UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME for the May/June 2011 question paper

for the guidance of teachers

0460 GEOGRAPHY

0460/42   Paper 4 (Alternative to Coursework), maximum raw mark 60

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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1 **(a)** Drip tips on leaves ...... to remove heavy rainfall   (1 – 3rd row)
Shallow roots .... to extract soil nutrients   (2 – 1st row)
Large leaves ..... to allow more transpiration   (3 – 4th row)
NOTE that *Buttress roots… to make the trees more stable* has already been done;[3 @ 1 = 3]

  (b) **(i)** <u>Examples</u>
To give fair results / identify anomaly (1)
To avoid bias / be objective (1)
To have a wider range / variety / wider selection (1)
<u>NOT *To reflect reality / Better results* without qualification</u>   [1]

    (ii) <u>Examples</u>
5 sites along transect is systematic (1)
Easier to select sites on a straight line (1)
Easier to locate 5 sites at equal intervals on straight line (1)
Consistent way of studying 3 areas and comparing them (1)
                                                                   [2 @ 1 = 2]

  (c) **(i)** <u>Examples</u>
Tube / bottomless measuring cylinder pushed / knocked <u>into ground</u> (1)
Measured amount / 1 litre of water poured into cylinder (1)
Time or use stopwatch until water infiltrates / sinks / disappears / drains into ground (1)
<u>NOT: *Dig hole in ground* –must refer to *cylinder going into ground.*</u>   [3 @ 1 = 3]

    (ii) Area C   [1]

    (iii) Site 3 and Area C – <u>need both for the mark.</u>   [1]

    (iv) $\underline{25+35+21+48+52}$ OR 181 / 5 (1) = 36.2 (1)
             5

        <u>1 mark for knowing how to calculate it; 1 mark for the correct answer as here.</u> [2 @ 1 = 2]

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(d) (i) Two points plotted at 50 and 44 on Fig. 3 Area A (1) joined up by straight lines from 3–5 (1)
Plot <u>and shade</u> bar correctly at 3 on Fig. 3 Area B (1)
Two divided bar graphs completed at 80 / 20 and 57 / 43 on Area C (1) and shaded correctly (1) <u>NO MARKS IF PLOTTED WRONG WAY UP</u>   [5 @ 1 = 5]

(ii)

High infiltration rate = short infiltration time = high veg. cover = low bare ground
Low infiltration rate = long infiltration time = low veg. cover = high bare ground

Hypothesis is false / disagree – (1). If say <u>true / partially true then no marks at all.</u>

Second mark if write new hypothesis e.g. *"more types of vegetation where water infiltrates more quickly"*. (1)

<u>Evidence can only be for comparative statement from Area C and / or Area A:</u>
At C shortest infiltration time and most types of vegetation (1) 30 secs or less / 18 types (1)
At A longest infiltration time and least types of vegetation (1) 36 secs or more / 11 types (1)

<u>Allow a Data mark max. 1 but not compulsory. NO CREDIT FOR DATA FROM INDIVIDUAL SITES.</u>   [1 HA + 2 = 3]

(iii) <u>No hypothesis mark here. Reserve use of data for 2 marks max.</u>
Shortest infiltration time in area C (all < 30secs / avg 24.6 / range 20 / 30 secs) where highest %age of vegetation cover (57–80% / avg 68.45%)
OR
Longest infiltration time in area A (all > 36secs / 36–58 range) where lowest %age of vegetation cover (8–38% / 24.2% avg).

<u>DO NOT DOUBLE CREDIT OPPOSITE STATEMENTS OR REFS TO GROUND COVER %AGES OR REFS TO DATA FROM INDIVIDUAL SITES</u>   [1 + 2D = 3]

(iv) Water infiltrates quickly where vegetation greater due to:
<u>Examples</u>
*soil being broken up by vegetation roots (1)
*soil not compacted / loose / has gaps / cracks (1)
*quicker absorption by vegetation so promotes more growth / roots absorb water (1)
NOT *Ground is hard* without qualification   [2 @ 1 = 2]

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(e) One separate reason required for A B and C with 1 floating mark. Mark for consequence not for cause. 1 MAX if general consequences with no Area ref. No need to refer to effect on infiltration time.

Examples:
Area A is popular with tourists so compacted soil (1) vegetation eroded (1)
Parking / roads / footpaths cause impermeable surfaces (1) compacted soil (1)

Area B has been deforested so less ground cover (1)
Dirt road may create less vegetation (1) compacted soil (1)
Area B shows contrasts between sites with and without vegetation cover (1)
In areas with little vegetation cover sun will harden the ground (1)

Area C is natural forest with lots of vegetation types (1) no trampling of vegetation (1)
less compacted soil (1)   1A + 1B + 1C + 1 = [4 @ 1 = 4]

[Total: 30]

2 (a) (i) Examples
Will not get a distance as an answer / too vague / generic (1)
Too intrusive for people to answer / privacy issues / security / embarrassing (1)
Students may not know the town / village (1)
Information not appropriate as shoppers may be there for work / tourism so where they live irrelevant (1)
Information not needed / irrelevant for hypothesis / may be too much (1)   [2 @ 1= 2]

(ii) Sampling with an even / regular / equal distributions (1)
e.g. asking every 10th person to answer questionnaire (1)
NOT *Orderly* or *In a sequence*.   [1]

(iii) Examples
Fair method of deciding who to interview (1)
Removes possible bias of who is interviewed / student influence / choice removed (1)
NOT easy / quick / simple / accurate.   [1]

(iv) No credit for yes / no – only for two reasons for choice. Can give 1 Yes and 1 No if not opposites. NO CREDIT FOR *Physical effects on students e.g. tiring.*

YES: enough people to be a fair sample (1) to get variety of age / gender (1) do-able in the time (1)
NO: maybe not enough for a fair sample (1) may miss some age / gender info (1)
Because should vary numbers interviewed at each centre (1)   [2 @ 1 = 2]

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(b) (i) <u>1 mark for calculation; 1 for correct answer.</u>

<u>Working:</u> $\frac{(4 \times 0.5) + (1 \times 17) + (2 \times 4) + (3 \times 2) + (4 \times 2) + (5 \times 1)}{30}$

OR $\frac{(2 + 17 + 8 + 6 + 8 + 5)}{30}$

OR

Average distance = 46 / 30 (1)
= 1.5 km or 1.53 km (1) <u>Must state km</u>. <u>Accept:</u> 23 / 15

[1 + 1 = 2]

(ii) 2   <u>No need to state km in table.</u>   [1]

(c) (i) <u>Plot points on CBD graph on Fig. 5. Must be plotted on CBS graph not others.</u>

<u>Plots at: 1 / 27, 1 / 29, 1 plot at 1 / 30 and 1 plot at 2 / 30</u>

4 correct = 2 marks
2 / 3 correct = 1mark
0 / 1 correct = 0 marks   [1 + 1 = 2]

(ii) <u>Hypothesis correct / agree / people do travel further to bigger shopping centres (1).</u>
<u>No marks at all if disagree / partially agree.</u>

<u>Evidence must be from Fig. 5.</u>
<u>1 data mark reserved for use of statistics up to max 2.</u>

Longest distance travelled to CBD (1) up to 30km (1) but up to 10 km Secondary
(1) and 5km or less for Neighbourhood (1)
Secondary distance more than Neighbourhood (1) up to 10 km (1) but 5km or less
in Neighbourhood (1)
Average distance travelled longest to CBD (1) at 12.1km (1) but 2.7 km to
secondary centre (1) and 1.5 / 1.53 km to (1)   (1HA + 1D + 2) OR (1HA + 2D + 1) = [4]

(iii) <u>Examples (NOT *Higher quality shops*)</u>
More shops (1)
Greater choice / variety / type of shops (1)
High order / more expensive / specialist goods in bigger centres / low order
cheapest in smaller centres (1)
Go less frequently to big centres so willing to travel further (1)
Larger shopping centres have other services e.g. banks / cinemas (1)
Access issues – disabled / public transport / car parking (1)
Personal preference / quality of service (1)
Environment issues –clean / not smelly / crowded / security (1)   [3 @ 1 = 3]

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(d) (i) <u>There is a protractor symbol to check this on scoris top left. Can be credited if wrong way round if shading correct.</u>

Secondary centre pie graph completion for walk (60°) and bus (120°).
<u>1 mark for dividing line with 5 degree tolerance (235–245 from 240)</u>
<u>1 mark for shading both correctly</u>   [1 + 1 = 2]

(ii) *<u>Yes / Agree / Partially / not fully / almost / to some extent support</u>* hypothesis (1).
<u>No marks at all for *Disagree*.</u>

<u>If Partial agreement:</u>
Yes for CBD (1) – 18 travel by car (1) majority / highest number / most (1)
Partially for secondary centre (1) highest number (1) 12 travel by car (1), but 10 travel by bus (1) NOT *most / majority*
No for neighbourhood centre (1) – 4 travel by car (1) but 21 / most walk (1)

<u>If Yes for overall view</u>
Overall true as 34 / 90 highest number / most common (1) over 1/3rd / less than half travel by car (1) more than each of other types (1) but not most / majority (1)[1HA + 2 = 3]

(iii) Distance / proximity / closeness to travel to shopping centre (1)
Likely duration of visit / how long shoppers stay / time to shop (1)
What / how much they are buying / weight / size / quantity (1)
Access / availability of regular bus service / public transport / disabled use (1)
Availability / cost of car parking (1)
Weather conditions e.g. more likely to travel by car if raining (1)
Level of car ownership / do shoppers own a car (1)
Green / environmental concerns / responsibility (1)
Cost of travel / can't afford petrol / bus (1)
Traffic jams / congestion <u>must be qualified</u> (1)
Personal preference / age <u>must be qualified</u> (1)   [3 @ 1= 3]

(e) <u>Look for four ideas such as</u>:
Questionnaire / interview / ask patrons / shoppers / customers (1) NOT *shopkeepers*
Ask at a range of shops / corner shops to large centres (1)
Question: where they live (1)
Mark locations on a map (1)
Draw desire lines / isolines / flow lines of customers to different shops (1)
Delimit hinterland areas of different shops (1)
Find out and map delivery areas of shops (1)
Find out where advertising is done and map area – e.g. local newspapers (1)
Compare results for different shops / shopping centres (1)
NOT *Do it in pairs / groups*. Refs to distance or direction needs qualifying.   [4 @ 1 = 4]

[Total: 30]