Written Response Test

Question and Answer Booklet

9th International Geography Olympiad

Cologne, Germany

21–27 August 2012

Do NOT open the booklet before instructed to do so by a supervisor.

Name: …… Team: ……

Student number: ……

Instructions for the students

1 This test consists of 6 sections.

2 The maximum total mark is 90.
The mark for each question is given at the beginning of the question.
There are a maximum of 15 marks for each section.

3 Give only the required number of answers (reasons, examples, et cetera).
For instance, if the question asks for 2 reasons and you give more than 2, only the first 2 reasons will be marked.

4 Answer all questions in the spaces provided in this booklet.

5 Check the backs of pages as questions are printed on both sides of a page.

6 Fill in your name, team and student number on the front page of this booklet.

7 Fill in your iGeo student number in the boxes on top of the pages in this booklet.

8 The Source Booklet contains the maps and figures referred to in the questions.

9 Time: 180 minutes for non-native English speakers;
150 minutes for native English speakers.

10 Non-native English speakers may use bilingual dictionaries during the test.

11 You may use a calculator during the test.

12 You may use the atlas provided during the test.

Good luck!

Student number:

Section A: Urbanisation and Megacities

marks

2m **1** What is the difference between ‘urbanisation’ and ‘urban growth’?

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1m **2** Give 2 reasons why the number of inhabitants for the same city at the same time can vary in different sources.

1: .....

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2: .....

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4m **3** Factors causing migration **from rural to urban** areas are classified into 2 main types. **Identify** these 2 types, and give 2 **different** examples for each type. Use the table below to record your answers.

Type	Examples
1:	1: .... 2: ....
2:	1: .... 2: ....

marks

1m **4** **Study Source A1 in the Source Booklet.**
What **percentage** of the world's population lived in urban areas in 2009, to the nearest whole number/percent?

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1m **5** **Study Source A2 in the Source Booklet.**
Calculate the **percentage** increase of Lagos's population between 2009 and 2025.

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2m **6** Analyse the data in **Source A2** and identify 4 trends in the growth of megacities.

1: .....

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2: .....

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3: .....

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4: .....

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4m **7** In your opinion, what is the most important challenge faced by governments in managing the growth of megacities? **Explain** why this challenge is so significant.

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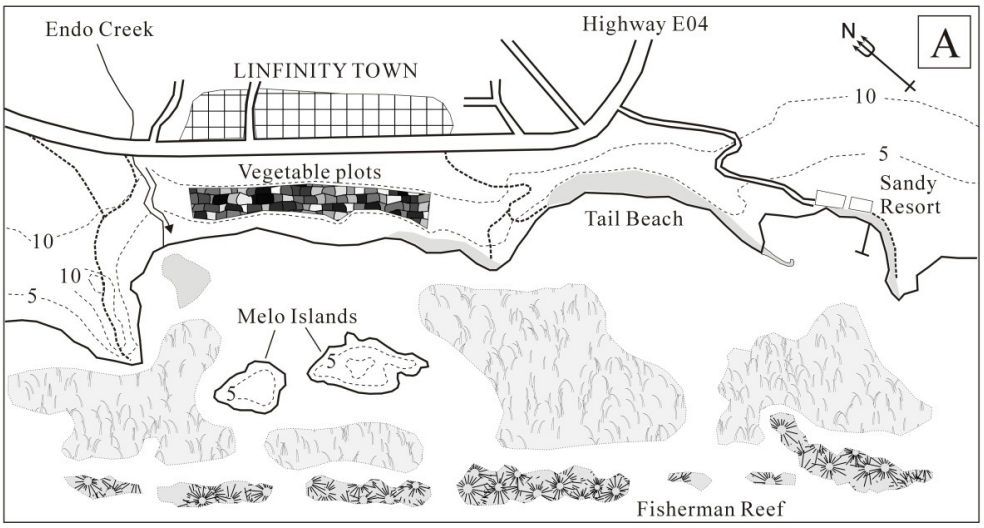
Student number:

Section B: Impacts of Coastal Development

marks

1m **1** **Study Source B1 in the Source Booklet.**
On the copy of Source B1 Map A (below), mark with an arrow the direction of longshore drift.

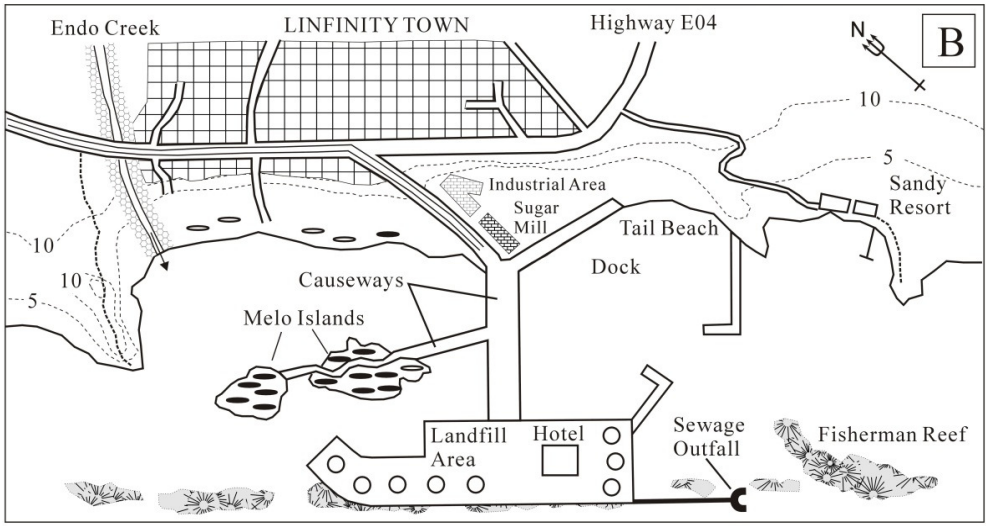
Copy of Source B1 Map A
Linfinity town and surrounding area
Map A shows the current features of the area.



1m **2** On the copy of Source B1 Map B (below), **mark and label** one area where sand is likely to accumulate after the development is built.

1m **3** On the copy of Source B1 Map B (below), **mark in a different way and label** one area which is likely to be affected by coastal erosion after the development is built.

Copy of Source B1 Map B
Linfinity town and surrounding area
Map B shows the proposed developments.



marks

9m **4** **Study Source B1 in the Source Booklet.**

Identify 6 features of the proposed development shown in Source B1 Map B. **Explain how** each of these features will potentially impact on the natural environment. Include in your answer a range of **different** environmental impacts. Use the table below to record your answers.

Feature	Impact on natural environment
1:	....
2:	....
3:	....
4:	....
5:	....
6:	....

Student number:

marks

3m **5** **Apart from an increase in tourism**, briefly describe 3 other **socio-economic** impacts that would result from the developments in the area shown in Source B1.

1: .....

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2: .....

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3: .....

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Student number:

Section C: Climate and Climate Change

marks

3m **1** Give 3 causes for the low temperatures that occur in Polar Regions.

1: .....

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2: .....

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3: .....

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3m **2** Describe the thermo-haline (*thermo* – relating to temperature, *haline* – relating to salt) circulation in the North Atlantic Ocean.

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3m **3** **Study Source C1 in the Source Booklet.**
Describe the global patterns of projected surface temperature changes by 2099.

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2m **4** Explain why Arctic Regions show a greater projected change in surface temperatures than other parts of the Earth's surface.

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4m **5** Climate change is a huge international challenge. Some strategies which governments are putting in place to reduce the impacts of climate change include:

a) **transport** strategies;
b) **agricultural** strategies;
c) **energy** strategies.

Choose 2 of these strategies. For each strategy you have chosen, **identify** 2 specific actions and **explain** how they will result in reducing the impacts of climate change. Use the table below to record your answers.

Strategy	**Examples of specific actions and their impacts**
1:	1: .... 2: ....
2:	1: .... 2: ....

Student number:

Section D: Vulnerability to Natural Hazards in the Pacific Islands

marks

3m **1** **Study Source D1 in the Source Booklet.**
Complete the table below by identifying 2 countries or territories (excluding Australia and New Zealand) for each of the specified categories.

At risk from	Country or territory
Only earthquakes	1: ..... 2: .....
Only earthquakes and tropical storms	1: ..... 2: .....
Earthquakes, tropical storms and volcanic eruptions	1: ..... 2: .....

8m **2** **Study Source D2 in the Source Booklet.**
Choose 2 natural characteristics and 2 human characteristics from the Source D2 table. For each characteristic **explain** how it contributes to vulnerability to hazards. **Include specific examples** from Source D2 to support your answer. Use the table below to record your answers.

Type	Characteristic	How the characteristic contributes to vulnerability
Natural	1:	…… …… …… ……
	2:	…… …… …… ……

Continues…

marks

Type	Characteristic	How the characteristic contributes to vulnerability
Human	1:	…… …… …… ……
	2:	…… …… …… ……

4m **3** Identify 2 management strategies that one or more of these islands could adopt to reduce the possibility of natural **hazards** becoming natural **disasters**. **Explain** how each strategy would lead to the reduction of damage and loss of life.

1: .....

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2: .....

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Student number:

Section E: Rivers

marks

4m **1** Outline the 4 different ways in which a river transports particles of different sizes in its channel.

1: .....

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2: .....

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3: .....

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4: .....

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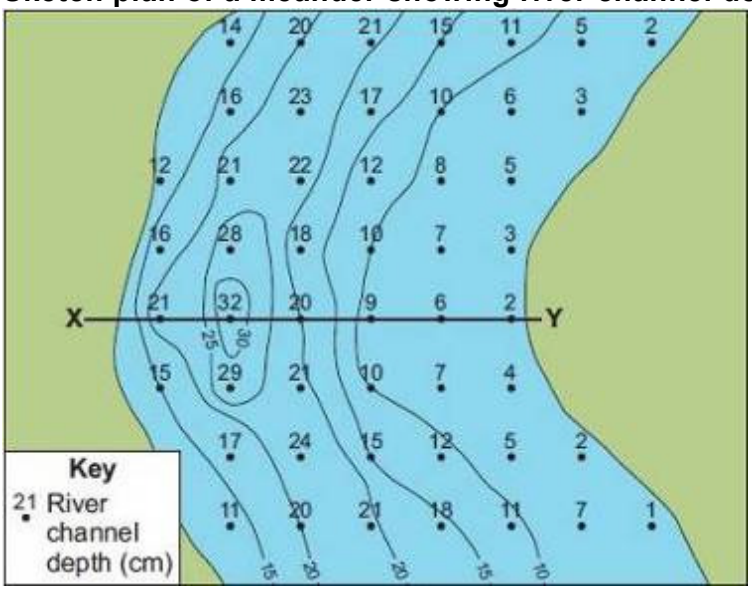
1m **2** **Study Source E1 in the Source Booklet.**
On the copy of Source E1 (below) add an isoline to represent the river depth of 5 cm.

Copy of Source E1
Sketch plan of a meander showing river channel depth



marks

3m **3** **Study Source E2 in the Source Booklet.**
Use the information given in **Sources E1 and E2** to explain the shape of the cross-section of a **meander**.

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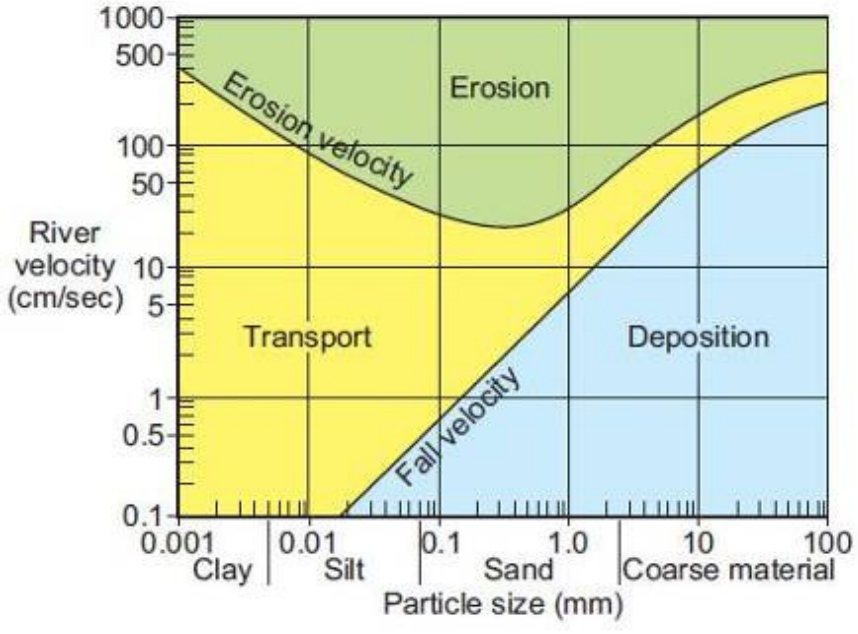
1m **4** **Study Source E3 in the Source Booklet.**
Plot and label the following data on the copy of Source E3 (below).

	Particle size (mm)	River velocity (cm/sec)
Particle 1	0.02	200
Particle 2	25	7.5

Copy of Source E3
Hjulström curve: the diagram shows the relationship in a river channel between particle size and river velocity



Student number:

marks

1m **5** A particle of sand of size 0.1 mm is being transported by the river. It will be deposited on the river bed if the velocity falls below what speed (using **Source E3**)?

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3m **6** Explain the changes that occur in the shape of the cross-section (cross profile) of a river valley from its source to its mouth.

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2m **7** **Study Source E4 in the Source Booklet.**
Explain how potholes are formed.

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Student number:

Section F: Agriculture

marks

4m **1** What are the on-site and off-site impacts of soil erosion?

On-site impacts:

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Off-site impacts:

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2m **2** **Besides soil erosion**, identify 2 other forms of degradation that affect agricultural land and **briefly describe** their effects.

1: .....

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2: .....

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marks

3m **3** **Study Source F1 in the Source Booklet.**

The 6 satellite images in Source F1 show different agricultural systems across the world in:

Bolivia, Brazil (Amazonia Region), Ireland, Saudi Arabia, Spain and Vietnam.

Identify the country shown in each image.

Image A: .....

Image B: .....

Image C: .....

Image D: .....

Image E: .....

Image F: .....

6m **4** For each of the images **A**, **B** and **C**, explain how the pattern shown results from the type of farming in the area.

Image A: .....

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Image B: .....

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Image C: .....

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end ■