Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

GEOGRAPHY **0460/42**

Paper 4 Alternative to Coursework **October/November 2017**

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.

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Question	Answer	Marks
1(a)	Rope	**1**
1(b)(i)	Tube / measuring tube pushed/knocked/placed/inserted <u>into</u> soil/ground (1) Fixed/measured/some water in container (1) Pour amount/120 mm into measuring tube (1) Measure height of water in tube every minute (1) Use a stopwatch/timer (1) (1+1+1) = 3	**3**
1(b)(ii)	Plot minutes 8/55, 9/53 and 10/50 for site 4 on Fig. 3. 1 or 2 correct = 1; 3 correct = 2. (1 + 1) = 2	**2**
1(b)(iii)	$\frac{24}{10}$ or $\frac{120-96}{10}$ Allow 24 above dotted line and 10 underneath it.	**1**
1(b)(iv)	Plot infiltration rate of 2.4 at site 7/140 m.	**1**
1(b)(v)	1 mark reserve for correct hypothesis decision (1) <u>Evidence</u> Infiltration rate decreases <u>at each site</u> further away from the river (1) Credit paired data for site/distance and infiltration rate of two sites e.g. At Site 1/20 m from river rate is 15 mm per min but at Site 7/140 metres from river to 2.4 mm per min. (1 MAX) (1HA + 1 + 1) = 3	**3**
1(c)(i)	<u>Negative relationship</u> between distance from the river and infiltration rate along Transect A/Fig 4 OR constant/regular/certain trend (1) <u>No relationship</u>/pattern/trend between distance from the river and infiltration rate along Transect B/Fig 5 OR the relationship is random/fluctuates/scattered/not constant/irregular (1) Allow 1 max if use opposite e.g. constant/not constant; scattered/not scattered.. (1 + 1) = 2	**2**

Question	Answer	Marks
1(c)(ii)	Examples: Need to compare two Transects land-uses. On transect A steeper slope/slope increases away from river but on transect B gentler slope (1) Infiltration rate decreases on Transect A as slope becomes steeper (1) On transect A soil changes from sand to clay away from river but on transect B soil does not change/mixed sand and clay (1) Infiltration rate is quicker on sandy soil in Transect A (1) On transect A the ground is cleared / bare ground away from river but on transect B grass/trees don't change (1) OR more vegetation in B (1) Infiltration rate is quicker on Transect B in area with vegetation away from the river (1) (1 + 1 + 1 + 1) = 4	**4**
1(d)(i)	Examples: Credit advantages of method 2. No need for comparison. Quick/easy/simple method/easy to do/easy to use/easy to read (1) No need to do calculation/gives instant/direct result/does not need formula (1) Less student error/exact/precise/accurate/reliable (1) Several readings can be taken at once and an average worked out (1) Portable/can be used on site/small amount of equipment (1) Can measure equal/10 cm/even depths (1) (1 + 1 + 1) = 3	**3**
1(d)(ii)	Plot soil moisture content (4.3%) and infiltration rate (13.2) at site 3. (Credit IR plot on the line; not close to it.) (1 + 1) = 2	**2**
1(d)(iii)	Group A on Transect A – 1 mark reserve (1) Evidence all from Transect A Transect A – infiltration rate decreases as soil moisture content increases from site 1 to site 7 / at all sites /each point /every point as you move away from the river (1) Credit paired data from 2 sites e.g. at Site 1/at start rate is 15 mm per min and 1.6% and at Site 7/finish to 2.4 mm per min but soil moisture content to 8.8% (1) (1HA + 1 + 1) = 3	**3**
1(e)	How: infiltration rate would be lower /decrease/ slower (1) Why**:** soil is saturated/soil moisture content is higher (1) (1 + 1) = 2	**2**

Question	Answer	Marks
1(f)	Examples People compress/compact the ground/ground hardens/denser (1) Water cannot soak into the ground as quickly/less gaps in soil (1) Lowers infiltration rate/slows down infiltration/harder to infiltrate (1) Impermeable footpaths may be built for tourists reducing infiltration (1) (1 + 1 + 1) = 3	**3**

Question	Answer	Marks
2(a)(i)	Used a bi-polar analysis (1) Write name of area on sheet (1) Observe/look at/see features (1) Make a decision about/rate/judge/give a score (1) Put a tick/fill in the appropriate column/record on sheet (1) (1 + 1) = 2	**2**
2(a)(ii)	Decide whether to survey individually or in a group /pairs (1) Agree where each group goes/decide which sites to go to (1) Agree on what descriptions mean/do a pilot or practice survey (1) Decide when would be best day/part of day to do survey/do it same day (1) Agree on time of survey/all surveys done at same time (1) Decide whether to calculate an average score from several students results/one student decides on the group's scores (1) Decide whether to repeat on different times/days (1) (1 + 1 + 1 +1) = 4	**4**

Question	Answer	Marks
2(b)(i)	Credit what the scores mean in terms of quality of the urban environment as in the question. Better/worse/poorer only accepted in certain features – see below. **Tettenhall and Pendeford:** Examples: (1 MAX) More open land in T/less open land in P (1) More attractive land in T/less attractive land in P (1) Less vandalism and damage in T/more or worse vandalism in P (1) More attractive overall in T than P (1) **Whitmore Reans and Low Hill:** Examples: (1 MAX) Less maintained/poorer/worse building condition in W/more maintained or better building condition in L (1) Less open land in W/more open land in L (1) Less attractive land in W/more attractive land in L(1) More/worse vandalism in W/less vandalism in L (1) More/worse noise OR air pollution/noisier in W/less noise OR air pollution in L (1) Less maintained/poorer/worse roads and pavements in W / more maintained or better roads and pavements in L (1) Less attractive overall in W than L (1) (1 + 1) = 2	**2**
2(b)(ii)	Completion of bi-polar graph; need both plots and joined accurately for the mark. Noise and air pollution (–1) and roads and pavements (+1).	**1**
2(b)(iii)	Plotting bar for Whitmore Reans (–5) on Fig. 11.	**1**
2(b)(iv)	Hypothesis is **PARTLY TRUE** – 1 mark reserve for correct decision. (1) Evidence Minus/negative or low scores nearer to centre/positive or high away from centre (1) e.g. Any two sites that agree: Heath Town close with score of –2 and Pendeford further away with higher score of 10 (1) NOTE: 1 Reserve/max mark for anomaly statement or stats. Anomaly of Tettenhall – higher score nearer centre than areas further from centre (1) e.g. Tettenhall close with 12 and Fordhouses further away with lower score of 7 (1). (Could also use Low Hill 3 or Pendeford 10) (1HA + 1 + 1 + 1R) = 4	**4**

Question	Answer	Marks
2(c)	**Description:** Use random number generator to decide who they ask/ask next person they meet/put numbers in a bag and draw out to decide who they ask. (1 MAX). **Advantage:** random numbers avoids bias/equal chance of being selected/reliable/quicker (1 MAX) (1 + 1) = 2	**2**
2(d)(i)	Completion of Fig. 12. **Park**: between 5 and 15 (7 minutes) **Secondary school**: more than 30 (40 minutes) (1 + 1) = 2	**2**
2(d)(ii)	Examples: People may not walk / may go by car / bus / mobility scooter / other transport (1) People may not go to the nearest service / more than one service to go to (1) People walk at different speeds / people walk faster on one day than another (1) People walk by different routes (1) Estimated times may be inaccurate / vague / people don't know / guess (1) Take them longer when it's busy (1) Don't use specific services (1) (1 + 1) = 2	**2**
2(d)(iii)	**Local store** = 4 (1) **Total** = 24 (1) Award total mark if local store is wrong but total correct to avoid ECF. (Likely to be combinations of NR/20; 0/20; 1/21; 2/22; 3/23 – give X =0 for 1st incorrect figure but TICK = 1 if total is right using the incorrect figure) (1 + 1) = 2	**2**
2(e)(i)	Completion of pie graph for Fordhouses (45%) or 162° clockwise. Allow tolerance of 1% each way i.e. 158–166°. Plot and shading must be correct for the mark.	**1**
2(e)(ii)	Hypothesis is **FALSE** – 1 mark reserve for correct decision. (1) Evidence: Highest scores increase towards city centre OR access near centre is better nearer to centre (1) e.g. Heath Town near with 91 and Pendeford further/far away with 51 (1) (Any two examples that work). (1HA + 1 + 1) = 3	**3**

Question	Answer	Marks
2(f)	Examples Decide on groups/pairs or individual research (1) Divide jobs between students/1 counts other records (1) Decide on appropriate sites/roads (1) Decide when to do the traffic counts/time (1) Decide which days to do it (1) Decide duration of traffic counts (1) Go to 2 sites on each road/opposite sides of road/specific sites (1) Use stopwatch/watch for timing (1) Count traffic/vehicles/types of vehicles/all transport types (1) Use counter/clicker/tally method (1) Synchronise timing/start and finish at same time (1) Record on sheet/table/chart (1) (1 + 1 + 1 +1) = 4	**4**