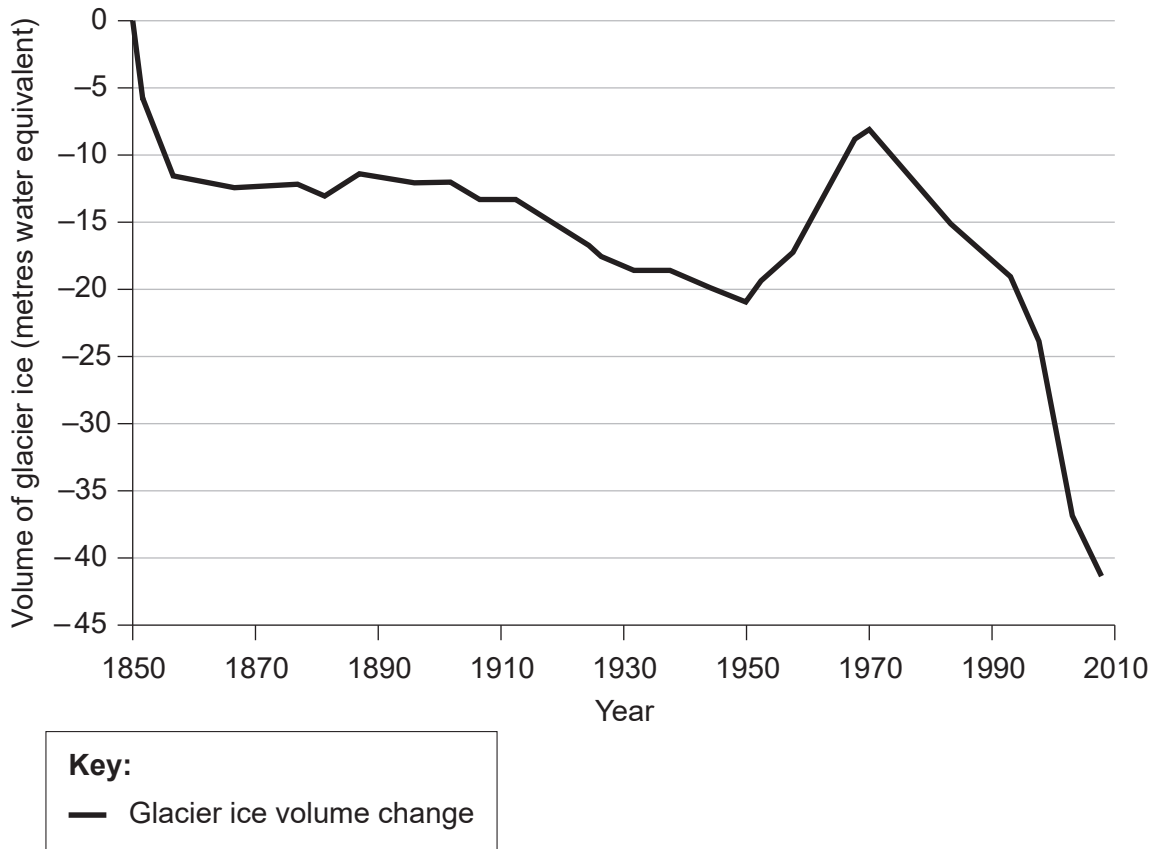
The map extract shows a glaciated area of part of the Lake District in the north-west of England. The scale of the map is 1:25 000. The contour interval is 10 metres.

- (a) (i) Identify **one** landform of glacial erosion in square 3415. [1]
- (ii) State the name of **one** U-shaped valley/trough shown on the map. [1]
- (iii) Estimate the length in kilometres of the walking track between the start of the walking track (footpath) at Highpark Wood (3116) to the summit of Helvellyn (3415). [1]
- (iv) State the height gained from the spot height in square 3315 to the triangulation pillar in square 3415. [1]
- (v) Using map evidence, explain **one** reason, **other than** climate, why mining in this extreme environment is challenging. [2]
- (b) Explain the formation of **one** feature **or** landform of glacial deposition. [4]
- (c) Examine how the balance between challenges and opportunities affects economic activities in **one or more** extreme environments. [10]

(Option C continues on the following page)

(Option C continued)

6. The graph shows the change in the volume of ice for one glacier from 1850 to 2010.



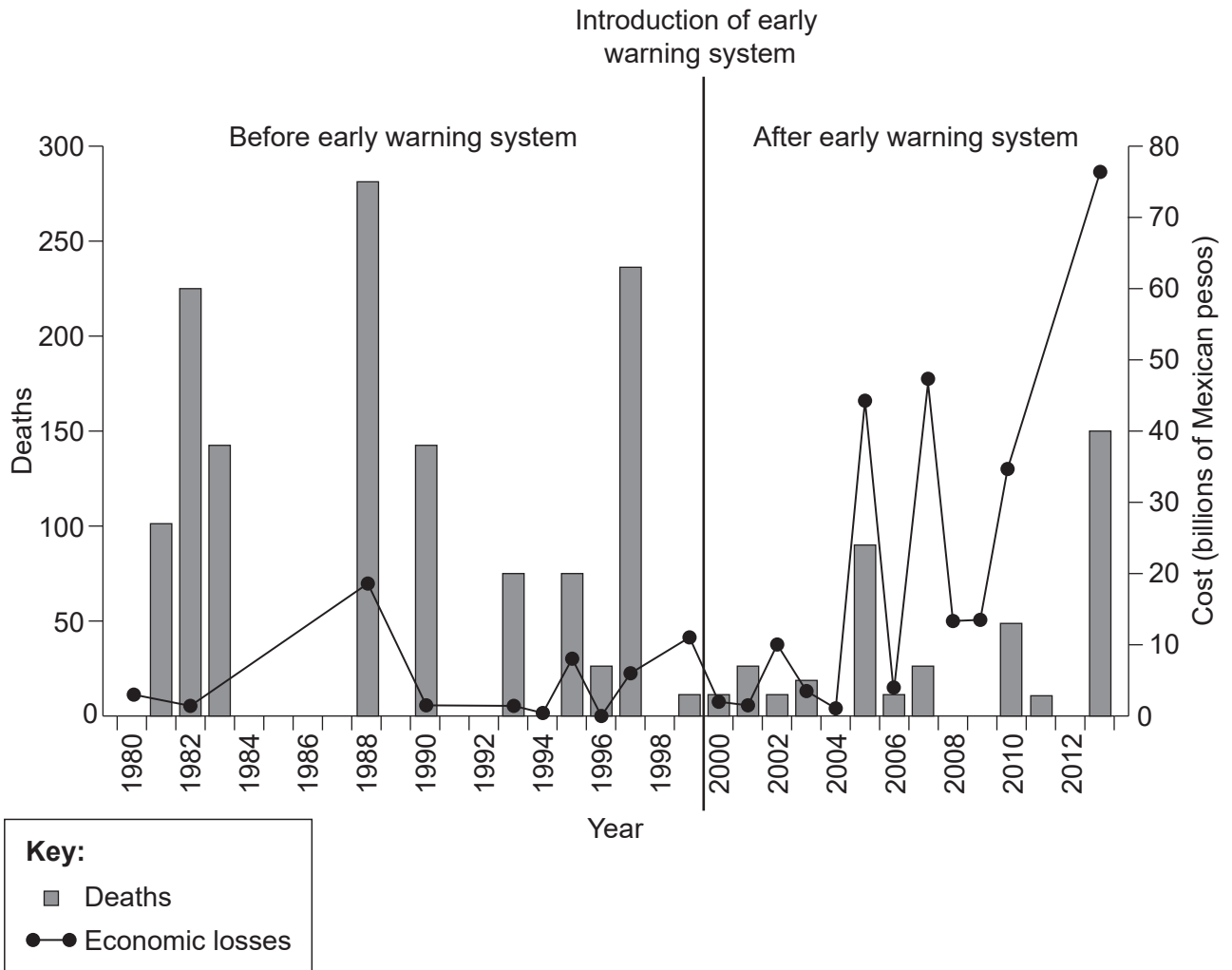
[Source: Reprinted from the Annals of Glaciology with permission of the International Glaciological Society]

- (a) (i) Estimate the volume of ice lost between 1850 and 1950. [1]
- (ii) State the year when the glacier began a continuous decline lasting to 2010. [1]
- (iii) Suggest why a short-term increase in glacial ice (positive balance) begins around 1950. [2]
- (b) Distinguish between aridity and infertility in hot, arid areas. [6]
- (c) Examine the causes **and** consequences of the melting of permafrost. [10]

End of Option C

Option D — Hazards and disasters – risk assessment and response

7. The diagram shows the deaths and economic losses resulting from tropical storms in Mexico, before and after the introduction of an early warning system.



[Source: adapted from Víctor Orlando Magaña Rueda *et al.* (2014). El sistema de alerta temprana ante ciclones tropicales desde una perspectiva de riesgo. *H₂O Gestión del agua 1*, January–March 2014. Revista auxiliar de difusión del Sistema de Aguas de la Ciudad de México. Published by Helios Comunicación]

- (a) With reference to the diagram, describe the changes in:
 - (i) number of deaths; [2]
 - (ii) economic losses. [2]
- (b) Suggest reasons for the changes you identified in (a) for:
 - (i) number of deaths; [3]
 - (ii) economic losses. [3]
- (c) Examine the factors that affect the choice of adjustments before, and responses after, **tectonic** (earthquake/volcanic) hazard events. [10]

(Option D continues on the following page)

(Option D continued)

8. (a) (i) Outline what is meant by the term “drought”. [2]
- (ii) Briefly describe **one** physical cause of a **located** severe drought. [2]
- (b) Suggest **two** reasons why individuals and communities may underestimate the probability of a severe drought occurring in the region in which they live. [3+3]
- (c) Discuss the reasons why some low-income countries may be more vulnerable than others to the effects of hazard events. [10]

End of Option D

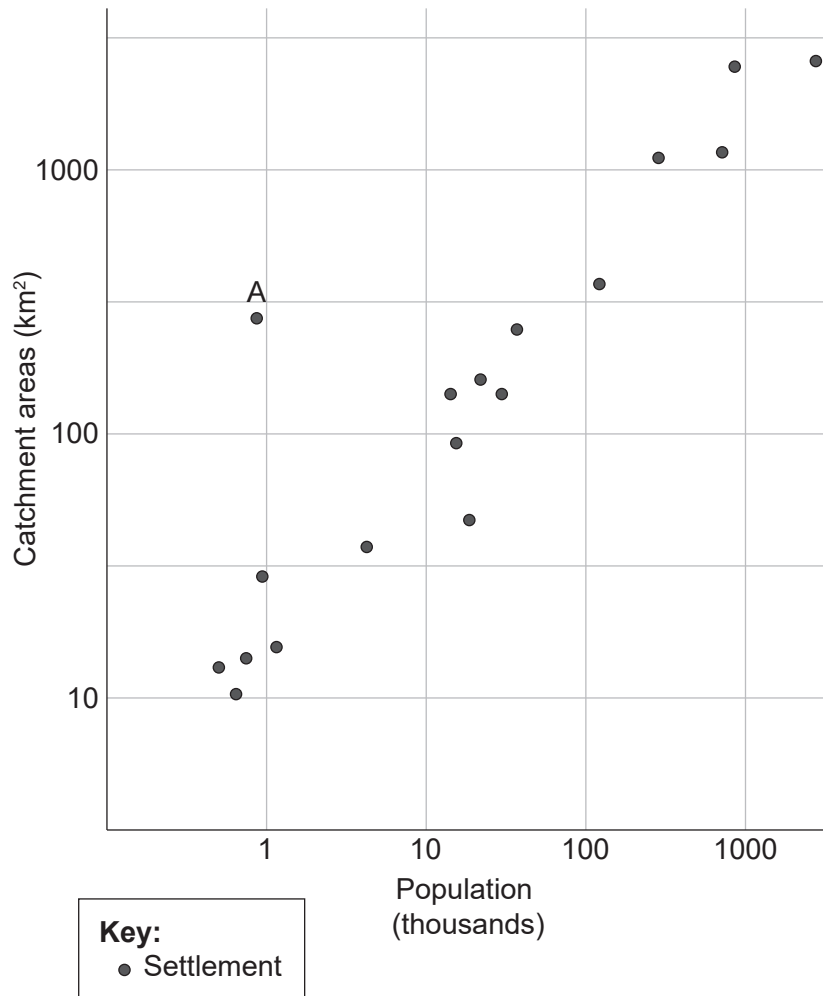
Option E — Leisure, sport and tourism

9. (a) Using a located example, outline **two** ways in which sustainable tourism supports the culture of local people. [2+2]
- (b) Explain **two** impacts of tourism on the natural environment of rural areas. [3+3]
- (c) Examine how the benefits of hosting **one or more** major international sporting events have been unevenly distributed. [10]

(Option E continues on the following page)

(Option E continued)

10. The diagram shows the relationship between catchment areas of sports facilities and the population of settlements.



[Source: © International Baccalaureate Organization 2017]

- (a) (i) Describe the general relationship shown by the diagram. [2]
- (ii) Suggest **one** reason why settlement A does not fit the general relationship. [2]
- (b) Suggest **three** possible reasons why the sphere of influence of supporters of a sports team could change over time. [2+2+2]
- (c) Examine the contribution that ecotourism can make to a country's tourist industry. [10]

End of Option E

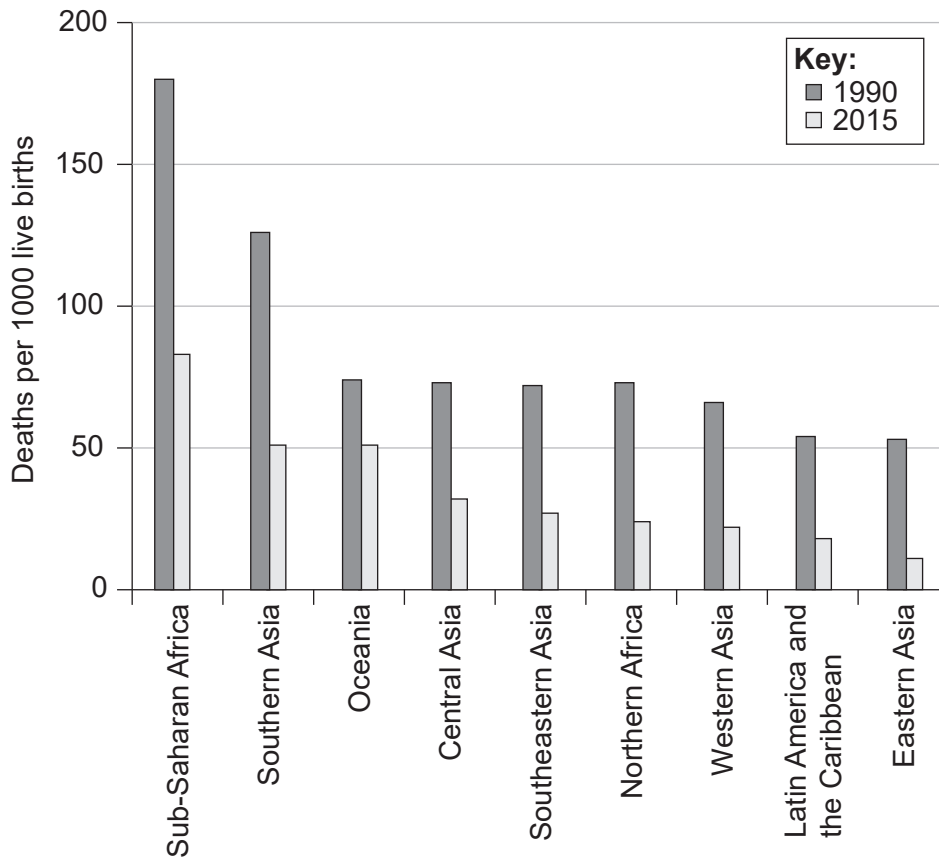
Option F — The geography of food and health

11. (a) (i) State **two** diseases of poverty. [1]
- (ii) Describe the distribution of diseases of poverty. [3]
- (b) Explain **two** types of diffusion in relation to the spread of disease. [3+3]
- (c) To what extent have recent changes in agriculture increased the production and availability of food in low-income countries? [10]

(Option F continues on the following page)

(Option F continued)

12. The graph shows the mortality rates for children under the age of five for world regions between 1990 and 2015.



[Source: United Nations Inter-agency Group for Child Mortality Estimation (UN IGME), 'Levels & Trends in Child Mortality: Report 2015,' Estimates Developed by the UN Inter-agency Group for Child Mortality Estimation, United Nations Children's Fund, New York, 2015]

- (a) (i) Describe the changes in Sub-Saharan Africa between 1990 and 2015. [1]
- (ii) Identify the region with the greatest **relative** change in mortality rate between 1990 and 2015. [1]
- (iii) Outline why HALE is a better indicator of a nation's health than child mortality. [2]
- (b) Explain how the application of **two named** barriers to limit the spread of disease has reduced child mortality rates. [3+3]
- (c) Evaluate the relative importance of fair trade and food aid in overcoming food shortages in low-income countries. [10]

End of Option F

Option G — Urban environments

- 13.** The diagram shows the changing poverty rate (those living on less than US\$2 per day) in the capital city, Abidjan, and the smaller cities of the Ivory Coast.



- (a) (i) Describe the changing poverty gap between Abidjan and smaller cities over time. [2]
- (ii) Suggest **one** reason why the poverty rate in Abidjan is always lower than the poverty rate in the smaller cities. [2]
- (b) Suggest **two** reasons for the occurrence of low-cost housing areas within cities. [3+3]
- (c) Evaluate the success of **one or more** strategies to control rapid city growth resulting from in-migration. [10]

(Option G continues on the following page)

(Option G continued)

14. If you choose to answer this question refer to the map on page 7 in the resources booklet.

The map shows temperatures for Dublin, Ireland, at 22:00 during a winter evening.

- (a) (i) Describe the pattern of temperatures shown south of the River Liffey. [3]
- (ii) Estimate the temperature range north of the River Liffey. [1]
- (b) Using examples, explain **two** reasons for the growth of suburbs. [3+3]
- (c) Examine recent land use changes in the central and/or inner areas of **one or more** cities. [10]

End of Option G
