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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/41**

Paper 4 Alternative for Coursework **May/June 2019**

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 descriptors 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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Question	Answer	Marks
1(a)(i)	Wheat Cattle **2 @ 1**	**2**
1(a)(ii)	Photograph / take sample of crop / sketch / picture Look up in book / internet Ask farmer / teacher / expert	**2**
1(a)(iii)	57 (ha)	**1**
1(a)(iv)	Bar graph: shows **area / number / figures / units** / **amount / quantity / how much** land is used for Easy to compare land use **areas** Pie graph: shows **proportion / percentage** Easy to compare proportion / percentage **2 @ 1**	**2**
1(b)(i)	Altitude	**1**
1(b)(ii)	Use tape measure to measure certain distance / 10 m (more than 5 m) / measure from one change of slope to next Students hold / put (marker) poles at either end of measured distance / slope section Ensure poles are vertical Use a clinometer / protractor to measure angle / read angle / read degrees Hold clinometer next to top / at certain height on (marker) pole / at eye level Sight other (marker) pole at top / agreed height / string at same height Repeat along the path / at each fieldwork location	**4**

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Question	Answer	Marks
1(b)(iii)	Height: **Compare** range of height e.g. Wheat below 75 m / low / lower / lowest land and sheep above 120 m / high / higher / highest land = 1 mark Wheat below 75 m, oranges between 75 and 90 m and sheep over 120 m = 2 marks OR compare change in specific height along **one** path e.g. Wheat at 57 m and olives at 104 m = 1 mark Wheat at 57 m, olives at 104 m and sheep at 153 m = 2 marks Steepness: **Compare** range of steepness e.g. Wheat below 5° / flat / flatter / flattest land and sheep above 18° / steep / steeper / steepest land = 1 mark Wheat below 5°, oranges between 4 and 8° and sheep over 18° = 2 marks OR compare change in gradient along **one** path e.g. Wheat at 2° and sheep at 25° = 1 mark Wheat at 2°, olives at 16° and sheep at 25° = 2 marks Reserve 1 mark for height and 1 mark for steepness	**3**
1(b)(iv)	Wetter / cooler / windier Steeper gradient is too steep for machinery / sheep are agile / able to cope with steeper gradient On steeper gradient there is increased rate of run-off which removes nutrients / soil is thinner Crops / wheat can only grow on flat land **because** e.g. soils are fertile Farmer's decision / choice where to put land use	**2**

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Question	Answer	Marks
1(c)(i)	Wheat = 7.0 ha and 7 hours Olives = 3.9 ha and 9 hours **2 @ 1**	**2**
1(c)(ii)	Best fit line drawn on Fig. 1.5	**1**
1(c)(iii)	Hypothesis is **false / incorrect** – 1 mark reserve It is a negative relationship or correlation / smaller fields equals more labour / more hours / larger fields need less labour / less hours 1 mark for example **Potatoes** grown in smallest field with high number of hours / high labour **Tomatoes** grown in small field with highest number of hours / most labour **Sheep** reared in largest fields with lowest number of hours / least labour Credit paired data (4 stats) of land use and field size and labour statistics for 1 mark **reserve** e.g. Potatoes field size = 2.2 ha and need 16 hours Labour and sheep field size = 8.3 ha and need 4 hours labour	**4**
1(d)(i)	Machinery or example / tools / netting Capital / money / grants / subsidies Fertilisers / pesticides / insecticides / adding predators Seeds Buildings or example / greenhouse polytunnel Drainage / irrigation Terracing Advertising / marketing / selling etc. **2 @ 1**	**2**
1(d)(ii)	Rainfall / temperature / sunshine Soil / nutrients Water / silt **from** river	**1**
1(e)	Interview / talk to farmer / worker Use a questionnaire (survey) / ask farmer … Credit example of questions for 1 mark e.g. What is the main work / job you do on the farm? Make more visits / visit in different seasons Stay on the farm for a few days / work experience Watch the farmer at work / observation	**3**

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Question	Answer	Marks
2(a)(i)	Not go to area where the river is fast flowing / rapids Not go to where river is too deep / too wide Accessibility of sites Distance between sites / evenly spaced / spread out Away from human impact / dam / weir / canalised section Not in private land / farmers' fields / is open to public Not go areas where river polluted Avoid dangerous animals / mosquitoes **3 @ 1**	**3**
2(a)(ii)	Do a pilot study Agree methodology / what measurements to take / where each student works / what each student does Practise fieldwork techniques / learn how to use equipment / learn how to measure everything Test equipment / make sure equipment works Get into groups / pairs	**2**
2(b)(i)	Width: Put poles on both banks / one person on each bank Put tape measure from one bank or side to the other / across the river from pole to pole / person to person Keep tape measure taut / horizontal / stretched Measure perpendicular / at right angles to banks / river Depth: Put ruler / measuring stick / pole **vertical** in river / rock and rope in river Must touch river bed Measure at intervals / points across channel Measure the wet part of ruler / stick / where water surface touches ruler / measure from bed to surface **2 + 2**	**4**
2(b)(ii)	Cross section completion at 1 (0.25 m), 1.5 (0.27 m), 2 (0.21 m) Shading river channel **1 + 1**	**2**
2(b)(iii)	Current moves tape / rope / tape floats up Deep / fast-flowing water Difficult to lay rope / tape on uneven bed River is too wide / wider than the length of tape Cannot see under the water / cannot see river bed **2 @ 1**	**2**

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Question	Answer	Marks
2(b)(iv)	Group A Hypothesis is **true / correct** – 1 mark reserve (✓HA) Paired data from any 2 sites to support hypothesis e.g. At site 1 / 0.5 km = 1.75 m and at site 5 / 15 km = 6.9 m Hypothesis is incorrect / partially correct = 0 (XHA) If no hypothesis conclusion ^HA and credit evidence Group B Hypothesis is **false / incorrect** – 1 mark reserve (✓HA) Paired data from 2 sites (2 and 3 OR 4 and 5) to show decrease downstream e.g. At site 2 / 2.1 km = 3.6 m and at site 3 / 7.4 km = 3.5 m **2 + 2**	**4**
2(c)(i)	Measure a **fixed** / **certain** distance / 5–10 metres along river Put poles / sticks at start and end of fixed distance / 10 m apart Put float / orange in river at start of measured distance Start stopwatch or timer when float / orange is put in river Stopwatch or timer measures time it takes to travel the measured distance / stop stopwatch or timer when float reaches end of measured distance Measure time taken at points across river channel / repeat task **and** calculate average OR Put velocity meter / propeller / flowmeter below surface of river / into the water Propeller must be facing upstream / nothing in front of propeller Read / look at digital reading or display / speed is shown on display Take several readings **and** calculate average	**4**
2(c)(ii)	Site 5 = 0.67 m/sec	**1**
2(c)(iii)	**Increase** from site 1 / upstream = 0.29 m/sec to site 5 / downstream = 0.67 m/sec OR by 0.38 m/sec (any two sites which show increase) **Decrease** from site 2 = 0.58 m/sec to site 3 = 0.46 m/sec OR by 0.12 m/sec (any two sites which show decrease)	**2**

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Question	Answer	Marks
2(d)(i)	Wetted perimeter = 3.25 m and velocity = 0.58 m/sec	**1**
2(d)(ii)	There is a positive correlation / longer wetted perimeter = higher velocity / shorter wetted perimeter = lower velocity OR Wetted perimeter increases from site 1 to site 2 (any two sites showing increase) e.g. At site 1 = 1.75 m and 0.29 m/sec and at site 5 = 6.9 m and 0.67 m/sec (not standalone) But there are anomalies / sites 2 to 4 show negative correlation / longer wetted perimeter = lower velocity (any two sites showing decrease) e.g. At site 2 = 3.25 m and 0.58 m/sec and at site 4 = 6.1 m and 0.39 m/sec (not standalone) 1 mark maximum for supporting data	**3**
2(d)(iii)	Gradient / steepness of slope Volume of water / discharge / tributary joins Straight or meandering river Rainfall / snowmelt Interference by people / dam / weir / straightening Bed roughness / rocks in river / plants in river **2 @ 1**	**2**

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