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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CAMBRIDGE
International Examinations

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]

(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]

(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]

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]

(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]