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Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/42**

Paper 4 Alternative to 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)	Examples of Advantages Give instant readings / faster / saves time / quick / sensitive (1) Easy to read / clear to read / large digital readout (1) Don't need to know how to read a thermometer (1) Exact figures / accurate / precise / to 1 DP / reliable (1) Less chance of making mistake in reading / mis-reading (1) Portable / can be used at more than one site (1) Can be reset / no need to reset (1) Can download to computer / store data (1) Safer if dropped because no mercury / less fragile than glass (1) Can read degrees C or F (1) Will give consistent reading (1) (1 + 1 + 1)	**3**
1(a)(ii)	Use another / different type of thermometer (1) Partner / other student checks / compares readings are accurate (1) Take more readings and compare / check (1) (1 + 1)	**2**
1(b)(i)	Average temperature = 28.1 (°C) Temperature difference = 21.2 (°C) (1 + 1)	**2**
1(b)(ii)	Answers to be comparative. Can credit correct data as a stand-alone answer. 1 max. / reserve for data. Examples Average temperature is higher in car park (1) e.g. 28.1 °C is higher than 22 °C / 6.1 °C higher (1D) Afternoon temperature is anomaly or error / higher than other rural sites (1) e.g. 38.7 °C compared to 25.6 °C / 13.1 °C higher (1D) Temperature difference is anomaly / greater than other rural sites (1) e.g. 21.2 °C compared to 8.7 °C / 12.5 °C higher (1D) Car park is not a natural / vegetation site / it is man-made / urban / not common OR typical of rural areas (1) (1 + 1 + 1DR)	**3**
1(b)(iii)	Plotting on bar graph; ignore shading; credit two plots. Residential area – 29 °C Large dense woodland – 16.7 °C (1 + 1)	**2**

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Question	Answer	Marks
1(b)(iv)	Hypothesis is **true** / **correct** – 1 mark reserve NOTE: Ignore all ref to car park results, morning column and temperature difference column. Credit data 1 MAX. / RESERVE <u>Evidence</u> <u>Average</u> temperature is higher in built-up area (1) e.g. Highest 31 °C in built-up; highest in rural is 22 °C (1D) e.g. Average built-up is 26.1 °C but 19.5 °C in rural (1D) e.g. All in built-up over 22 °C and all in rural 22 °C or less (1D) e.g. Lowest 22.9 °C in built-up area is higher than 22 °C highest in rural (1D) <u>Afternoon temperatures</u> all higher in built-up area (1) **Ignore car park.** e.g. highest temperature in built-up area 39.8 and in rural area 25.6 °C (1) e.g. lowest temperature in built-up area = 26.8 °C and but highest in rural area 25.6 °C (1) <u>Hypothesis is incorrect / partially correct / false = 0 (XHA)</u> <u>If no hypothesis conclusion ^HA and credit evidence</u> (1HA + 1 + 1DR)	**3**

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Question	Answer	Marks
1(c)(i)	Plotting results for artificial grass Morning X at 17.8 °C. Credit on the line below 18 °C Afternoon • at 27.9 °C. Credit between 27.8 / 28.1 NOT at 28.2 1 mark each for plotting both accurately with correct symbols No mark for joining vertical line. (1 + 1)	**2**
1(c)(ii)	Hypothesis is **partially true** –1 mark reserve Credit paired data to MAX. 1 which supports the hypothesis e.g. 17.7 °C on driveway / built-up area and 8.7 °C on grassland / rural **OR** 9 °C difference (1D) e.g. range 17.7–7.5 °C differences in built-up higher than range 0.5 to 8.7 in rural (1D) Credit paired data to MAX. 1 which shows that hypothesis is incorrect e.g. 7.6 °C on pathway / built-up area and 8.7 on grassland / rural **OR** 1.1 °C difference (1D) e.g. 7.5 °C on residential area / built-up area and 8.7 on grassland / rural **OR** 1.2 °C difference (1D) (1HA + 1D + 1D)	**3**
1(c)(iii)	Examples **In built-up area:** Ground / concrete / building materials absorb / radiate heat (1) Surfaces lose heat at night (1) Central heating / air conditioning control temperature (1) **In rural area:** Vegetation gives more shade / trees block sunlight (1) Less heat escapes at night (1) More humidity / transpiration in woodland (1) (4 × 1)	**4**
1(d)	1 mark max. for HOW and 1 mark max. for WHY. **How:** reduce temperatures / makes it colder (1) **Why:** clouds block sun's rays / short-wave radiation / less heat absorbed (1) (1 + 1)	**2**
1(e)(i)	Anemometer (1)	**1**

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Question	Answer	Marks
1(e)(ii)	Examples • Cups / cones / arms / wings / blades revolve / spin / rotate / turn / pushed around / circular motion (1) Must name part that spins etc.; • Meter counts / records number of revolutions / counts or records • wind speed (1) • Display screen shows wind speed / number (1) • Reading as kms per hour (1) (3 × 1)	**3**

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Question	Answer	Marks
2(a)	Examples • To get consistency / to be fair / use for equal or same length of time / compare same time period (1) • To get total no. of vehicles passing the site / one direction may be busier / make sure all vehicles included (1) • To know which category to record vehicles / all count same type of vehicle (1) • To make counting accurate / easy to do / quick / doesn't lose track of numbers (1) • To provide data to plot / graph / analyse / calculate average / compare / so it is recorded / data not forgotten / gives evidence of work (1) (1 + 1 + 1 + 1 + 1)	**5**
2(b)(i)	Taxi (1)	**1**
2(b)(ii)	The number of cars goes down (1)	**1**
2(b)(iii)	Completion of tally chart: Data: Motorbike 10, Taxi 4, Bicycle 3. 1 mark for three correct tally marks (must be in batches of 5 for Motorbike) 1 mark for three correct category totals in final column 1 mark for total of all vehicles, i.e. 81 (1 + 1 + 1)	**3**
2(c)(i)	Completion of divided bar graph; 1 mark for two correct dividing lines at 83 and 92 from bottom 1 mark for two correct dividing lines at 95 and 98 from bottom 1 mark for correct shading of 5 groups using key (1 + 1 + 1)	**3**
2(c)(ii)	19.30–20.00 **OR** 7.30–8pm (1)	**1**

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Question	Answer	Marks
2(c)(iii)	Hypothesis is **false / incorrect** – 1 mark reserve Evidence • There are two survey times when cars are over 50% **OR** majority / half of total **OR** three survey times when cars are the most / highest percentage (1) • But these times are at the start and end of the day / at 8.30 and 17.30 **OR** 19.30 / cars not main type throughout the day (1) • Coaches are main type / more than cars at 10.30 and 15.30 **OR** two times / cars are not main type at 10.30 and 15.30 (1) • Lorries / vans are main type / more than cars at one survey time / 12.30 (1) Credit data for 1 mark MAX. / RESERVE. Only credit percentages not numbers as referred to graph not table. e.g. cars 56% at 8.30 but only 15% at 15.30 (1) e.g. coaches 47% at 15.30 but cars only 15% (1) e.g. lorries / vans 33% at 12.30 but cars 29% (1) (1HA + 1 + 1 + 1DR)	**4**
2(c)(iv)	Examples **Cars: 1 mark MAX.** People travelling to work / going home from work / commuting (1) Tourists arriving and departing (1) **Lorries / vans: 1 mark MAX.** Deliveries to shops / businesses (1) Moving goods during the working day (1) (1 + 1)	**2**
2(d)	No mark for decision; candidates are told it is **TRUE**. Mark evidence. Evidence • Tourist coaches increase / peak / highest at 10.30 **OR** 15.30 (1) • Fewer / decrease in coaches at 8.30 / 12.30 / 17.30 / no coaches at 19.30 (1) Credit paired data showing variations to **1 max. / reserve** to compare two survey times e.g. 47% at 10.30 and 9% at 17.30 (1) e.g. 47% at 10.30 and 0% at 19.30 (1) STATS for ref: 8.30 9%, 10.30 47%, 12.30 12%, 15.30 47%, 17.30 9%, 19.30 0% (1 + 1 + 1DR)	**3**

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Question	Answer	Marks
2(e)(i)	Only accept **one** of these sampling methods. If name incorrect or missing give credit for correct description of one of the methods to max. 2. **Stratified: (1 reserve)** Gender / age balance (1) Appropriate to population of town / socio-economic status / different areas of town (1) **Systematic: (1 reserve)** Regular intervals / regular pattern (1) Every tenth/nth person (1) **Random: (1 reserve)** Ask anybody / next person / no pattern Use random number tables / pick numbers out of a hat to generate order to ask people (1) If number 6 selected ask the 6th person (1) (1M + 1 + 1)	**3**
2(e)(ii)	<u>Examples</u> **Advantages:** • Easier / quicker for pedestrians to walk around centre / more room to walk (1) • No traffic to avoid / less traffic jams (1) • Safer for pedestrians / less accidents / more pleasant (1) • Less noise (1) • Less air pollution / fumes / less breathing problems (1) **NOT less pollution** • Opportunities for pavement displays (1) **Disadvantages:** • Further to walk to shops from car parks / can't get to centre in cars (1) • Harder to access taxis / buses (1) • Goods / shopping to be carried further (1) • Traffic forced to go around town centre / further distance / longer journey (1) • Creates congestion on roads round town centre (1) 2 × (1 + 1)	**4**

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