

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**Pre-U Certificate**

**MARK SCHEME for the October/November 2013 series**

**9768 GEOGRAPHY**

**9768/04**

Paper 4 (Research Topic), maximum raw mark 50

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2013 series for most IGCSE, Pre-U, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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- 1 Study Fig. 1 which shows wind speed information for the London Borough of Ealing, collected as part of a study into the proposed site of a wind turbine at X.

Fig. 2 shows the wards in the London Borough of Ealing.

- (a) Using Fig. 1, name the highest weather station and give its height above sea level. [2]

- Station 3
- 270–279 m asl

- (b) Fig. 2 shows mean temperatures for the sites 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]

Accept any valid contrasts, e.g :

- Hill – gentle changes; valley – steep changes
- Hill – v gentle fall and rise; valley – marked fall and rise
- Hill min = 8; valley min = –2.5
- For full marks at least 2 of the contrasts must be supported by evidence from Fig. 2

- (c) Fig. 3 shows maximum wind speeds recorded in a 6 hour period on another day at the weather stations on the map in Fig.1.

Describe the relationship between wind speed and landscape shown in Figs. 1 and 3. [6]

There are a range of points which could be valid – candidates should support points made with evidence from Figs. 1 and 3

Stations 1–5 on higher land, generally have high wind speeds, but variation within this (e.g. stn 3 v stn 5)

Stns 6–9 on valley floor – lower speeds less variation than hilltop stations

Stn 10 the anomaly – on low ground (<200m) but very high speed – perhaps funnel effect as valley narrows at this point

L3 (5–6 marks)

Sophisticated treatment – addresses speed and landscape

Tackles variations and anomalies comfortably

Accurate data support from both resources

L2 (3–4 marks)

Some assessment of the link between windspeed and landscape

Perhaps lacking anomalies

Provides some data to support points

L1 (0–2 marks)

Little attempt to address the question; simple description

Data support inaccurate or lacking

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- (d) What evidence, other than that shown in Figs. 1, 2 and 3, would be useful for those studying microclimates in rural areas? [8]**

An opportunity here to discuss a range of factors not already covered.

Some features which might be mentioned:

Physical – the general synoptic situation, wind direction and frequency, precipitation – types and amount

Human – land use, building materials

Approaches may be varied; accept any valid suggestions, but candidates should indicate how the feature would help the study of rural microclimates; responses don't need to be all embracing to gain full credit. Indicators of quality might include an attempt to structure the response and/or a clear focus on rural microclimates.

L3 (6–8 marks)

A clear understanding of a range of other information which would be of use, along with an indication of why it would be useful. There will be some attempt to give some structure to the answer along with a clear rural focus.

L2 (3–5 marks)

Aware of some other information which might be useful along with some knowledge of why it would be useful. At the lower end of this level would be an answer which goes little beyond a list.

L1 (0–2 marks)

Little understanding of what other information might be required.

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**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]**

Credit any valid descriptions. Better candidates will probably draw out the rainfall maxima to the NE of the map (on the lower slopes of the mountain/volcano) along with the closely spaced isohyets and the NW/SE trend. In the SW totals are much less (rain shadow?) and the isohyets follow the contours. Description should be supported with data.

Reference may be made to the 1000mm isohyet over the highest ground. No credit for references to relief alone; relief should only be credited if linked to the rainfall pattern.

L3 (4–5 marks)

Clear and detailed description of the pattern. Data from Fig. 4 is well used to support the points made.

L2 (2–3 marks)

A valid attempt to describe the pattern of rainfall. Data is used to support the points made.

L1 (0–1 marks)

Limited ability to interpret the map. Isohyets and elevation contours may be confused. Use of data is inaccurate or lacking.

**(b) ‘Different environments develop distinctive microclimates.’**

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

An opportunity here for candidates to use the knowledge they’ve gained from their individual research to explore the topic of microclimates. Expect candidates to largely agree with the statement and to provide some useful exemplar support, though those who challenge the assertion and can support their view can also score highly.

L3 (8–10 marks)

A clear focus on the question with appropriate exemplar support. There is a sophisticated understanding. The viewpoint is well supported by exemplar material.

L2 (5–7 marks)

Largely agrees/challenges and provides some support. Sound knowledge and understanding, lacking depth in places. May be limited in range or in explanation.

L1 (0–4 marks)

The approach is largely descriptive and superficial with little or no attempt to address the question. Little exemplar support.

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**EITHER**

- 3 With reference to your own investigation of microclimates, discuss what considerations you took into account when developing a plan for your investigation. [15]**

**Begin by stating the question or hypothesis that you investigated.**

Answers should be based firmly on candidates' own investigations, quoting examples drawn from this.

The syllabus suggests plans should:

- establish the data needed to examine the question/hypothesis posed
- establish appropriate strategies and methods for collecting the necessary data (including sampling where appropriate)
- understand limitations imposed by resources
- appreciate and minimise potential risks in undertaking research

Expect good responses to refer to most or all of these stages and develop them in some detail, using their own investigation to reinforce the points made.

L4 (13–15 marks)

The candidate displays a high order understanding of the planning process. The points made are well supported with examples drawn from the candidate's own investigation.

L3 (10–12 marks)

Good understanding what should be considered when developing a plan. The answer makes appropriate reference to the candidate's own investigation. Well focused on the question.

L2 (7–9 marks)

More focused on the candidate's own investigation. Describes some considerations, but in only a superficial fashion.

L1 (0–6 marks)

Discussion lacks detail. Perhaps descriptive only, with only piecemeal comments. Little reference to candidate's own investigation.

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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? [15]

**Begin by stating the question or hypothesis that you investigated.**

Answers should be based firmly on their own investigation, quoting examples drawn from this.

Clearly, much depends on the investigation and the data collection methods chosen. Both accuracy and reliability need to be addressed and there needs to be an evaluation of the degree of success in terms of improving both of these dimensions.

L4 (13–15 marks)

The candidate displays a high order understanding of accuracy and reliability. Evaluation is to the fore and well supported by examples drawn from the candidate's own investigation.

L3 (10–12 marks)

Good understanding of the terms accuracy and reliability. The answer makes appropriate reference to the candidate's own investigation. Well focused on the question.

L2 (7–9 marks)

More focused on the candidate's own investigation. Attempts to address the question, but in only a superficial fashion. Only limited support from the candidate's own investigation.

L1 (0–6 marks)

Discussion lacks detail. Perhaps descriptive only, with little attempt to address the question. Little reference to candidate's own investigation.

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5 Study Fig. 5 which shows information about 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 of land in agricultural use for the selected Green Belts. [2]

- 96 (Burton) – 40 (SW Hants & Dorset)
- = 56

(b) Using Fig. 5, assess the extent to which Green Belts have maintained land for agricultural use above the national figure. [4]

Credit any valid points, looking for some form of analysis  
e.g. Burton, York and G and C seem to be successful, but to varying degrees  
London and Hants/Dorset below National figure – so not successful, H and D especially so

A full answer must have assessment and supporting data from Fig. 5.

(c) Study Fig. 6, which shows environmental constraints on development within a 5 km radius around the city of Durham, England.

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

Candidates may agree or disagree or fall somewhere in between.

Credit well those who give an opinion and are able to support it with evidence from the resource.

L3 (5–6 marks)

Clear and detailed account, well focused on the question with extensive and accurate data support

L2 (3–4 marks)

Clear attempt to address the question  
Provides data support

L1 (0–2 marks)

Descriptive with little attempt to address the question  
Data support inaccurate or lacking

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- (d) Assess the strengths and weaknesses of Fig. 6 to those responsible for conserving natural environments. [8]**

There needs to be a combination of both strengths and weaknesses to enable a valid assessment to be made, although there is no requirement for balance between the two. The assessment could be anywhere on the spectrum, but the opinion must be well supported to gain maximum marks.

Expect reference to, among others:

Strengths – good spatial depiction, good visual representation, the spectral gradient aids planners in immediately identifying areas of different sensitivity (and areas where less environmental opposition might be expected)

Weaknesses – larger scale required, colouring conceals map information, current land use; what exactly are constraints? What constitutes low, medium, high; other factors in the planning process

L3 (6–8 marks)

Clear and detailed analysis of the strengths and weaknesses, solid evaluation well supported.

L2 (3–5 marks)

An understanding of some of the strengths and weakness, evaluation (if present) weakly supported.

L1 (0–2 marks)

Little understanding of the strengths and weaknesses; perhaps simple description.



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- 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 Kanpur. [5]

Candidates are likely to suggest that at RKH the GAP has been a success due to marginally increasing level of DO, while at Kanpur it hasn't succeeded since DO levels are declining. Such statements, if supported with data from the graph will score well.

L3 (4–5 marks)

Clear and detailed analysis of the different degrees of success at R and K. Data is well used to support the points made.

L2 (2–3 marks)

A valid attempt to address the question. Data is used to support the points made.

L1 (0–1 marks)

Limited ability to interpret the resource, may simply describe. Use of data is inaccurate or lacking. No attempt to address the question.

- (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?

Much will depend upon the examples chosen, and candidates may legitimately agree, partially agree or disagree with the statement. Expect reference to sustainable management as being the 'most appropriate'. The important feature is that they must make an assessment and support their judgement with exemplar material from their research.

L3 (8–10 marks)

Evaluation is to the fore with sophisticated exemplar support. There is a clear and well supported attempt to judge how far they agree with the statement.

L2 (5–7 marks)

Attempts to address the question and there is some attempt at agreement or otherwise. Exemplar support limited.

L1 (0–4 marks)

The approach is largely descriptive and piecemeal, only a limited attempt to address the question.

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**EITHER**

- 7 With reference to your own investigation of conservation, discuss what considerations you took into account when developing a plan for your investigation. [15]**

**Begin by stating the question or hypothesis that you investigated.**

Answers should be based firmly on their own investigations, quoting examples drawn from this.

The syllabus suggests plans should:

- establish the data needed to examine the question/hypothesis posed
- establish appropriate strategies and methods for collecting the necessary data (including sampling where appropriate)
- understand limitations imposed by resources
- appreciate and minimise potential risks in undertaking research

Expect good responses to refer to most or all of these stages and develop them in some detail, using their own investigation to reinforce the points made.

**L4 (13–15 marks)**

The candidate displays a high order understanding of the planning process. The points made are well supported with examples drawn from the candidate's own investigation.

**L3 (10–12 marks)**

Good understanding of what should be considered when developing a plan. The answer makes appropriate reference to the candidate's own investigation. Well focused on the question.

**L2 (7–9 marks)**

More focused on the candidate's own investigation. Describes some considerations, but in only a superficial fashion.

**L1 (0–6 marks)**

Discussion lacks detail. Perhaps descriptive only, with only piecemeal comments. Little reference to candidate's own investigation.

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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.**

Clearly, much depends on the investigation and the data collection methods chosen. Both accuracy and reliability need to be addressed and there needs to be an evaluation of the degree of success in terms of improving both of these dimensions.

L4 (13–15 marks)

The candidate displays a high order understanding of accuracy and reliability. Evaluation is to the fore and well supported by examples drawn from the candidate's own investigation.

L3 (10–12 marks)

Good understanding of the terms accuracy and reliability. The answer makes appropriate reference to the candidate's own investigation. Well focused on the question.

L2 (7–9 marks)

More focused on the candidate's own investigation. Attempts to address the question, but in only a superficial fashion. Only limited support from the candidate's own investigation.

L1 (0–6 marks)

Discussion lacks detail. Perhaps descriptive only, with little attempt to address the question. Little reference to candidate's own investigation.

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9 Study Figs. 8 and 9 which show changes in selected retail land uses in the Central Business District 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]

- Department store
- Decrease from 64 to 47

(b) Using Figs. 8 and 9 contrast the changes in the number of shops and retail area in Belfast between 1994 and 2004. [4]

The number of retail units declined in all uses, except shoes which remained constant. Changes in the area of retail land uses are more varied, e.g. fashion and shoes up, department stores and books down.

Credit @ 3 × 1 for each contrast, plus at least one set of supporting data for the full 4 mks.

(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]

Credit relevant comparisons and contrasts, along with data support from the graphs.

L3 (5–6 marks)

Clear and detailed comparisons and contrasts, well focused on the question

Extensive and accurate data support

L2 (3–4 marks)

Clear contrasts and comparisons made

Provides some data support

L1 (0–2 marks)

Descriptive – fails to draw out contrasts or comparisons

Data support inaccurate or lacking

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**(d) How might information other than that shown in Figs. 8, 9, 10A and 10B be of use to those studying change in CBDs?**

Accept any valid comments. There is a wide range of relevant material – social, economic, planning and political.

Good responses will deal with the information, explaining why it might be of use and perhaps attempting to structure their response into a logical order.

L3 (6–8 marks)

Clear and detailed analysis of other resources of value. Clear explanation of their value, an attempt to introduce a logical order to the answer.

L2 (3–5 marks)

Some suggestions of other relevant resources, fails to explain why they are useful. Goes only a little beyond a list type of answer.

L1 (0–2 marks)

Little understanding of other resources which might be useful; perhaps simple description.

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

**‘Metrobus moves the middle classes.’**

**How far does Fig. 11 support this statement? [5]**

Credit well an answer which is well supported by reference to the resource. Expect reference to the middle income earners – 4500 to 15 000 pesos.

Better responses may challenge the statement – how exactly are “the middle classes” defined? Is it culturally specific, is income alone enough to define the term? Some may point out that there’s a huge range between 4500 and 15 000 as an annual income.

L3 (4–5 marks)

Clear and detailed attempt at the question. The resource is well used to support the points made. There may be some discussion of the term ‘middle classes’.

L2 (2–3 marks)

A valid attempt to address the question. The points made are supported by reference to the resource.

L1 (0–1 marks)

Limited attempt to answer the question, may simply describe. Use of data is inaccurate or lacking.

- (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]**

Much depends on the examples chosen, and a range of responses would be valid, e.g. to a large extent, to some extent or to a limited extent.

A good response will address the evaluative nature of the question and be well supported with exemplar material.

L3 (8–10 marks)

The answer is well focused on the question with sophisticated exemplar support. There is clear consideration of the evaluative aspect.

L2 (5–7 marks)

Addresses the evaluative element of the question, but the evaluation is expressed without any depth of argument or only a superficial level of support.

L1 (0–4 marks)

The approach is largely descriptive and piecemeal.

No attempt to address the question.

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**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. [15]**

**Begin by stating the question or hypothesis that you investigated.**

Answers should be based firmly on candidates' own investigations, quoting examples drawn from this.

The syllabus suggests plans should:

- establish the data needed to examine the question/hypothesis posed
- establish appropriate strategies and methods for collecting the necessary data (including sampling where appropriate)
- understand limitations imposed by resources
- appreciate and minimise potential risks in undertaking research

Expect good responses to refer to most or all of these stages and develop them in some detail, using their own investigation to reinforce the points made.

**L4 (13–15 marks)**

The candidate displays a high order understanding of the planning process. The points made are well supported with examples drawn from the candidate's own investigation.

**L3 (10–12 marks)**

Good understanding of what should be considered when developing a plan. The answer makes appropriate reference to the candidate's own investigation. Well focused on the question.

**L2 (7–9 marks)**

More focused on the candidate's own investigation. Describes some considerations, but in only a superficial fashion.

**L1 (0–6 marks)**

Discussion lacks detail. Perhaps descriptive only, with only piecemeal comments. Little reference to candidate's own investigation.

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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? [15]**

**Begin by stating the question or hypothesis that you investigated.**

Clearly, much depends on the investigation and the data collection methods chosen. Both accuracy and reliability need to be addressed and there needs to be an evaluation of the degree of success in terms of improving both of these dimensions.

L4 (13–15 marks)

The candidate displays a high order understanding of accuracy and reliability. Evaluation is to the fore and well supported by examples drawn from the candidate's own investigation.

L3 (10–12 marks)

Good understanding of the terms accuracy and reliability. The answer makes appropriate reference to the candidate's own investigation. Well focused on the question.

L2 (7–9 marks)

More focused on the candidate's own investigation. Attempts to address the question, but in only a superficial fashion. Only limited support from the candidate's own investigation.

L1 (0–6 marks)

Discussion lacks detail. Perhaps descriptive only, with little attempt to address the question. Little reference to candidate's own investigation.