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CAMBRIDGE
International Education

Cambridge IGCSE™

GEOGRAPHY **0460/43**

Paper 4 Alternative to Coursework **May/June 2024**

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.

Cambridge International will not enter into discussions about these mark schemes.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Marking annotations

Examiners must use the following annotations:

Annotation	Meaning
	Correct point
	Incorrect
HA	Hypothesis answer used with another annotation e.g. tick, cross or omission mark
Highlight	Used to link parts of an answer or show where credit has or has not been given
	Omission or further development/detail needed to gain credit
J	The point has ‘just’ been allowed / benefit of the doubt given
	Unclear or validity is doubted
LNK	Linking 2 or more ideas or paired data together to gain a mark
REP	Idea has been repeated
{ }	Brackets used to show where a point has or has not been awarded within a longer answer
	1 Response has been seen but no credit given 2 Additional page has been checked

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Question	Answer	Marks
1(a)	Advantage: An easy method to use / easy to choose sample / building; No bias (caused by student selecting land use to record); Will show major changes in land use along transect. Disadvantage: Might miss a typical land use / get an anomaly / recorded only a short distance / **only** recorded 100m / not representative / only see land use on main road / some land uses not next to main road; Land use on upper floor may be different to ground floor; Dangerous (qualified) e.g. along main road / traffic;	**2**
1(b)	Cinema – entertainment Apartment – residential General store – commercial	**3**
1(c)(i)	Entertainment 3 Public building 2 Open space 2 Transport 0 Services (offices) 2 5 rows correct = 2 marks 4 rows correct = 1 mark	**2**
1(c)(ii)	To **practise** fieldwork techniques; To find out any **problems** / won't make **mistake** in real fieldwork / correct errors / change method; To make sure that students understand **instructions** / know **what to do**; To practise working as **team**; To test fieldwork **equipment** / bring the recording equipment (pen and paper) / know what equipment to bring; To give an idea of how long it will take / manage **time** effectively / saves time when doing real fieldwork;	**2**
1(d)(i)	Plot = public building =10%, open space = 5%, transport = 5%. 1 mark for dividing lines at 90 and 95 1 mark for correct shading.	**2**
1(d)(ii)	**Residential** is main land use at site 6 **but** not at site 1 / residential is bigger area or percentage at site 6 / more residential land use at site 6 60% at site 6 & 10% at site 1 / 50% more at site 6. **Commercial / shops** is main land use at site 1 **but** not at site 6 / commercial is bigger area or percentage at site 1 / more commercial land use at site 1 50% at site 1 and 5% at site 6 / 45% more at site 1. Commercial is largest land use at site 1 **and** residential is largest land use at site 6. Commercial is 50% at site 1 & residential is 60% at site 6. Note: Need comparison.	**4**

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Question	Answer	Marks
1(d)(iii)	Hypothesis is **false** - 1 mark reserve (✓HA). Credit 2 statement marks: Residential does not occupy most land at 2 sites / sites 1 or 2 / sites 1 and 2 do not agree with hypothesis / occupies less than half the land at sites 1 and 2 Most land is commercial at sites 1 or 2 . Residential only occupies most land / over half land at 4 sites / sites 3,4,5,6 OR residential occupies most land at sites 3,4,5,6 **but** not the others / 1 and 2. Credit 1 mark **maximum** for a site where residential does **not** occupy most land / sites 1 or 2: e.g. residential = 10% at site 1; e.g. commercial at site 1 = 50%. Accept distances as alternative to site numbers. Hypothesis is true / partly true = XHA. Credit relevant evidence which supports the correct conclusion of false. If no hypothesis conclusion ^HA & credit evidence which supports the correct conclusion of false.	**4**
1(d)(iv)	No credit for **partly true**. Industrial land increases from **site 1** / 100 m to **site 6** / 2000 m / overall / highest at site 6; Industrial land increases from site 1 to 3, decreases to site 4 and 5, increases to site 6 / increases except for sites 4 and 5. Accept distances as alternative to site numbers. Credit 1 mark for paired data from any two sites to agree with hypothesis (show increase) e.g. 0% at site 1 and 15% at site 6 / by 15%. Credit 1 mark for paired data from any two sites to disprove hypothesis (show decrease) e.g. 10% at site 3 and 0% at site 5 / by 10%. Credit 2 marks maximum for either statement or data. If candidate answers that hypothesis is false / true, credit relevant evidence which supports the correct conclusion of partly true.	**3**

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Question	Answer	Marks
1(d)(v)	Ideas such as: Cities grown outwards / develop over time; Access to transport – road / rail / air / river / accessibility / fewer transport links; Competition for land / bid rent; Cost of land / land is cheaper out of city centre / CBD is most expensive; Availability of land / amount of space / more land available away from city centre; Planning policy affects land use. Note: Credit 1 mark for each idea + 1 mark for development which refers to a specific land use OR 4 × 1 mark.	**4**
1(e)	Possible methods include bi-polar survey, questionnaire survey, interview, 'measuring'. Credit 2 marks **maximum** for general ideas: Select / locate fieldwork sites / go to sites; Record results / record score / put results on a recording sheet or table / tally; Sampling / randomly / systematically / every 10th person / every 50 m. Bi-polar survey / environmental quality index: Produce a bi-polar survey sheet; Use agreed categories / descriptions (including vegetation); Agree on what descriptions mean / do a pilot or practice survey; Use a scale / –3 to +3; Agree on time of survey / all surveys done at same time; Circle the location; Look at / observe each feature; Make a decision about / agree the score for each feature; Put a tick / record score in the appropriate row / box; Take photos – must be qualified. Questionnaire survey / interview / ask people what they think: Credit examples of questions (2 marks maximum): e.g. Which part of the city is noisiest / dirtiest? Which area of the city is most polluted? Ask people to mark on a map of the city where the air is more polluted / where the river is polluted / where the landscape is unattractive etc. Measure air / noise / water / visual pollution / street furniture; Count pieces of litter; Use an air pollution index e.g. PM 2.5; Credit measuring methodology (2 marks maximum); Take photos – must be qualified.	**4**

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Question	Answer	Marks
2(a)(i)	Measure a fixed distance / 5–10 m (along river) (with tape measure); Use ranging poles to mark out the distance / at start and finish points; Put orange (into river) at starting point / by first pole (**not** at one pole); Start stopwatch / timer when orange is put in river; Measure the time it takes to travel the measured distance / stop stopwatch when orange reaches end of measured distance / second ranging pole.	**4**
2(a)(ii)	To get average measurement; To get a reliable / consistent result / reduce impact of an anomaly (such as float blocked by obstacle in river) / identify anomaly / find out or avoid errors; To measure at different distances **across** channel / inside, middle & outside of channel.	**2**
2(a)(iii)	Draw bar at site 3 = 0.4 m/sec (ignore shading)	**1**
2(a)(iv)	No hypothesis mark – **false.** 1 mark for statement and 1 mark for data: Velocity decreases downstream / from site 1/ 2 to site 4; Velocity at site 1 (upstream) = 0.38 m/sec and velocity at site 4 (downstream) = 0.31 m/sec (sites 1 or 2 compared with site 4 to show decrease in velocity) OR Site 4 downstream velocity is slowest at 0.31 m/sec. Velocity increases and decreases at sites downstream; Velocity at site 1 = 0.38 m/sec & at site 2 = 0.44 m/sec and at site 4 = 0.31 m/sec (any 3 sites which show increase and decrease in velocity). Note: No credit if all 4 statistics are listed and do not support a correct idea. If candidate answers that results do agree / partially agree or hypothesis is true / partly true, credit relevant evidence which supports the correct conclusion of false.	**2**
2(b)(i)	Note: Need link with increase / decrease in velocity. Ideas such as: Dam / reservoir on river slows / increases velocity; Weir across river slows / increases velocity; Water extraction / irrigation slows velocity; Waste / litter slows velocity; Afforestation slows velocity; Dredging / deepening river increases velocity; Canalisation / straightening of river increases velocity; Urbanisation /roads /drainage / concrete **so** increases run off to river increases velocity; Deforestation increases velocity.	**2**

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Question	Answer	Marks
2(b)(ii)	Note: Don't need link with velocity, it must **increase** velocity. Ideas such as: Steep(er) gradient; Waterfall / rapids; Larger hydraulic radius / ratio of cross section to wetted perimeter; Velocity is faster on outside bend of a meander; Tributaries join main river; Less friction with bed and banks / smoother riverbed or channel / river channel **narrows**; Straight channel after cut off meander.	**2**
2(c)(i)	Check / identify which is the **long axis** of the pebble / measure longest length or side; Put pebble into 'teeth' / 'mouth' of **callipers** / between callipers; Adjust **callipers** to hold pebble / adjust callipers until the 'teeth' touch the pebble; Measure / read off the **scale** / look at the length on scale of callipers / measure gap between the 'teeth' with ruler.	**2**
2(c)(ii)	Complete histogram for site 2: Plot 8.1 –12.0 = 6 pebbles. Plot 12.1 – 16 = 2 pebbles.	**2**

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Question	Answer	Marks
2(c)(iii)	Hypothesis is **generally true** – 1 mark reserve (✓HA). (Overall) decrease in (average) size or length / decrease in size from site 1 to site 4. 1 mark for paired average data from sites **1 and 4**; Site 1 = 9.3 cm and Site 4 = 6.8 cm. Main anomaly to trend is site **2 or 3** / site **3** has larger pebbles than site **2 /** site **2** has smaller pebbles than site **3**; 1 mark for paired average data from sites **2 and 3** Site 3 = 8.3 cm and site 2 = 7.3 cm. Credit answers which refer to class sizes e.g. site 4 / downstream more pebbles are **0.1 to 4 cm** compared to site 1 / upstream; Site 1= 1 and site 4 = 7 (0.1 to 4 cm) pebbles. e.g. site 4 / downstream less pebbles are **12.1 to 16** cm compared to site 1 / upstream; Site 1= 5 and site 4 = 2 (12.1 to 16 cm) pebbles. e.g. anomaly: more **12.1 to 16 cm** pebbles at site 3 than site 2; Site 3 = 4 and site 2 = 2 (12.1 – 16 cm) pebbles. Note: 1 mark maximum for data. No credit if all 4 statistics are listed and do not support a correct idea. Hypothesis is completely true / false = XHA credit relevant evidence which supports the correct conclusion of generally true. If no hypothesis conclusion ^HA and credit evidence which supports the correct conclusion of generally true.	**4**
2(d)(i)	Put flowmeter / it / pole / propeller below surface of river / in river / into the water / onto riverbed; Propeller must be facing upstream / direction of water flow; Nothing in front of / blocking flow past the propeller / stand behind the propellor / stand downstream of flowmeter; Read / look at / identify / to see / take reading from digital / velocity reading / display / reading / data **on screen**; Take more readings across river channel / at different depths.	**3**
2(d)(ii)	Note: Answers must focus on flowmeter. Ideas such as: Less chance of error **in** calculating velocity / timing / measuring distance; More accurate / precise / exact results or readings / measures to decimal places; Meter is less affected by vegetation / obstacles in river; Meter measures velocity below surface / at different depths.	**2**

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Question	Answer	Marks
2(d)(iii)	Pebbles selected may not be typical / representative / anomaly; All pebbles may have been taken from same area of riverbed / taken from same place / not across channel; Not a fair sample / student chooses pebbles / bias in selection / student only selects small / big pebbles.	**2**
2(e)	The river gets wider downstream. The river discharge increases downstream.	**2**

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