

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

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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]