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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]

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