

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

**MARK SCHEME for the October/November 2014 series**

**0460 GEOGRAPHY**

**0460/43**

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.

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

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## 1 (a) Method 1:

Measure length of river (10 m)/ divide into sections/ ranging poles to mark out section/ set up start and finishing points  
 Put orange/ dog biscuit/ float/ floating object into river  
 Time float moving over distance  
 Repeat **and** calculate average/ repeat across river channel  
 Calculate velocity by dividing distance by time

## Method 2:

Put velocity meter/ propeller/ it below surface of river/ in/ into river/ in/ into the water  
 Propeller must be facing upstream/ nothing in front of propeller  
 Read/ look at digital/ velocity reading/ display/ speed is shown on display  
 Take several readings over time **and** calculate average/ take readings across river channel **and** calculate average

If answers are wrong way only round credit relevant point about repeat and calculate average

Reserve 2 marks for each method

[6]

## (b) (i) Floats got stuck in channel/ hit objects/ vegetation in channel

Operator error/ error in calculation

Measurements not easy to take at different points across river/ float doesn't move in straight line

Floats affected by wind

Only measures surface velocity

3 @ 1 [3]

## (ii) Completion of Group A line graph at points 3 (1.1 m/s) and 4 (1.6 m/s)

Look at 2 plots and completed line

-1 for each error (wrong plot(s)/ incomplete line)

[2]

(iii) Hypothesis is **true**/ velocity does increase downstream – 1 mark reserve

1 mark for **average** velocity data from two sites from group B e.g. site 1 = 0.7 and site 4 = 1.7; site 2 = 0.8 and site 3 = 1.2

Overall/ downstream/ over the 4 sites from 0.7 to 1.7

[2]

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- (c) (i) Size: used a ruler to measure long axis/length of pebble  
Roundness: used information from the chart/compared pebble with the chart [2]
- (ii) Rocks selected may not be typical of the rocks at that site/anomaly  
All rocks may have been taken from same area of river bed/ not across channel/taken from same place  
Not a fair/reliable sample/students choose rock/bias 2 @ 1 [2]
- (iii) Plot two bars on graph: average length of long axis = 15.4 cm  
average roundness score = 3.9 2 @ 1 [2]
- (iv) Average **length** of long axis at site 1 = 5.0 at site 3 = 9.7  
Average length of long axis at site 1 = 5.0 at site 4 = 9.3  
Accept reference to **any** 2 sites and lengths
- Average **roundness score** almost the same/similar for all sites + data from **any** 2 sites OR  
Accept reference to any 2 sites and roundness scores which show decrease in roundness i.e. NOT sites 1 and 2 or sites 3 and 4 in combination  
Roundness score at site 1 = 4.5 at site 4 = 4.3  
Roundness score at site 2 = 4.6 at site 3 = 3.6
- 1 mark for length and 1 mark for roundness  
Allow tolerance of 0.1 on all measurements from Group **A**
- No hypothesis mark 2 @ 1 [2]
- (d) (i) Eroded by water  
Attrition/pebbles crash into each other/river bed/bank  
Corrosion/solution/dissolves rocks  
Smaller/rounder pebbles are moved further downstream because they are easier/lighter to transport [3]
- (ii) Repeat measurement(s) to check accuracy/other student measures to check accuracy  
Sample/measure more pebbles at each site/take more measurements at each site  
Use callipers/pebbleometer/measure weight or volume of pebbles  
Systematic sampling technique/sample rocks from inside, middle and outside  
Test at **more** sites 2 @ 1 [2]

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(e) Select/find more fieldwork sites downstream/along the river

Stretch measuring tape/rope across channel/from one bank to the other  
Record measurement of width (in metres)

Rest rule/ruler/ranging pole on river bed/lower rock on string to river bed  
Make sure ruler is upright/vertical/make sure string is taut  
Measure depth at regular intervals across channel (every metre)  
Read off the scale where water level reaches/where ruler is wet  
Record measurement of depth (in cm/metres)

Only credit 1 mark for recording measurement

[4]

**[Total: 30]**

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- 2 (a) 1 mark for name of sampling method – it must link to description (or credit just name **or** description)
- Random sampling:  
 Ask the next person they meet/ask any person/pick the first person/no pattern in choosing people  
 Use random number table to generate an order to ask people
- Systematic sampling:  
 Ask people at regular intervals/regular pattern  
 Ask every tenth person they meet
- Stratified/Quota sampling:  
 Ask people from different age groups/male and female/different socio-economic groups  
 Get a proportionate number from each age group/gender/socio-economic group [3]
- (b) (i) Completion of pie chart – 31 to 40 = 26% and more than 40 = 10%  
 1 mark for line, 1 mark for shading [2]
- (ii) Most people have lived in the village for more than 20 years [1]
- (iii) Completion of divided bar graph  
 Nearby towns = 25%, local villages = 15%, always lived in village = 16%  
 2 marks for dividing lines at 69 and 84 (if 69 is incorrect, add 15 for second line placement)  
 1 mark for shading – must be in correct order  
 –1 mark if segments are correct size but wrong order [3]
- (iv) Hypothesis is **false/incorrect/no** – 1 mark reserve
- Most/more people came from more than 10 km away/less than half came from less from than 10 km away
- 40% or 40/84 or 48% came from less than 10 km/44/84 or 52% came from more than 10 km away
- Hypothesis conclusion is correct/true/partially true = 0 [3]
- (v) 1. Born in the village  
 2. Surrounded by attractive scenery  
 3. Easy access to work in the nearby town 3 @ 1 [3]
- (vi) Hypothesis is **true/correct** – 1 mark reserve
- More than half/53% live in the village because of work  
 38% work in (nearby) town **and** 15% work in the village
- Hypothesis conclusion is incorrect/not true/partially true = 0 [3]

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- (c) (i) Data collected from another source / not collected yourself / second hand data / published data / already available [1]
- (ii) Book / map / newspaper / internet / web site / data table / document such as birth records [1]
- (iii) Line / bar graph [1]
- (iv) Plot two bars  
1961–1971 = –5.4%, 2001–2011 = +34.2%  
Ignore shading 2 @ 1 [2]
- (v) Local people:  
Crime / anti-social behaviour  
Traffic congestion / lots of traffic / danger from traffic  
Rise in house prices / expensive house prices / unable to buy a house locally / not enough houses  
Traffic noise / noisy residents  
Decrease in community spirit  
Pressure on community facilities / schools / surgery etc.
- Local environment:  
Destruction of fields / vegetation / forests / farmland  
Loss of habitats / reduction in wildlife  
Air pollution  
Pollution of rivers / water pollution  
Noise scaring animals  
Litter eaten by animals 2 + 2 [4]
- (d) Get a new map  
Compare land use in 2011 / present-day village / present-day map with 1970 map  
Identify changes in building or land use / e.g. shop or post office to housing  
Plot new houses / shops / new buildings / roads on the map  
Label / classify / colour-code different types of land use or old and new buildings / overlay new map on old map  
Photos of new developments [3]

[Total: 30]