

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2012 question paper**  
**for the guidance of teachers**

**0460 GEOGRAPHY**

**0460/41**

Paper 4 (Alternative to Coursework), maximum raw mark 60

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.

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- 1 (a) (i) Hold the tape measure/it at the other end of transect line  
Measure from tape/transect line to ground  
Record results/read results off ruler/read measurements  
Measure 50 cm interval across tape [3]
- (ii) Diagram includes:  
Frame of quadrat  
Internal squares of quadrat 5 × 5, 6 × 6, 10 × 10 (any equal number)  
75/25 split  
Labels include:  
Quadrat/frame  
Internal squares  
Vegetation (75%) and bare soil (25%)  
1 mark max for labelling  
  
Need square outline to consider answer (no pie chart/triangle/sketch) [4]
- (b) (i) Cross-section completion – plots and line  
2.5 m = 36 cm  
3 m = 30 cm  
1 mark for both plots, 1 mark for line [2]
- (ii) Grassland cross-section                      Woodland cross-section  
Wider/greater distance **across footpath**      Narrower/less distance **across footpath**  
Gentler slopes/sides                              Steeper slopes/sides  
Less deep    Deeper  
  
Need comparison  
  
Accept paired figures if used in comparison: woodland = **only** 5 m wide and grassland = 8 m wide  
Woodland = 36 cm deep and grassland = **only** 14 cm deep  
  
NOT:  
Lower  
More constant slope in grassland  
  
3 @ 1 [3]
- (iii) Hypothesis is correct/agree/footpath erosion does increase towards centre – 1 mark reserve  
If say disagree = 0  
  
Path/paths is deep in centre/2.5 m in woodland path/4 m in grassland path  
  
Accept figures such as  
Woodland path in centre/2.5 m across = 36 cm  
Grassland path in centre/4 m across = 14 cm [2]
- (c) (i) Kite diagram completion – 2 marks for plots, 1 mark for correct shading  
7.5 m = 90%  
8 m = 96% [3]

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- (ii) Credit paired figures of centre and edge of paths (up to 2 marks)

Must specify **which path**

Woodland: centre/2.5 m = 0%, edge/0 m/5 m = 82/80%/around 80%

Grassland: centre/4 m = 40%, edge/0/8 m = 93/96 %/more than 90%

2 @ 1

[2]

- (iii) Grassland path is on gentle slope/woodland path is on steep slope (1)  
**So** easy to walk on/**so** hard footsteps/lots of force (1)

Grassland path is wide/Woodland path is narrow (1)

So walkers will spread out more OR more even erosion/more even trampling of vegetation (1)

So less opportunity for walkers to spread out OR more concentrated erosion/more concentrated trampling of vegetation (1)

Viewpoint attracts **more** walkers/bridge or river attracts **fewer** walkers (1)

So more people on woodland path/so less people on grassland path (1)

**Must specify which path is being described**

No double credit for opposites

NOT:

Grass protects soil more than woodland

Roots hold soil together

Difference in soil moisture

Paths are different lengths

[4]

- (d) Drainpipe/pipe/tube  
 Knocked/pushed **into** ground  
 Measured amount of water/equal amount of water  
 Poured into tube  
 Stopwatch/timer  
 To measure time for water to soak into ground  
 Repeat and calculate average

1 mark max for equipment (pipe/stopwatch)

NOT:

Water poured onto ground

Pipe put on ground

Hammer

Soil put into container

[3]

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(e) Ideas such as:

- Create permanent path/tarmac path/rocks in path/bricks/tiles/steps to go uphill
- Restore eroded footpaths/fill in hole
- Alternative/signposted paths/more paths
- Improve drainage
- Re-seeding around footpath/more grass around path
- Prohibit use/allow treated paths time to recover/restrict access times / 'keep off' signs
- Small/low bridges/boardwalks/walkways
- Education about/raise awareness of footpath erosion

NOT:

- Widen footpath
- More vegetation around path
- Plant trees for roots to stabilise soil
- Netting
- Zip line
- Level off ground
- Fence off sides of path
- Don't walk on same path

[4]

**[Total: 30 marks]**

2 (a) (i) Stratified sampling/reflect population  
Appropriate gender balance/age balance/avoid bias/mix of age/gender

Systematic sampling/e.g. asking every tenth person  
Quick/avoids bias

Random sampling/e.g. ask the next person they meet/random numbers  
No selection criteria/quick/random numbers avoids bias

Credit 1 mark for named sampling method or description

[2]

(ii) 15 -30 ✓ and 31- 60 ✓  
BUT: 15 – 40 ✓ and 40 – 60 ×  
16 – 20 × and 40 – 60 ×  
Accept reasonable age ranges

2 @ 1

[2]

(iii) All ticks in correct boxes on Fig. 4

- Top
- Top
- Middle
- 2
- 4 or more

[1]

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- (iv) River/stream/lake  
Water tank/**collect** rainwater  
Road tanker/water truck  
Well/pump  
**Bottled** water

NOT:  
From sea  
Buy water from shop  
Recycled water  
Fountain

2 @ 1 [2]

- (v) May be obtaining electricity supply illegally/may be reported  
Shame of not having electricity/not want to admit

NOT:  
Don't know where electricity comes from [1]

- (b) (i) Divided bar graph completion – 2 marks for divisions at 18 and 90  
1 mark for correct shading/labelling  
If not drawn in correct order go to 2 marks max  
If lines at 10, 18 and 72 go to 1 mark [3]

- (ii) Bar graph completion 80% city authority & 18% cable  
No mark for shading

2 @ 1 [2]

- (iii) Yes/results support hypothesis/hypothesis is correct/services are better in squatter settlement A – 1 mark reserve  
If say No = 0

Need comparison – more or paired figures  
1 comparison from each of tables 2, 3 and 4  
In settlement A:  
More taps in the home OR have own water supply/72% in A and 5% in B  
Less have to use standpipe/18% in A and 38% in B

More toilets in the home OR have own toilet/51% in A and 0% in B  
Less have to use public toilet/49% in A and 100% in B

More have legal electricity supply/from city authority/80% in A and 17% in B  
Less have to obtain electricity supply illegally/attaching a cable/18% in A and 47% in B  
Less have no electricity supply/2% in A and 36% in B

Accept opposites in settlement B, but no double credit. [4]

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- (c) (i) Pie graph completion – 1 mark for division, 1 mark for shading  
 1 room = 64%  
 2 rooms = 30%
- NOT:  
 2 rooms first, but still credit shading if it matches correct percentage figures [2]
- (ii) 1  
 Larger
- 2 @ 1 [2]
- (iii) Completion of pie graph key – shading 4 categories  
 All pairs correct = 2 marks, 2 or 3 correct = 1 mark, 1 correct = 0 marks  
 Shading is same order as settlement A in Fig. 8  
 1 person  
 2 people  
 3 people  
 4 or more people
- 1 mark max if don't include 'people'  
 1 mark max if order of key is incorrect [2]
- (iv) In settlement B  
 There are more/larger % of homes with 4 or more people  
 There are less/smaller % of homes with 1/2/3 people  
 Can score both marks for statements  
 Accept opposites in settlement A, but no double credit.
- 4 or more: 86% in B and 62% in A  
 3: 10% in B and 20% in A  
 2: 3% in B and 12% in A  
 1: 1% in B and 6% in A
- Need both figures for credit  
 Can score both marks for paired stats
- Allow 1 mark for **similarity** between settlements, such as majority/60% of homes have four or more people living in them
- NOT:  
 More in homes in settlement B  
 Crowded [2]
- (v) No/results do not support hypothesis/hypothesis is incorrect/less crowded in A – 1 mark reserve  
 If say Yes = 0
- There are **more rooms** per house in A and **less people** per house in A  
 There are **fewer rooms** per house in B and **more people** per house in B  
 Allow cross-reference between these two lines  
 No credit for % figures without interpretation e.g. only [2]

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- (d) Safety of students/mugging/theft/crime/dangerous place  
Hassle  
People being reluctant to answer questions/won't answer truthfully/may lie/rude/embarrassed to give correct answer  
Getting lost/difficult to get to/poor transport links  
Not finding enough people to make the survey accurate  
Language difficulties for people to understand the survey  
Polluted water/air/rubbish/unhygienic conditions/student illness/disease  
Busy streets make it difficult to interview people

3 @ 1

[3]

**[Total: 30 marks]**