

## **MARK SCHEME for the May/June 2014 series**

### **0460 GEOGRAPHY**

**0460/43**

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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2014 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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- 1 (a) (i) Easy to read / convenient to read / use / less chance or error  
Instant measurement / quick / saves time  
Accurate / gives decimal point reading / exact / precise / sensitive  
Portable / easy to carry  
Can be read remotely
- NOT: robust / cheap / stores a record of temperatures / can reset to zero / reliable / easier to set up
- If answer is from point of view of traditional instrument there must be comparison  
2 @ 1 [2]
- (ii) Screen is painted white...so that it reflects heat or sunlight / reduces direct heating by the sun / does not absorb sunlight  
Sides are made of slats / louvres / have spaces / gaps / not solid...so that air can circulate  
Screen / box is made of wood...so that heat is not conducted into it  
Roof is made of a double layer of wood...so that airspace provides insulation  
Screen stands more than 1 m / raised on legs above the ground...so that instruments are not affected by heat from the ground
- NOT: wind / keep rain out / box to protect instruments / holes in side / not affected by sun / above ground  
3 + 3 marks [6]
- (iii) Thermometer [1]
- (iv) Cloud cover  
Cloud type  
Wind speed  
Wind direction  
Sunshine hours / amount  
Actual / current temperature
- NOT: wind / cloud / temperature [1]
- (v) Wet and dry bulb thermometer / hygrometer  
Barometer / barograph
- NOT: wet and dry bulb / hydrometer 2 @ 1 [2]
- (b) (i) Read every 24 hours / fixed period of time  
Indices (markers) left at / show the minimum **and** maximum temperatures  
Read off the bottom of the index  
Read at eye level  
Magnet to reset / button to reset
- NOT: read the index [3]

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- (ii) Gauge stood firmly / dug in ground  
 Funnel and jar placed in casing / gauge  
 Rain enters gauge / jar through funnel / collects in jar / collects in rain gauge  
 Noting / recording water level in jar / water poured into measuring cylinder  
 Reading taken every day / at same time each day / fixed time period  
 Empty jar after measuring

NOT: recording in table / below ground / underground / measure after the rain stops / eye level

NOT: open ground / away from trees / grass not concrete / flat land [3]

- (c) (i) Completion of temperature line 4°C and 7.5°C (credit 4°C plot on vertical line or within square)

Minus 1 mark for each error [2]

- (ii) Hypothesis is **true / generally true / partly true / agree** with hypothesis / bigger difference between maximum and minimum temperatures in Pretoria  
 1 mark reserve (✓HA)

Bigger gap on graph between maximum and minimum temperature lines in Pretoria than in Cape Town

1 mark for identifying date to support hypothesis with statistics – 4 stats or 2 difference stats (0.5° tolerance on stats)

e.g. July 1: Pretoria max temp = 15.5°C and min temp = 0.8°C and in Cape Town max temp = 15.9°C and min temp = 3.7°C OR Difference = 14.7°C in Pretoria and 12.2°C in Cape Town

1 mark for identifying anomaly date with statistics – 4 stats or 2 difference stats (0.5° tolerance on stats)

e.g. July 3: Pretoria max temp = 15.2°C and min temp = 5.2°C and in Cape Town max temp = 18.8°C and min temp = 4.1°C OR Difference = 10.0°C in Pretoria and 14.7°C in Cape Town

Hypothesis conclusion is incorrect / false = 0 (XHa)

If no hypothesis conclusion ^HA and credit evidence [4]

- (d) (i) Completion of rainfall bars for 2 days

15 mm on 28<sup>th</sup> and 4 mm on 29<sup>th</sup> 2 @ 1 [2]

- (ii) Hypothesis is **false / incorrect / disagree** with hypothesis – 1 mark reserve (✓HA)

No relationship between maximum temperature and amount of rainfall

OR less or no rain as temperature increases or high temperature or maximum temperature

OR more rain as temperature decreases or lower temperature or minimum temperature

At highest temperature / 24.6° or 25° there is no rainfall

1 mark for data which compares temperature and rainfall to disprove hypothesis

e.g. 16.4°C and 13 mm compared with 17.2°C and 2 mm

Hypothesis conclusion is correct / true / partly true = 0 (XHa)

If no hypothesis conclusion ^HA & credit evidence [4]

**[Total: 30 marks]**

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- 2 (a) (i) Groups sampled buildings in different areas of CBD / looked at different buildings / went in different directions  
Buildings in CBD vary in number of storeys / vary in height  
Land use varies in CBD / offices have taller buildings / shops have less storeys than offices  
Age of buildings vary / some are newer than others [2]
- (ii) Complete bars – 2.0 storeys at 2km on West transect and 2.7 storeys at 1 km on North transect 2 @ 1 [2]
- (iii) **Generally / partially / to some extent / mainly / not completely** – 1 mark reserve (✓HA)  
  
True for North / West transect / average height does reduce at each distance from CBD  
  
Statistics to support: North from 7.5 or 2.7 down to 1.0 / West from 8.2 or 2.3 down to 1.0  
  
Not true for South / East transect / anomaly / height does not reduce at each distance from CBD  
  
Statistics to support: South from 1.2 at 3km to 1.8 at 4 km / East from 1.7 at 1 km to 5.9 at 2 km  
  
Hypothesis conclusion is incorrect / false / correct / true = 0 (XHa)  
If no hypothesis conclusion ^HA and credit evidence [4]
- (iv) Value of land increases where there is limited amount  
Higher value land / higher price land / higher cost of land requires higher buildings  
Limited amount of land / higher land price / competition for space means buildings must grow upwards OR more space so buildings are lower  
Different land uses / examples of two land uses  
  
NOT: amount of space / accessibility / transport [2]
- (b) (i) Shading Hungry Lion as commercial and President Hotel as services 2 @ 1 [2]
- (ii) 12 [1]
- (iii) Ground floor is easiest to see / record land use / easier work  
Cannot see what upper storeys are used for / unable to enter building  
Takes too long to record use of all storeys / save time / quicker  
  
NOT: too much work / too much trouble / cannot be bothered / multiple uses / most variety of land use on ground floor / upper floors are mainly offices / ground floor is used most frequently [1]
- (iv) Completion of CBD pie chart – residential = 2, commercial = 63,  
Offices = 25, services = 10%  
2 marks for correct position of dividing lines – 2, 65, 90 (minus 1 mark for each error in position of dividing lines)  
1 mark for shading  
If lines are wrong way round this only counts as one error and candidate can still score 2 marks if all segments are correct size and shading is correct [3]

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- (v) North transect has higher percentage of residential / more residential  
lower percentage of commercial / less commercial  
lower percentage of industry / less industry

NO credit for services or offices

East transect has lower percentage of residential / less residential  
higher percentage of commercial / more commercial  
higher percentage of offices / West has no offices but East does  
higher percentage of services / West has no services but East does  
no industry unlike West

Mainly residential in West and mainly commercial in East

No credit for statistics, must be interpretation 2 @ 1 [2]

- (vi) Hypothesis is **true / partly true / generally true** – 1 mark reserve (✓HA)

Need comparison with other areas OR 2 comparative stats (1 must be CBD)

Commercial – largest percentage / most in CBD OR commercial = 63% in CBD and 7% in North

Offices – largest percentage / most in CBD OR stats

Residential – smallest percentage / least in CBD OR stats

Industry – none in CBD but located in three of transects / less in CBD than East or South or West transect OR stats

Services – less in CBD than East / more in CBD than North or South or West OR stats

Hypothesis conclusion is incorrect / false = 0 (XHa)

If no hypothesis conclusion ^HA & credit evidence [4]

- (c) Factors such as:

Growth of city spatially

Development of city over time

Transport links – road / rail / air / river / accessibility

Competition for land / bid rent

Cost of land / cheaper out of city

Availability of land / amount of space

Relief / flood plain

Wind direction

Planning policy

Close to raw material for industry / mining subsidence [4]

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- (d) Bigger sample size than 6 buildings for number of storeys  
 More transects to cover larger area of city  
 More data collection points than 4 along each transect  
 Extend transect further out  
 Only collect one set of building heights in CBD  
 Record land use in upper storeys  
 Have more than 5 land use categories  
 Do a pilot survey  
 Check where there is an anomaly

Answer must relate to work done not possible new work

NOT: count storey twice / tally / use clicker / different days / more people measure same thing / do in another city / repeat fieldwork

3 @ 1 [3]

**[Total: 30 marks]**