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**Cambridge International Examinations**
Cambridge International General Certificate of Secondary Education

**GEOGRAPHY** **0460/12**

Paper 1 **October/November 2016**

MARK SCHEME

Maximum Mark: 75

**Published**

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.

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**The features of the marking scheme**

Each question carries 25 marks. Candidates cannot earn above the maximum marks available within each sub section.

The marking scheme attempts to give guidance about the requirements of each answer and lists a number of responses, which will earn marks along with the general principles to be applied when marking each question.

It should be noted that candidates can earn marks if their answers are phrased differently provided they convey the same meaning as those in the mark scheme. THE CANDIDATES DO NOT NEED TO USE THE SAME WORDING TO EARN MARKS.

The notation 'etc.' at the end of an answer in the mark scheme signifies that there may well be other correct responses or examples that can be given credit. Providing the statement is true, relevant to the question asked and not repetition of a previous point made credit should be given.

A point made within one sub–section which is an answer to the question set in a different sub–section should not be given credit as each sub–section asks different questions which require independent answers.

The mark scheme uses semi colons (;) to separate marks and diagonals to separate alternative answers.

During coordination the mark scheme is modified to add points agreed after discussion or to delete any points not allowed. All examiners should ensure that their modified scheme is fully up–to–date before marking begins.

**Marking Mechanics.**

**Point marking** is used for sections **(a)** and **(b)** of each question, although marks are available in specified questions for development of appropriate points. Ticks should be used to clearly indicate where a mark has been allowed. Where a development point has been allowed the symbol "DEV" should be placed adjacent to the tick. The number of ticks should always be equal to the total number of marks awarded. Only one development mark for each mark scheme point please.

Where a candidate makes a point which is not quite sufficient for credit an upturned 'V' insert symbol should be used. If after careful consideration a mark is awarded which gives 'benefit of doubt' to the candidate the letter 'J' should be placed adjacent to the tick (i.e. the candidate has 'just' achieved the mark).

Crosses are acceptable to signify wrong answers and the letters 'I/R' should be used to indicate those which are irrelevant.

**Levels of response marking** is used for section **(c)** of each question.

Thus it is the quality of the response that determines which level an answer is achieved rather than the quantity of statements contained within it. However, once assigned to a level the mark achieved within that level is determined by the number of points made.

Levels 1 and 2 are distinguished by whether statements are simple (level 1) or developed/elaborated (level 2). A candidate can immediately enter L2 by making developed points without making any L1 statements. In order to achieve L3 a candidate must have already reached the top end of L2 – in addition his/her answer should have a clear example and if the answer is place specific as well (7 marks). Highlight place specific detail.

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Where statements are assigned levels by the examiner this should be indicated by the use of L1 and L2 next to the statements. Ticks should **not** be used on answers that are marked using levels of response marking. L1 annotation should be removed once a L2 is awarded for an answer. L3 annotation is not used. There is no need for a summary level at the end of a response.

**Summary:**

Level 1 (1 to 3 marks):
1 simple statement (1 mark)
2 simple statements (2 marks)
3 simple statements (3 marks)

Level 2 (4 to 6 marks):
1 developed statement (4 marks)
2 developed statements (5 marks)
3 or more developed statements with eg (6 marks)

Level 3 (7 marks)
3 or more developed statements + named example with at least one piece of place specific detail.

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**1 (a) (i)** Asia

1 mark [1]

**(ii)** Europe
Africa

2 @ 1 mark [2]

**(iii)** Ideas such as:
High birth rates/large families/lots of children/many children/births exceed deaths/high fertility rates;
Any reason for high birth rates (MAX 1);
reducing/low death rates/increasing life expectancy;
Any reason for reducing/low death rates (MAX 1);

3 @ 1 mark [3]

**(iv)** 2 × 2 marks
1 mark for a simple definition.
2 marks for a developed definition

e.g. **over-population** is when there are **too** many people/
more people than resources (1 mark)
overpopulation is when there are **too** many people
so there are not enough resources to go round/not enough resources to sustain all people/people exceed the carrying capacity (2 marks)

**under-population** is when there are **not enough** people
living in a country/less people than resources (1 mark)
under-population is when there are **not enough** people
to fully exploit the resources/there are surplus resources (2 marks)

2 @ 2 marks [4]

**(b) (i)** A = Highland/mountains/hills/no flat land/steep slopes/rocky/thin soil/cold

B = No water/lack of water/dry/drought/desert/arid conditions/sandy soil poor for crops

C = Marshy land/swamps/muddy/waterlogged/(likelihood of) flooding/mosquitoes

Note: – a different factor should be used for each photograph.

3 @ 1 mark [3]

**(ii)** Ideas such as:
Lack of roads/railways/transport routes;
Access is very difficult;
Isolation/remoteness/long distance from other settlements (or services);
Lack of resources;
Low level of employment/no jobs;
Lack of government investment;
Conservation of natural environment/National Park
Wars/persecution;
Land is used for farming/agriculture etc.

5 @ 1 mark or development [5]

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**(c)** Levels marking

Level 1 (1–3 marks)
Statements including limited detail which describe the positive and/or negative impacts of migration on country migrants have moved from e.g. loss of workers.

Level 2 (4–6 marks)
Uses named example.
More developed statements which describe the positive and/or negative impacts of migration on country migrants have moved from. e.g. loss of skilled workers

(Note: Max 5 if no named or inappropriate example)

Level 3 (7 marks)
Uses named example.
Comprehensive and accurate statements which describe the positive and negative impacts (even if either positive or negative impacts at L1 only) of migration on country migrants have moved from including some place specific reference.

Content Guide:
Answers are likely to refer to:
- remittances/money brought back
- loss of skilled workers
- impacts on population structure
- social impacts
- less pressure on health care and education
- impact on food supplies
- creates employment Note: Can credit loss of workers and employment opportunities
- impact on defence/army

Place specific reference is likely to consist of:
Named parts of the chosen country/locational detail, population data etc. [7]

**[Total: 25 marks]**

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**2 (a) (i)** 15–20 (kms)
or any single figure or range of values within this
or could allow e.g. 15–25 (kms) as the first figure is in the acceptable range

1 mark [1]

**(ii)** West
North north west

2 @ 1 mark [2]

**(iii)** Accept Ikeja or Ikoyi (no mark)
Note: No named area (or area chosen is incorrect) = 0
Evidence such as:
All/100% of houses have flush toilets;
All/100% of houses have piped water;
No houses have to share kitchen/all houses have a kitchen;
4 houses per hectare (Ikoyi)/1 person per room (Ikoyi)/2.5 people per room (Ikeja)/35 people/ha (Ikoyi)/175 people/ha (Ikeja);

3 @ 1 mark [3]

**(iv)** Methods such as:
ring road/by-pass;
metro/underground/tube;
congestion charges/high parking prices/ERP(Electronic Road Pricing);
number plate policies;
traffic signals/police patrols/robots;
increased no. of buses/bus lanes/cheaper buses;
cycle lanes/places to park bikes;
park & ride;
widen roads/more roads/more bridges/underpass;
one way systems etc.

4 @ 1 mark [4]

**(b) (i)** Ideas such as:
Both have increased
In Africa growth is more rapid than Europe;
Reserve 1 mark for statistics backing up a comparative statement e.g. growth from 40% to 53% in Africa by 2030 compared with 74% to 80% in Europe **or** giving % change for both;

| Year | Africa | Europe | | |
|---|---|---|---|---|
| 1950 | 14 | 52 | % change | |
| 2000 | 40 | 74 | 26 | 22 |
| 2030 | 53 | 80 | 13 | 6 |

Note: Tolerance of ±1

3 @ 1 mark [3]

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**(ii)** Ideas such as (e.g. in rural areas);
Lack of employment;
Poor/few/no hospitals/clinics;
Poor schools/universities/education;
Lack of entertainment;
Lack of electricity;
Lack of piped water;
Poor sanitation/hygiene;
Food scarcity;
Drought etc.

Note: Can be either rural or urban areas, so either push or pull factors. Candidates do not need to state whether they are writing about rural or urban areas.

5 @ 1 mark or development [5]

**(c)** Levels marking

Level 1 (1–3 marks)
Statements including limited detail which describes the impact of urbanization on people who live in the town or city.

Level 2 (4–6 marks)
Uses named example.

More developed statements which describe the impact on people who live in the town or city.

(Note: Max 5 if no named or inappropriate example)

Level 3 (7 marks)
Uses named example.
Comprehensive and accurate with some place specific reference.

Content Guide:
Answers are likely to refer to impacts such as;
Crime rates;
unemployment,
pressure on space/housing/homeless;
traffic issues;
impacts on people of pollution of water/air
pressure on schools/healthcare
Job creation/wealth creation (Note can credit positive effects)
Building of services or e.g.
Note: Accept impacts on squatter settlements

Place specific reference is likely to consist of:
Named parts of the urban area,
Locational details etc. [7]

**[Total: 25 marks]**

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**3 (a) (i)** Wind speed. 1 mark [1]

**(ii)** Fence – to keep people out/animals/stealing of equipment;
Grass – to prevent splash back from concrete/to prevent increased heat from concrete etc.

2 @ 1 mark [2]

**(iii)** Ideas such as:
Cumulus/alto cumulus/stratus/cirrus;
Fluffy/white/grey/flat bottomed/low **and** high/feathery/wispy;
Sky is almost clear/not much cloud/scattered cloud;
1–3 oktas;

3 @ 1 mark [3]

**(iv)** Ideas such as:
It is not covered by buildings;
It is on grass;
Open space/open fields/open area;
Not many people living close by;
Gently sloping/flat land;

Disadvantage:
Trees on one side etc.;

Note: Max 3 marks on positive or negative factors

4 @ 1 mark [4]

**(b) (i)** More rainfall on 30th December/or stats;
higher maximum on 14th December;
lower minimum on 14th December;
higher temperature range on 14th December etc.

Note: Candidates could use comparative statistics as an alternative approach to answering the question. Note: No need for units

| | 14 Dec | 30 Dec |
|---|---|---|
| Rainfall | 2–3 | 6–7 |
| Min temp | 1.1–1.3 | 4–5–4.7 |
| Max temp | 10.5–10.7 | 9.7–9.9 |

3 @ 1 mark [3]

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**(ii)** Ideas such as:
Use of rain gauge for precipitation;
Use of max/min/Six's thermometer for temperature;
Taking of precipitation/temperature reading every 24 hours/same Time of day/daily/every day NB Credit once only;
Details of using rain gauge to MAX 2
e.g. pour water into measuring cylinder, take measurement from measuring cylinder, pour water away etc.
Details of using MAX/MIN thermometer to MAX 2
e.g. both are used to read from base of small markers, reset indicators etc

5 @ 1 mark (or development of lines 4 and 5 ie how use) [5]

**(c)** Levels marking

Level 1 (1–3 marks)
Statements including limited detail which explain why flooding occurs.

Level 2 (4–6 marks)
Uses named example.

More developed statements which explain why flooding occurs.
(Note: Max 5 if no named or inappropriate example)

Level 3 (7 marks)
Uses named example.
Comprehensive and accurate statements including some place specific reference.

Content Guide:
Answers are likely to refer to:
Precipitation,
Snow melt,
Removal of vegetation,
Rock type,
Impact of roads, buildings and drains,
Tides/surges,
Global warming,
Tsunamis etc.
Lack of regular cleaning of river/disposal of trash etc.

Place specific reference is likely to consist of:
Locational details;
Details of amounts of precipitation,
Named settlements along river,
Time/date etc. [7]

**[Total: 25 marks]**

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**4 (a) (i)** Annual average rainfall is 250mm or less

1 mark [1]

**(ii)** Sahara
Atacama

2 @ 1 mark [2]

**(iii)** Ideas such as:
High daytime but cold night temperatures;
High insolation/sun shines during the day due to clear skies/no clouds;
Heat escapes at night because of no clouds/clear clouds;

3 @ 1 mark [3]

**(iv)** Seeds/plants remain dormant;
Only flower for a short period of time after rain;
Waxy leaves;
Narrow/spiky/small leaves/thorns;
Tap roots/long roots
Wide spreading roots;
Store water/fleshy stems;
Light colours to reflect sunlight;
Sunken stomata etc.

4 @ 1 mark [4]

**(b) (i)** Ideas such as:
In Southern hemisphere/it's their Summer
Low latitude;
On/close to Tropic of Capricorn;
Overhead/high angle of sun/direct sunlight;
Away from areas of sea/ocean/inland;

3 @ 1 mark [3]

**(ii)** Ideas such as:
High air pressure;
Descending air;
No evaporation;
Wind direction over large areas of land/winds are dry by time reaches desert;
Rain shadow effect/wind or rain blocked by mountains;

5 @ 1 mark or development [5]

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**(c)** Levels marking

Level 1 (1–3 marks)
Statements including limited detail which describe the impacts of deforestation on the **global natural** environment.

Level 2 (4–6 marks)
More developed statements which describe the impacts of deforestation on the **global natural** environment.

Note: MAX 5 if no place references, MAX 6 if one place reference

Level 3 (7 marks)
Comprehensive and accurate statements, including two or more place references.

Content Guide:
Answers are likely to refer to:
Changing rainfall patterns,
Global warming/greenhouse gases,
Carbon dioxide/oxygen balance,
Melting of ice caps/glaciers,
Global impacts on species/biodiversity/food chains etc
Rising sea levels

Place specific reference is likely to consist of:
Place references for where impacts occur [7]

**[Total: 25 marks]**

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**5 (a) (i)** How much water you/each person uses (on average) per day

1 mark [1]

**(ii)** Without it the body would not function/work/needed to be healthy/would die/example;
It prevents people suffering from dehydration/it hydrates people/stops people being thirsty/need to drink ;
We need it for cooking;
We need it to water crops/give water to farm animals/livestock;
Washing/sanitation/hygiene/cleaning;

2 @ 1 mark [2]

**(iii)** Ideas such as:
People carry small amounts/lots of journeys;
Journeys are slow/loads are heavy;
Many do not have piped supplies/water in their homes/they have got no taps/water supply infrastructure e.g. reservoirs;
It is a long way to/there are no water sources/rivers/wells/no rivers where they live;
They have to queue to use wells/standpipes;
It is the traditional role of women to collect water/don't have careers;
Nearby supplies are drying up/people have to search further afield because of drought etc;
There are no roads/they have no transport/they have to walk to get water/they have to carry it themselves/on their heads etc.

3 @ 1 mark [3]

**(iv)** Ideas such as
Lack of water infrastructure/no piped water/no wells/no boreholes;
Few water treatment plants/water not filtered or purified;
People are using dirty or polluted water/water which carries disease/bacteria/ contaminated/dirty water;
Water is also used to dispose of sewage/dump waste/to wash clothes/for bathing/no proper sanitation/people urinate in it/animals pollute water;
Health care/medical care is poor/cannot afford to treat disease
Lack of education/lack of awareness about how to purify water/keep water safe;
Cannot afford to buy bottled or clean water/cannot afford to purify water etc.

4 @ 1 mark [4]

**(b) (i)** Ideas such as;
Water is not pure/clean/dirty/not safe for drinking/waterborne disease;
No water supply in the dry season/no reliable supply of water;
Stagnant water;
Difficulty of attaching gutters to thatch/water not drain well on thatch;
Cost of/lack of availability of cement/guttering/storage tanks;
Water could evaporate from storage tanks;

3 @ 1 mark [3]

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**(ii)** No mark for choice as all three options can be justified. Marks to be awarded for any combination of positive points for the chosen option or negative points of the ones rejected. Note no maximum on positives or negatives.

Positives:

| | |
|---|---|
| **B. Well:**<br>Low cost<br>Can do it for themselves<br>Low maintenance<br>It won't take long | **C. Pipes from Springs:**<br>Low cost<br>Reliable/won't dry up/always water in mountains<br>Clean<br>Naturally flows downhill |
| **D. Borehole:**<br>Clean/safe water<br>Won't dry up<br>Large amounts of water provided<br>People are experts<br>Mechanised/no need for manual pumping | |

Negatives:

| | |
|---|---|
| **B. Well:**<br>Not hygienic<br>Dangerous to young children<br>Stagnant water<br>Will not provide water all the time | **C. Pipes from Springs:**<br>Stagnant water in tank<br>Cost (if qualified)<br>Pipes cross peoples' land |
| **D. Borehole:**<br>Expensive<br>High maintenance<br>Cost of electricity<br>Power cuts | |

Rejection needs reference to specific option – either by a letter or the name of the rejected scheme.

5 @ 1 mark or development [5]

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**(c)** Levels marking

Level 1 (1–3 marks)
Statements including limited detail which describe an economic activity and/or explain how it is threatening the local natural environment.
Note: Credit only one L1 i.e. 1 mark for description

Level 2 (4–6 marks)
Uses named example.

More developed statements which explain how it is threatening the local natural environment.
(Note: Max 5 if no named or inappropriate example)

Level 3 (7 marks)
Uses named example.
Comprehensive and accurate statements, which explain how it is threatening the local natural environment, including some place specific reference.

Content Guide:
Answers could refer to any economic activity but are likely to refer to;
Manufacturing industry
Tourism,
Mining or quarrying,
Agriculture,
Generation of electricity,
Transport etc

Answers are likely to refer to impacts on local natural environment e.g.
Flora/vegetation;
Fauna/wildlife,
Ecosystems/Food chains;
Rivers/streams;
Atmosphere
Acid rain
Deforestation

Place specific reference is likely to consist of:
Specific details of economic activity,
Locational details/named settlements etc. [7]

**[Total: 25 marks]**

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**6 (a) (i)** Nuclear power

1 mark [1]

**(ii)** Non-renewable = natural gas
Renewable = HEP/geothermal/solar/wind/biomass

2 @ 1 mark [2]

**(iii)** Ideas such as:
Will be using no nuclear power;
No coal/oil being used;
Natural gas use planned to increase(by 2020)/will become main fuel;
Increasing use of solar/biomass/wind/HEP/renewables;
Reserve 1 mark max. for statistics
e.g. natural gas from 10% to 46% or increase by 36%;

Note: When awarding reserve mark for statistics 'zero' or 'none' is allowable as an alternative to '0%'

e.g. 58% nuclear in 2013 but none in 2020 = 1 mark

| **Energy** | **2013** | **2020** |
|---|---|---|
| Coal | 5–7 | 0 |
| Oil | 2–4 | 0 |
| Nuclear | 57–59 | 0 |
| HEP | 14–16 | 15–17 |
| Natural gas | 9–11 | 45–47 |
| Other renewables | 7–9 | 37–39 |

3 @ 1 mark [3]

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**(iv)** Ideas such as:
Less need to transport coal/oil/less chance of oil leaks;
Less fumes/sulphur dioxide (from burning of coal/oil)/less air pollution/cleaner air to breathe/less asthma;
Less build-up of carbon dioxide/greenhouse gases;
Less likely to enhance global warming;
Less likelihood of radiation from nuclear power stations/radioactive waste/less cancer;
Reduction in production/running costs;
Renewable energy supply more sustainable/will not run out/not worry about fossil fuels running out;
Less acid rain etc. 4 @ 1 mark [4]

**(b) (i)** Ideas such as:
Limited areas with high winds speed/winds not strong enough/winds don't blow all the time/little wind;
Limited space available for siting of turbines/they need a large area;
Expensive building cost/cannot afford to build ;
Technology not available in all countries/lack of skills to build;
Only generate relatively small amounts of energy; etc. 3 @ 1 mark [3]

**(ii)** Ideas such as:
Supporters will argue:
Low cost electricity once constructed/low running costs/wind is free;
Creation of employment for construction/maintenance;
Not pollute atmosphere/air/water/give out greenhouse gases/not enhance global warming;
Can still use land for farming etc.

Opponents will argue:
Some people are upset by visual impact/can be seen for many miles/ruins the view/ do not look nice/eyesore;
Loss of tourism/puts tourists off;
Birds flying into turbines;
Ecosystems disrupted by construction;
Only small amount of energy can be generated ;
Noise pollution etc.

Note: Reserve 1 mark for opponents/supporters

5 @ 1 mark or development [5]

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**(c)** Levels marking

Level 1 (1–3 marks)
Statements including limited detail which describe (1xL1 for description but has to be more specific than a named country) and/or explain the location of a factory or industrial zone.
Note: Max one mark only for description of a factory or industrial zone

Level 2 (4–6 marks)

More developed statements which explain the location of a factory or industrial zone.

(***Note:*** Max 5 if no named or inappropriate example)

Level 3 (7 marks)
Uses named example.
Comprehensive and accurate statements, which explain the location of a factory or industrial zone, including some place specific reference.

Content Guide:
Answers should refer to a factory or industrial zone such as:
Raw materials,
Market,
Land availability,
Power supplies,
Communications,
Inertia,
Workforce
Government policy etc.

Place specific reference is likely to consist of:
Locational details;
Specific details of industry
Named/numbered roads etc.

Note: Answer can refer to any secondary industry or zone. Primary or tertiary industry to L1 only i.e. max. 3 marks, as long as reasons given would refer to a factory or industrial zone.

[7]

**[Total: 25 marks]**

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