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**GEOGRAPHY
STANDARD LEVEL
PAPER 2**

Friday 15 November 2013 (morning)

1 hour 20 minutes

INSTRUCTIONS TO CANDIDATES

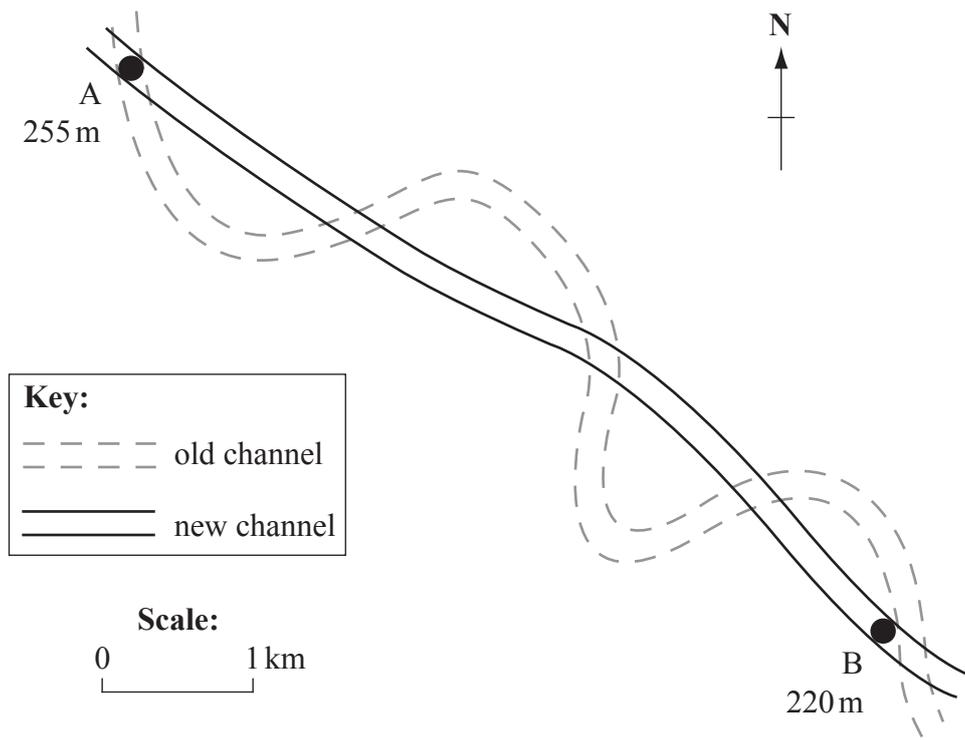
- Do not open this examination paper until instructed to do so.
- Answer two questions. Each question is worth *[20 marks]*.
- Each question must be selected from a different optional theme, A – G.
- Do not answer two questions on the same optional theme.
- Use case studies, examples, maps and/or diagrams where relevant.
- A copy of the Geography Paper 2 Resources Booklet is required for this paper.
- The maximum mark for this examination paper is *[40 marks]*.

Answer **two** 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.

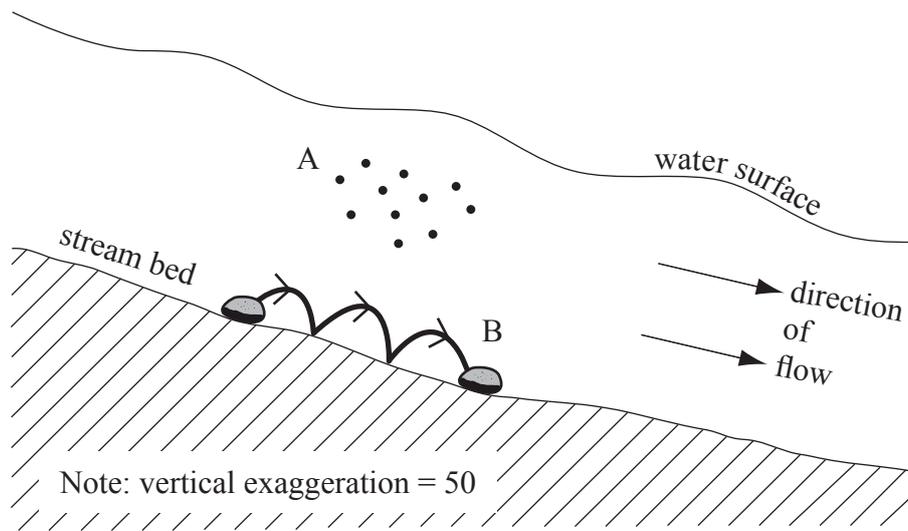
Optional Theme A — Freshwater – issues and conflicts

1. The diagram shows the changes in a river channel following implementation of a management strategy.



- (a) Define the term *stream discharge*. [2]
- (b) (i) State the direction towards which the river is flowing at B. [1]
- (ii) State **three** changes to the river channel that result from this management strategy. [3]
- (iii) Explain **one** benefit **and** **one** problem for people that might result from this management strategy. [2+2]
- (c) Examine the benefits **and** problems of different river management strategies (**other than** that shown in the diagram). [10]

2. The diagram shows two transport processes that operate in a river channel.



- (a) Identify **and** describe process A **and** process B shown in the diagram. [2+2]

- (b) Draw a labelled diagram to show the main input, outputs, transfers and stores of the hydrological cycle for an **un-vegetated** drainage basin. [6]

- (c) “Of all the impacts of agriculture on water quality, salinization is the most damaging.” Discuss this statement. [10]

Optional Theme B — Oceans and their coastal margins

3. *If you choose to answer this question refer to the map on page 2 in the Resources Booklet. Note: refer only to the map (not the satellite image).*

The map shows the Cape Hatteras area of the east coast of the USA.

- (a) Using map evidence, describe **two** depositional landforms found on this coastline. [2+2]
- (b) Explain how **one** geopolitical conflict has developed in relation to a **named** oceanic resource. [6]
- (c) “The fishing industry can never be sustainable.” Discuss this statement. [10]
4. (a) Define the term *exclusive economic zone*. [2]
- (b) Briefly describe what is meant by continental shelf. [2]
- (c) Explain the environmental **and** economic value of mangrove swamps. [3+3]
- (d) Discuss the conflicts that occur from attempts to manage coastal hazards. [10]

Optional Theme C — Extreme environments

5. The table shows climate data for Timbuktu, Mali (an extreme environment).

Table removed for copyright reasons

- (a) Question removed for copyright reasons [4]
 - (b) With reference to a **named** hot, arid environment, explain **two** geographic factors (**other than** climate) that can make them extreme. [6]
 - (c) Contrast the landforms that result from erosional and depositional glacial processes. [10]
- 6.
- (a) (i) Define the term *aridity*. [2]
 - (ii) Define the term *infertility*. [2]
 - (b) Explain **three** factors, **other than** aridity and infertility, that affect the sustainability of human activities in extreme environments. [2+2+2]
 - (c) “Periglacial areas offer more opportunities for human activities than hot, arid areas.” Discuss this statement. [10]

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Optional Theme D — Hazards and disasters – risk assessment and response

7. *If you choose to answer this question refer to the map **and** satellite image on page 2 in the Resources Booklet.*

The map shows the Cape Hatteras area of the east coast of the USA. The satellite image shows Hurricane Irene (2011), a few days before it reached Cape Hatteras.

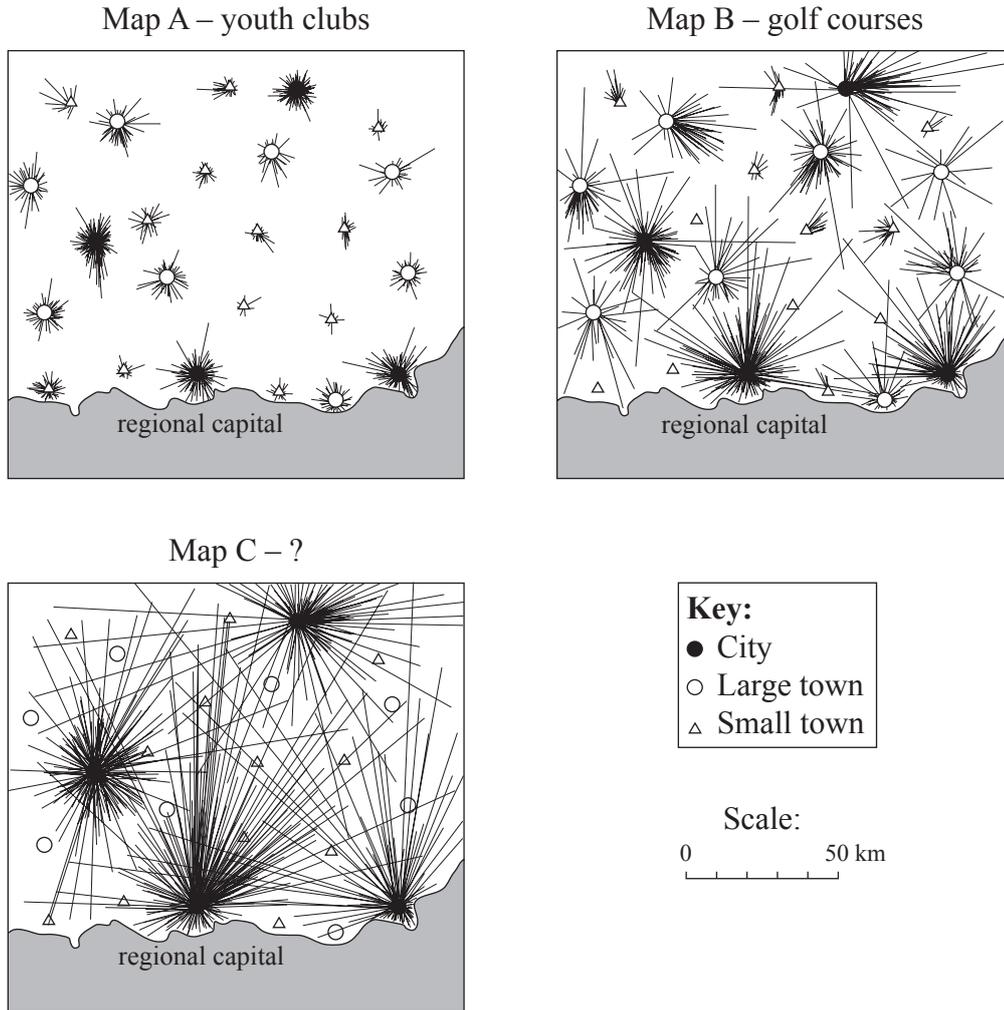
- (a) (i) State the height in metres of the highest point west of gridline 35. [1]
- (ii) State the four-figure grid reference for the square in which this point is located. [1]
- (iii) State the shortest distance by road, in kilometres, between the school and the ferry at Cupola. [2]
- (b) **Using map evidence only**, explain why the inhabitants of this area were particularly vulnerable to the impacts of Hurricane Irene. [6]
- (c) “The level of economic development is **not** the main factor affecting the impact of a tectonic hazard event on a community.” Discuss this statement, with reference to **either** earthquakes **or** volcanoes. [10]

8. (a) (i) Describe what is meant by hazard risk. [2]
- (ii) Describe what is meant by vulnerability to hazards. [2]
- (b) Explain how building design and land-use planning can limit the potential damage from one **named** hazard type. [6]
- (c) “The faster the speed of onset, the greater the impact of the hazard event.” Discuss this statement, with reference to examples. [10]

Optional Theme E — Leisure, sport and tourism

9. (a) (i) Define the term *leisure*. [1]
- (ii) Define the term *tourism*. [1]
- (b) Suggest **two** reasons why demand for international tourist services has increased rapidly in recent decades. [2+2]
- (c) Explain **two** ways in which environmental damage from tourism has been minimized in **one named** city or large town. [2+2]
- (d) Examine the view that tourism offers a guaranteed route towards economic development for low-income countries. [10]

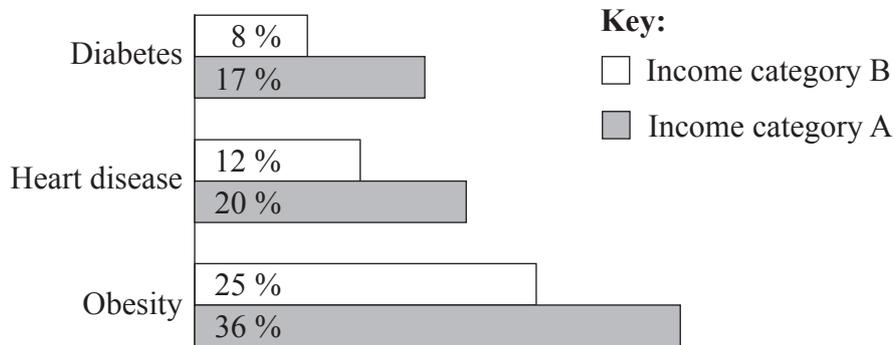
10. The three maps show the catchment areas (illustrated by visitor “trip lines”) for three different sport and recreational facilities located in the settlements of a region.



- (a) Identify **two** possible sport or recreational facilities that Map C might be showing. [2]
- (b) Analyse the maps for evidence of a leisure hierarchy. [4]
- (c) Explain **two** ways in which ecotourism is a sustainable industry. [2+2]
- (d) “Leisure, sports and tourism bring more problems than benefits to urban areas.” Discuss this statement. [10]

Optional Theme F — The geography of food and health

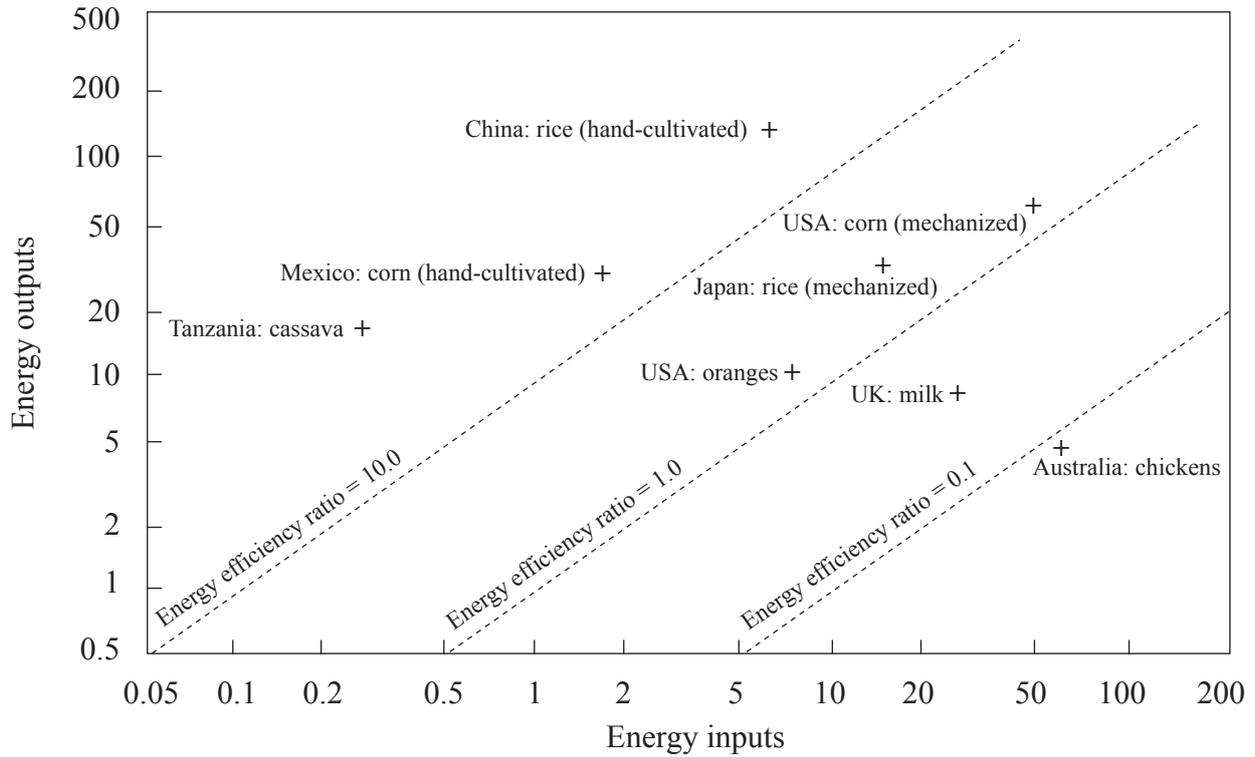
11. The graph shows the percentages of people, aged 55 to 64, experiencing three major health-related conditions in a developed country.



[Source: J Banks, M Marmot, Z Oldfield, JP Smith, *New Scientist*, 17 July 2010. Original data from the *Journal of the American Medical Association* (JAMA), “Disease and disadvantage in the United States and in England,” **295**(17): pp. 2037–2045, 3 May 2006]

- (a) (i) State which income category is likely to represent the wealthier individuals in this country, and justify your choice. [1+1]
- (ii) State which of the three health conditions shown on the graph is most related to income category, and justify your choice. [1+1]
- (b) Using examples of diseases, distinguish between diseases of affluence and diseases of poverty. [6]
- (c) To what extent was **one** recent **named** famine caused by crop failure? [10]

12. The graph shows the energy inputs and outputs for a number of different farming systems (the units are gigajoules per hectare per year).

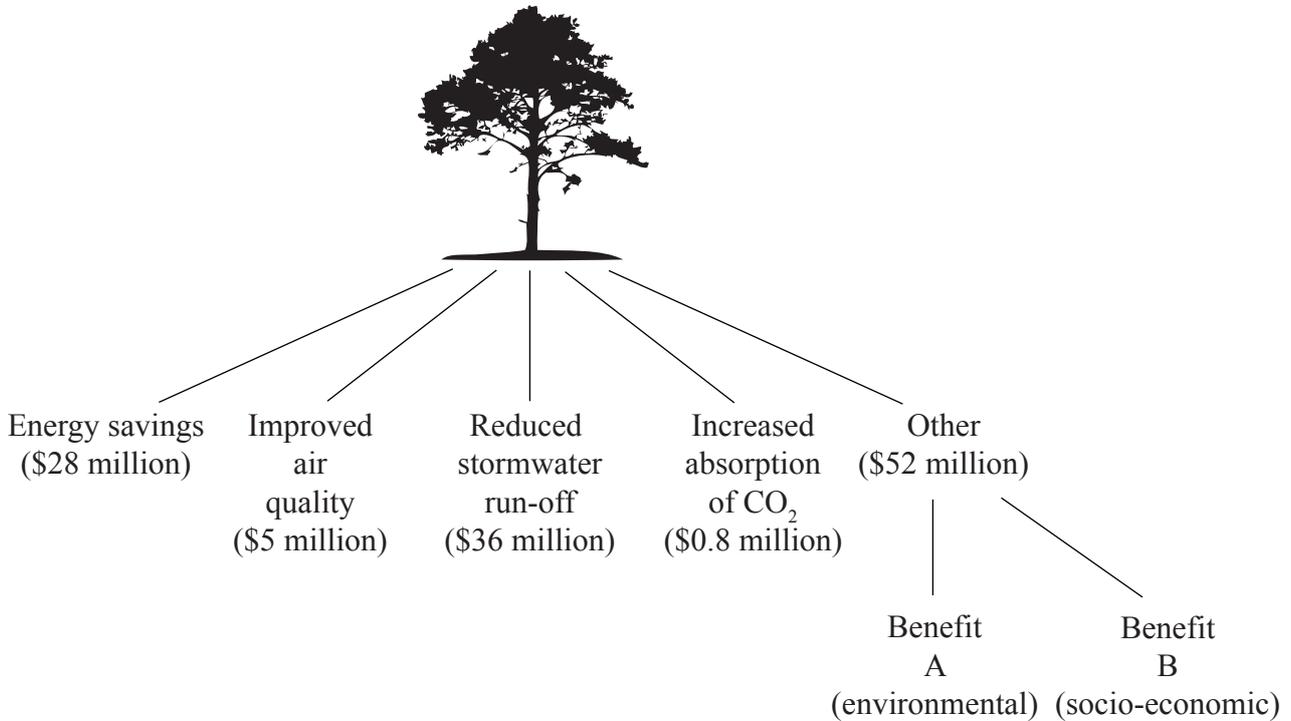


[Source: Reprinted from *Food Policy*, volume 1, Gerald Leach, Energy and food production, 1975, with permission from Elsevier]

- (a) (i) Identify the farming system shown on the graph which has the highest energy output. [1]
- (ii) Identify the farming system which has the highest energy efficiency ratio. [1]
- (b) Referring to the graph, suggest how mechanization contributes to the different energy flows (inputs and outputs) for rice farming systems shown in China and Japan. [4]
- (c) Explain **two** changes in agriculture, **other than** mechanization, that have helped to boost food production in some areas. [2+2]
- (d) “Free trade is more important than food aid in helping to solve (alleviate) food shortages.” Discuss this statement. [10]

Optional Theme G — Urban environments

13. The diagram shows the ways in which urban trees help to reduce environmental and social stress for the inhabitants of a major city. The numbers are the estimated annual value of the benefits, in US dollars (US\$).



[Source: adapted from “Tree Count Results”; New York City Department of Parks & Recreation, 2006, <http://www.nycgovparks.org>]

- (a) Identify what Benefit A (environmental) and Benefit B (socio-economic) might be. [1+1]
- (b) (i) Define the term *urban ecological footprint*. [2]
 - (ii) Explain how **one** of the benefits named on the diagram (excluding “Other”) would reduce the city’s ecological footprint. [2]
- (c) Explain how human activity in cities may result in an urban heat island effect. [4]
- (d) Examine the reasons why economic activities (such as retailing, service and/or manufacturing industries) sometimes change location within an urban area. [10]

14. The table shows the 21 megacities in the world in 2010 and their predicted rate of population growth between 2010 and 2025.

Rank	Megacity	Country	% change in population 2010–2025
1	Tokyo	Japan	1
2	Delhi	India	29
3	São Paulo	Brazil	7
4	Mumbai (Bombay)	India	29
5	Mexico City	Mexico	6
6	New York-Newark	USA	6
7	Shanghai	China	21
8	Kolkata (Calcutta)	India	29
9	Dhaka	Bangladesh	43
10	Karachi	Pakistan	43
11	Buenos Aires	Argentina	5
12	Los Angeles (including Long Beach-Santa Ana)	USA	7
13	Beijing	China	21
14	Rio de Janeiro	Brazil	6
15	Manila	Philippines	28
16	Osaka-Kobe	Japan	0
17	Cairo (Al-Qahirah)	Egypt	23
18	Lagos	Nigeria	49
19	Moscow (Moskva)	Russian Federation	1
20	Istanbul	Turkey	15
21	Paris	France	4

[Source: United Nations, “World Urbanization Prospects, the 2009 revision”, <http://esa.un.org> March 2010]

- (a) State which megacity is predicted to grow most rapidly. [1]
- (b) Describe the global distribution of the megacities listed in the table. [3]
- (c) Using examples, explain why some large urban areas have much higher population growth rates than others. [6]
- (d) “Sustainable strategies in cities can only succeed when cities have zero population growth.” Using examples, discuss this statement. [10]