Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/41**

Paper 4 Alternative to Coursework **May/June 2016**

MARK SCHEME

Maximum Mark: 60

Published

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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This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

1 (a) Practise fieldwork / learn how to do tasks / agree method / know what to do
Find out what doesn't work / change it / correct mistakes
Test equipment / check how equipment works / learn how to use equipment / check have right eqiuipment
Experience of working as a team / team organisation
Find out how long to allocate each task
Suggests outcome of real study / gives an idea of what results might be

2 @ 1 [2]

(b) (i) Use tape measure to measure certain distance / 10 m (more than 5 m)
Students hold / put (ranging) poles at either end of measured distance
Put two (ranging) poles vertically on river bed
Students hold clinometer / measuring gun next to top / at certain height on (ranging) pole
Lines up identified position / top on other pole
Student uses clinometer to measure angle / read off angle / read off degrees

No credit just for naming equipment but need to name tape measure and ranging poles.
No need to name clinometer

[4]

(ii) More reliable / fair test
Avoid error / wrong result /anomaly
Can calculate average

2 @ 1 [2]

(iii) Hypothesis is **false** / incorrect – 1 mark reserve (✓HA)
Gradient becomes less steep / decreases downstream / gradient varies / no pattern downstream

1 mark for paired data from two sites which shows that gradient becomes less steep downstream – e.g. gradient Is 8° at site 1 and 2° at side 10. [3]

(c) (i) Use <u>tape measure</u> to measure fixed / certain distance / 10 m along river (more than 5 m)
Put <u>ranging poles</u> / sticks to mark out certain distance / 10 m distance / at start and end of fixed distance

NB: statement such as 'put the ranging poles in the river 10 m apart using a tape measure = 2 marks

Put <u>orange / float</u> (into river) at start of measured distance / at first pole
Start <u>stopwatch</u> / watch when orange is put in river / stop stopwatch when orange reaches end of measured distance / reaches second pole / stopwatch measures time taken to travel measured distance.

Credit 1 mark for each piece of equipment [4]

(ii) **Advantage** – accurate / precise reading / quick / instant / no calculation needed
Disadvantage – inaccurate **in** low flow conditions / battery may go flat / may break / easily damaged / needs calibrating

2 @ 1 [2]

(iii) Orange got stuck / reeds or rocks or obstacles or branches in river
Depth varies / shallower on right / deeper on left
Measurements made on a meander / bend / curve [2]

(iv) Average length of time = 17.8 or 17.83 or 18 secs
Distance / time = 10 m 17.8 or 17.83 or 18 secs
= 0.56 or 0.562 or 0.6 m / sec

ecf if incorrect calculation of average time [3]

(v) Plot 0.45 m / s at site 9 [1]

(vi) **No** / results **disagree** with hypothesis – 1 mark reserve
No pattern / relationship is shown / pattern varies / is random

1 mark for paired data from two sites that show velocity is slower downstream – e.g. 0.76 m / s at site 1 and 0/31 m / s at site 8 [3]

(d) (i) Plot at 4° = 0.63 m / s [1]

(ii) Best fit line on scatter graph must show positive relationship
3 plots above and 3 plots below line [1]

(iii) As gradient increases average velocity increases / positive correlation
1 mark for paired data (need four figures) to show positive relationship
e.g. 2° = 0.21 m / s and 10° = 1.08 m / s (don't need site numbers) [2]

[Total: 30 marks]

2 (a) (i) Student safety
Divide up the tasks within each group
Collect more data / get wider range of results / pool the results of different groups / cover wider area
Check that recording / fieldwork is done accurately / results are reliable
Compare results
Work faster / study all 3 roads at the same time / save time / quicker 2 @ 1 [2]

(ii) Police station = Public
Garden = Open land 2 @ 1 [2]

(iii) Student error / loss of concentration / counting wrong / one group collected more accurate information
Different decision made about which category a building fits into / what is the main land use in a section / subjective decision / based on student judgement
Started or finished at different points along the road / did not measure same sections
May use data from different storeys, upper or ground 2 @ 1 [2]

(iv) Completion of pie graph for Wei Jin Nan Lu
Residential = 45%, business = 29%, tourism = 15%
2 marks for dividing lines at 45% and 74%, 1 mark for shading
2 marks maximum if segments in wrong order [3]

(v) Completion of divided bar graph for You Yi Lu
Tourism = 12%, public = 10%, unoccupied = 2%
1 mark for dividing lines at 87% and 97%, 1 mark for shading
If categories in wrong order credit shading only [2]

(vi) Hypothesis is **false** / incorrect – 1 mark reserve (✓HA)

Credit for identifying differences between land uses on the three roads.
Residential is main land use on Wei Jin Nan and Zi Jinsham but not on You Yi
OR Zi Jinsham has most residential / more residential than the other two

Business is main land use on You Yi but not on Wei Jin Nan and Zi Jin Shan
OR You Yi has most business / more business than the other two

Or alternative to the two ideas above:
Residential is main land use on Zi Jinsham and Wei Jin Nand and business is main land use on You Yi

Credit 1 mark mark maximum for differences in tourism / public / unoccupied / open land – e.g. public is more important on You Yi Lu than the other two roads

Credit 1 mark maximum for paired data e.g.
Residential = 45% on Wei Jin Nan, 55% on Zi Jinshan and 16% on You Yi
Residential = 55% on Zi Jinshan, 45% on Wei Jin Nan and business = 59% on You Yi (main land use idea) [4]

(b) (i) Subjective opinion of what is old, recent, new / different judgements
No date of when building was constructed to make a decision / don't know when it was built / don't know the age / have to estimate the age
No age criteria of what is new, recent, old
Descriptions are vague – recent and new
Old buildings could be renovated / renewed / made to look new
New buildings could have old style / have new extension [2]

(ii) Plot bars at 25% recent and 68% new 2 @ 1 [2]

(iii) **Residential:**
Yes / results **support** hypothesis – 1 mark reserve
Old buildings are more than 50% on all three roads / 58% and 82% and 91%

No credit:
Highest / most / majority – need percentage figure

Business:
No / results **do not** support hypothesis – 1 mark reserve
OR most are not old / most are recent and new
Old buildings are less than 50% (20%) on all three roads / 7% and 18% and 13%

No credit for recent or new data 2 + 2 [4]

(c) Expansion of city / urban sprawl
Increase in population / urbanisation / more people moving to city
Expansion of commercial / services / houses / industry [2]

(d) Go back to fieldwork area / go to an area of residential and business buildings

Three different methods may be described:
Count number of storeys OR measure distance from building and measure angle to top of building to calculate height OR look at plans / records / documents that show height – 1 mark

Calculate average number of storey / average height
Record number of storeys / height of buildings **on** transect diagram / map / plan / chart / table
Plot results on a bar / pie / divided bar graph
Compare results / averages to see if they support hypothesis

No reserve marks for each bullet section.

[5]

[Total: 30 marks]