



**GEOGRAPHY**

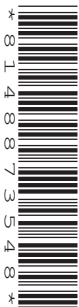
Paper 4 Research Topic

**9768/04**

**May/June 2014**

**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**, Small Scale Ecosystems, 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 and the Table 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: Small Scale Ecosystems**

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

- 1** Study Fig. 1, which shows the effect of trampling on salt marsh in the estuary of the River Gann, Milford Haven, Wales, over a 10 year period.

The species diversity index is a measure of the number of plant species present, a higher value indicating that a greater number of plant species are present.

- (a)** Using evidence from Fig. 1, give the height above sea level at which the difference in species diversity between the trampled and untrampled marsh is greatest. [2]

- (b)** 'Trampling reduces species diversity.'

How far does Fig. 1 support this statement? [4]

- (c)** Study Fig. 2, which shows information about plant species in the salt marshes of Morecambe Bay, England.

'Salt marsh zones are characterised by different species of vegetation.'

How far does Fig. 2 support this statement? [6]

- (d)** Assess the value of Figs 1 and 2 to those responsible for managing small scale ecosystems. [8]

- 2 (a) Study Fig. 3, which shows the evolution of biomass and number of species of vegetation in a forested area over a period of time.

Describe the trend in the relationship between biomass and number of species shown in Fig. 3. [5]

- (b) 'Very few truly natural ecosystems remain.'

From your wider study of small scale ecosystems, consider the extent to which the evidence supports this statement. [10]

**EITHER**

- 3 With reference to your own investigation of small scale ecosystems, examine how you identified a suitable geographical question or hypothesis for investigation.

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

**OR**

- 4 With reference to your own investigation of small scale ecosystems, describe and justify the techniques you used to present your findings.

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. 4, which shows the ecological footprint in low, middle and high income countries between 1961 and 2008.

Ecological footprint can be defined as the area of land required by an individual in that country to maintain his or her standard of living.

- (a) Giving evidence from Fig. 4, state by how much the ecological footprint increased from 1961 to 2008 for middle income countries. [2]
- (b) Compare the trend in ecological footprint for high income countries with the trend for low income countries from 1961 to 2008 shown in Fig. 4. [4]

Fig. 5 shows ecological footprint and Human Development Index (HDI) for selected countries. Table 1 shows the annual population growth rate for the same countries.

The HDI is a composite measure of development which takes into account life expectancy, education and income.

- (c) With reference to Fig. 5 and Table 1, to what extent does there appear to be a relationship between ecological footprint, HDI and annual population growth rate? [6]
- (d) Assess the value of Figs 4 and 5 and Table 1 to those responsible for managing conservation. [8]

- 6 (a) Study Fig. 6, which shows trends in the population of dormice in England between 1993 and 2000. The populations are shown using an index which was calibrated at 100 in 1993.

Using Fig. 6, to what extent does the trend shown on the national graph reflect the trends shown for selected areas of northern and southern England? [5]

- (b) From your wider study of conservation, how far is it possible to manage the conflicting demands of access for the public to conservation areas and protection of those areas? [10]

**EITHER**

- 7 With reference to your own investigation of conservation, examine how you identified a suitable geographical question or hypothesis for investigation.

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

**OR**

- 8 With reference to your own investigation of conservation, describe and justify the techniques you used to present your findings.

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 Fig. 7, which shows changing areas of selected land uses in the Central Business District (CBD) of Bangalore, India, from 1985 to 2003.
- (a) Giving evidence from Fig. 7, state which land use had the largest change in area between 1985 and 2003. [2]
- (b) Describe the changes in land use in the CBD of Bangalore shown in Fig. 7 between 1985 and 2003. [4]
- Study Fig. 8, which shows land use in the CBD of Bangalore in 2003. Fig. 9 is a map of Bangalore's CBD.
- (c) Using both Figs 8 and 9, to what extent does there appear to be functional zoning of land use in the CBD of Bangalore? [6]
- (d) Assess the usefulness of Figs 7, 8 and 9 to those studying the characteristics of CBDs. [8]

- 10 (a)** Fig. 10 shows proposed changes to Quay Street in the CBD of Auckland, New Zealand. The aims of the proposed changes are to improve the economy, the environment and the accessibility of Quay Street.

Giving evidence from Fig. 10, show how the proposed changes will address the aims of the reforms. [5]

- (b)** 'The emergence of CBDs may have been a long process in most cities, but they are now rapidly approaching extinction.'

From your wider study of CBDs, consider the extent to which you agree with this statement. [10]

**EITHER**

- 11** With reference to your own investigation of Central Business Districts, examine how you identified a suitable geographical question or hypothesis for investigation.

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

**OR**

- 12** With reference to your own investigation of Central Business Districts, describe and justify the techniques you used to present your findings.

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

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**Copyright Acknowledgements:**

- Question 1 Fig. 1 © Headley & Sale; *The Impact of Trampling By Student Groups on Saltmarsh Vegetation; Field Studies*; p. 521; 1999; [http://fsj.field-studies-council.org/media/345035/vol9.3\\_254.pdf](http://fsj.field-studies-council.org/media/345035/vol9.3_254.pdf)
- Question 1 Fig. 2 © *Saltmarsh Management Manual*; Environment Agency; 2007; ISBN 97818/4432714.
- Question 2 Fig. 3 © G O'Hare; *Soils, Vegetation, Ecosystems*; Oliver & Boyd; 1992; ISBN 0050042378.
- Question 5 Fig. 4 © [http://awsassets.panda.org/downloads/1\\_lpr\\_2012\\_online\\_full\\_size\\_single\\_pages\\_final\\_120516.pdf](http://awsassets.panda.org/downloads/1_lpr_2012_online_full_size_single_pages_final_120516.pdf)
- Question 6 Fig. 6 © *The Dormouse Conservation Handbook*; English Nature; <http://publications.naturalengland.org.uk/publication/80018>
- Question 9 Figs 7, 8 & 9 © Mohammad Reza, Dr. Krishna Murthy Javaid Ahmad Tali, Dr. H. N. Nagendra; *Future Threats to CBD: A Case Study of Bangalore CBD*; Department of Studies in Geography and Institute of Development Studies; University of Mysore.
- Question 10 Fig. 10 © <http://www.aucklandcouncil.govt.nz/en/planspoliciesprojects/plansstrategies/ccmp/Pages/home.aspx>

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