



**GEOGRAPHY**

**9768/04**

Paper 4 Research Topic

**October/November 2013**

**1 hour 30 minutes**

Additional Materials: Answer Booklet/Paper



**READ THESE INSTRUCTIONS FIRST**

If you have been given an Answer Booklet, follow the instructions on the front cover of the Booklet.

Write your Centre number, candidate number and name on all the work you hand in.

Write in dark blue or black pen.

You may use a soft pencil for any diagrams, graphs or rough working.

Do not use paper clips, highlighters, glue or correction fluid.

Choose Section A **or** Section B **or** Section C, according to your research topic.

Answer **three** questions, from the same section.

You are advised to spend thirty minutes on each Question.

For **Section A**, Microclimates, answer:

Question 1, Question 2 and **either** Question 3 **or** Question 4.

For **Section B**, Conservation, answer:

Question 5, Question 6 and **either** Question 7 **or** Question 8.

For **Section C**, Central Business Districts, answer:

Question 9, Question 10 and **either** Question 11 **or** Question 12.

The Insert contains all the Figures referred to in the Question Paper.

At the end of the examination, fasten all your work securely together.

The number of marks is given in brackets [ ] at the end of each question or part question.

This document consists of **7** printed pages, **1** blank page and **1** Insert.



**Section A: Microclimates**

Answer **three** questions:  
Question 1, Question 2  
and **either** Question 3 **or** Question 4

- 1** Study Fig. 1, which shows the locations of ten weather stations used during an investigation of microclimates in a rural area.
- (a)** Using Fig. 1, name the highest weather station and state its height above sea level. [2]
- (b)** Fig. 2 shows mean temperatures for the weather station sites shown in Fig. 1 on the valley floor compared to the mean temperatures for the sites on the hilltops for one night.
- Contrast the changes in temperature on the valley floor with those on the hilltops shown on Fig. 2. [4]
- (c)** Fig. 3 shows maximum wind speeds recorded in a 6 hour period on another day at the weather stations shown in Fig. 1.
- Describe the relationship between wind speed and landscape shown in Figs 1 and 3. [6]
- (d)** What evidence, other than that shown in Figs 1, 2 and 3, would be useful for those studying microclimates in rural areas? [8]

- 2 (a) Study Fig. 4, which shows mean annual rainfall in East Maui, Hawaii, USA.

Describe the distribution of rainfall shown in Fig. 4. [5]

- (b) 'Different environments develop distinctive microclimates.'

From your wider study of microclimates, how far do you agree with this statement? [10]

**EITHER**

- 3 With reference to your own investigation of microclimates, discuss what considerations you took into account when developing a plan for your investigation.

Begin by stating the question or hypothesis that you investigated. [15]

**OR**

- 4 With reference to your own investigation of microclimates, to what extent were you successful in increasing the accuracy and reliability of your results?

Begin by stating the question or hypothesis that you investigated. [15]

**Section B: Conservation**

Answer **three** questions:  
Question 5, Question 6  
and **either** Question 7 **or** Question 8

- 5** Study Fig. 5, which shows information about land in agricultural use for selected Green Belts in England in 2010.

A Green Belt is land surrounding a city upon which development is restricted. The aim is to conserve the rural landscape and prevent urban sprawl.

- (a) Giving evidence from Fig. 5, state the range in the percentage of land in agricultural use for the selected Green Belts. [2]
- (b) Using Fig. 5, assess the extent to which Green Belts have maintained land for agricultural use above the national average. [4]
- (c) Study Fig. 6, which shows environmental constraints on development within a 5 km radius of the city of Durham, England.

To what extent is there a North/South divide evident in the pattern of environmental constraints within the 5 km radius of Durham shown in Fig. 6? [6]

- (d) Assess the strengths and weaknesses of Fig. 6 when used by those responsible for conserving environments. [8]

- 6 (a) Study Fig. 7, which shows dissolved oxygen levels in the River Ganga at two locations, Rishikesh and Kanpur, India, from 1986 to 2004. Higher dissolved oxygen levels are associated with higher water quality.

The Ganga Action Plan was started in 1985 in order to improve water quality in the River Ganga. Use Fig. 7 to compare the success of this plan at Rishikesh with that at Kanpur. [5]

- (b) 'Conservation is no longer about preventing change, it is about managing change in the most appropriate way.'

From your wider study of conservation, how far do you agree with this statement? [10]

**EITHER**

- 7 With reference to your own investigation of conservation, discuss what considerations you took into account when developing a plan for your investigation.

Begin by stating the question or hypothesis that you investigated. [15]

**OR**

- 8 With reference to your own investigation of conservation, to what extent were you successful in increasing the accuracy and reliability of your results?

Begin by stating the question or hypothesis that you investigated. [15]

**Section C: Central Business Districts**

Answer **three** questions:  
Question 9, Question 10  
and **either** Question 11 **or** Question 12

- 9 Study Figs 8 and 9, which show changes in selected retail land uses in the Central Business District (CBD) of Belfast, Northern Ireland, between 1994 and 2004.
- (a) Giving evidence from Fig. 8, state which retail land use experienced the largest change in area between 1994 and 2004. [2]
- (b) Using Figs 8 and 9, contrast the changes in the number of shops and retail area in Belfast between 1994 and 2004. [4]
- (c) Fig. 10A shows changes in the number of vacant shops in 15 selected streets in the northern part of Belfast's CBD between March 2011 and June 2011. Fig. 10B shows changes in the number of vacant shops in 15 selected streets in the southern part of Belfast's CBD during the same period.
- Using Figs 10A and 10B, compare and contrast the change in the number of vacant shops in the northern part with that in the southern part of Belfast's CBD between March 2011 and June 2011. [6]
- (d) How might information other than that shown in Figs 8, 9, 10A and 10B be of use to those studying change in CBDs? [8]

- 10 (a)** Study Fig. 11, which shows annual income of travellers using Metrobús, a rapid transit system designed to reduce traffic congestion in the Central Business District of Mexico City.

'Metrobús moves the middle classes.' How far does Fig. 11 support this statement? [5]

- (b)** 'Central Business Districts have to change in order to survive.'

From your wider study of CBDs, how far do you agree with this statement? [10]

**EITHER**

- 11** With reference to your own investigation of Central Business Districts, discuss what considerations you took into account when developing a plan for your investigation.

Begin by stating the question or hypothesis that you investigated. [15]

**OR**

- 12** With reference to your own investigation of Central Business Districts, to what extent were you successful in increasing the accuracy and reliability of your results?

Begin by stating the question or hypothesis that you investigated. [15]

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*Copyright Acknowledgements:*

- Question 1 Fig. 1 © J D Will; *MA Thesis*; Ohio University; 2006; <http://etd.ohiolink.edu/send-pdf.cgi/Will%20Joshua%20Daniel.pdf?ohiou1149698498>; 14 October 2012.
- Question 2 Fig. 4 © M A Scholl et al; *The influence of microclimates and fog on stable isotope signatures used in interpretation of regional hydrology: East Maui, Hawaii*; *Journal of Hydrology*, Vol.264, Issues 1-4; 30 July 2002.
- Question 5 Fig. 6 © *County Durham Plan – Green Belt Assessment Scoping Paper 1. Green Belt Assessment Methodology*; [http://durhamcc-consult.limehouse.co.uk/portal/planning/gbsp/gbelt\\_ass\\_sc\\_paper?pointId=1354835](http://durhamcc-consult.limehouse.co.uk/portal/planning/gbsp/gbelt_ass_sc_paper?pointId=1354835); 14 October 2012.
- Question 10 Fig. 11 © *Mexico City – Metrobús, A Project That's Changed the City*; <http://www.embarq.org/en/project/mexico-city-metrobus>; 14 Oct 2012.

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