Cambridge Assessment International Education

# Cambridge IGCSE™

**GEOGRAPHY** **0460/22**

Paper 2 **February/March 2023**

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) | Southannan Burn | **1** |
| 1(a)(ii) | Footbridge | **1** |
| 1(a)(iii) | Coniferous trees and non-coniferous trees/vegetation/woods /mixed woods. | **1** |
| 1(a)(iv) | 387 (metres) | **1** |
| 1(b)(i) | 210546 | **1** |
| 1(b)(ii) | 3.88 (kilometres) Accept 3.75–3.95 (kilometres).<br>Allow 3750–3950 m providing metres is clearly stated. | **1** |
| 1(b)(iii) | 190 (degrees) Accept 187–193 (degrees) | **1** |
| 1(c) | Picnic site;<br>Walks/trails/(Ayrshire) coastal path/recreational route/national trail;<br>Fishing/reservoirs/dam;<br>Waterfalls;<br>Castle (remains);<br>Toilets/public conveniences;<br>Southannan Sands/beach;<br>Pier;<br>Cup and Ring-marked Rock.<br><br>Credit any 3 correct responses. | **3** |
| 1(d) | Trees/woodland/coniferous/non-coniferous;<br><br>**FOUND:**<br>To the west/western facing slopes/less to the east;<br><br>On steep slopes;<br>At base of slope/ between A78 road and railway/along A78/along railway;<br>Below 150 m (allow any figure between 140 m and 160 m);<br>In flat(ter) area in SW/SSW / near Hunterston House/Castle;<br>Along river valley(s);<br>Orchards/most non coniferous trees in SSW/SW/west of A78/railway;<br>Coniferous trees east of A78/railway;<br>Scrub/bracken/heath/rough grassland;<br><br>**FOUND:**<br>Throughout the area/across the whole map/to the east/centre;<br>Above 75–80 m/on high land/hilly/mountainous areas;<br>Near Hunterston House/Castle.<br><br>Vegetation types alone max. 2;<br>Distribution max. 3. and must refer to a vegetation type.<br>Can be 3 marks for one vegetation type. | **4** |

| Question | Answer | Marks |
|---|---|---|
| 1(e) | Small/narrow rivers/streams/burns;<br>(Many) tributaries/confluences/affluents/join small rivers/burns;<br><br>Meanders;<br>(Streams have) steep gradients;<br>Radial pattern;<br>Dendritic pattern;<br>Waterfalls;<br>Flowing into/have mouth at reservoirs;<br>Large(r) stream/river flows out of the reservoir (Knockendon);<br>Bogs;<br>Generally drains to the S/SSW/SW/SSE/SE/flow to southern edge of map/drain from the north;<br>Except in the N, where drains to W/WNW. | **6** |

| Question | Answer | Marks |
|---|---|---|
| 2(a)(i) | Town: 2<br>Village: 8 | **2** |
| 2(a)(ii) | 37.5 (km) (Allow 35.5–39.5 km) | **1** |
| 2(b)(i) | Area from which people travel (to use a service)/the catchment area of a service/the area served by a settlement.<br>No credit for: area influenced by a service. | **1** |
| 2(b)(ii) | The (minimum) number of people required to make a service profitable/to support a service. | **1** |
| 2(c)(i) | Positive (correlation)/direct relationship/linear;<br>As population increases the number of services increases;<br>Fairly strong/strong (relationship)/there is an anomaly. | **2** |
| 2(c)(ii) | Tourism | **1** |

| Question | Answer | Marks |
|---|---|---|
| 3(a) | Cone/conical;<br>Steep sided/tall/high;<br>Concave slopes/steeper at top than at the bottom;<br>(Vertical) ash/gas cloud/smoke/steam; (smoke containing ash = 1)<br>(From) crater;<br>Wide base;<br>Covered in ash/ash layers/rivers of ash/grey slopes;<br>Bare/barren slopes;<br>Some vegetation on lower slopes;<br>Stratovolcano/composite volcano; (composite cone = 2)<br>Active/currently erupting.<br><br>'Grey/ash' on its own = 1;<br>Max. 2 for ash overall (air borne ash and deposited ash). | **4** |

| Question | Answer | Marks |
|---|---|---|
| 3(b) | Fertile soils;<br>Scientists/to study the volcano;<br>Earn/jobs/economic benefits from tourism; (accept 'jobs in hospitality')<br>Lived there all their lives/used to living there/family/friends there;<br>Can't afford to move;<br>Spiritual connection to the volcano/sentimental attachment/religious beliefs;<br>Trust predictions/warning systems;<br>Familiar with evacuation procedures/know what to do in the event of an eruption;<br>Shelters available;<br>Not erupted for a long time/think it won't erupt;<br>Geothermal power/hot water supply, heating/hot springs;<br>Mining minerals/extraction of raw materials/precious stones or example, such as diamonds;<br>Sulphur used for fertilisers/matches;<br>Volcanic rocks are used for building materials;<br>Scenic;<br>Cheaper houses/land.<br><br>Too vague:<br>Too far to move to somewhere safe;<br>Difficult to move;<br>Cultural attraction;<br>Feel safe.<br>'Tourist attraction' on its own;<br>Pull factors. | **4** |

| Question | Answer | Marks |
|---|---|---|
| 4(a)(i) | 8 (mm) | **1** |
| 4(a)(ii) | 31 (°C) | **1** |
| 4(a)(iii) | A<br>B<br>A<br>A<br><br>3 or 4 correct = 2 marks<br>1 or 2 correct = 1 mark | **2** |

| Question | Answer | Marks |
|---|---|---|
| 4(b) | High pressure;<br>Cold ocean currents/air is cooled by contact with cold water;<br>Air cooled so cannot hold moisture;<br>Rain shadow/leeward side of mountains/rain falls elsewhere;<br>Clouds have lost their moisture due to continentality/long distance from ocean/inland;<br>Prevailing/trade winds carry clouds away/carry little or no moisture/dry;<br>Sinking air hinders formation of clouds;<br>Lack of available water (lakes and seas)/too dry/lacks moisture for evaporation to take place;<br>Lack of vegetation to provide water vapour from evapotranspiration;<br>Vegetation adapted to reduce transpiration.<br>Dry winds = 1<br><br>Too vague:<br>List of factors with no explanation e.g. distance from the sea;<br>Too hot, as must be linked to lack of vegetation;<br>Extreme heat makes it difficult for water to condense. | **4** |

| Question | Answer | Marks |
|---|---|---|
| 5(a) | Population/demand is increasing/high population growth/high population;<br>Yield is increasing gradually/slowly/levelling out/ not keeping up with rising/large population;<br>Reliance on imports/imports vary in amount/fluctuate each year/ inconsistent/unpredictable imports/ many years rice imports lower than 2000 tonnes/ need for imports indicates it is not growing enough food.<br><br>Each mark awarded must relate to a different graph.<br><br>Too vague:<br>Low/varying rice production;<br>Imports are low;<br>Overall decrease in imports;<br>Increase in imports;<br>High cost of imports;<br>Needs to spend a lot of money on imports;<br>Reduction in imports after 2010. | **3** |
| 5(b)(i) | Terracing/step farming to ensure flat land/increase land area (available for cultivation)/steps created to hold water;<br>Bunds/walls to retain water;<br>(Irrigation) canals/channels to supply water.<br><br>Recognition of two methods without explanation = Max.1 (in absence of any appropriate explanation). | **2** |

| Question | Answer | Marks |
|---|---|---|
| 5(b)(ii) | Machinery/tractors;<br>HYVs/GM crops/use drought tolerant varieties/higher quality seeds;<br>Pesticides/herbicides/fungicides/introduced natural predators;<br>Fertilisers/dung;<br>Double-cropping/multiple cropping/intercropping/mixed cropping/farm a variety of crops;<br>Land consolidation;<br>Crop rotation;<br>Contour ploughing;<br>Education to learn about most efficient techniques/methods/etc.;<br>Drip/trickle irrigation/water spraying/sprinklers.<br><br>Too vague:<br>Regular ploughing;<br>More workers;<br>Monoculture;<br>Growing crops more densely;<br>Loans/subsidies;<br>Less overgrazing. | **3** |

| Question | Answer | Marks |
|---|---|---|
| 6(a)(i) | 10 (%) | **1** |
| 6(a)(ii) | Plot and label. Must have both. | **1** |
| 6(a)(iii) | **Democratic Republic of the Congo:**<br>Primary higher/ 65% and 2/3%;<br>Secondary lower/ 10% and 20%;<br>Tertiary lower/ 25% and 77/78%;<br>Congo largest sector is primary and France largest sector is tertiary;<br>Congo smallest sector is secondary and France smallest sector is primary.<br><br>Credit correct statements even if any figures quoted are incorrect.<br>If only figures are used, then these must be accurate and not estimates, e.g. France <10% primary, DRC >60% = 0;<br>Ignore numbering;<br>Can score 1–3 marks on any two-line section of answer booklet. | **3** |

| Question | Answer | Marks |
|---|---|---|
| 6(b) | Mechanisation of agriculture;<br>Depletion/lack of natural resources/loss of agricultural land/ urbanisation;<br>Increase in distribution centres (due to increasing demand for products);<br>Import (of food/products);<br>Mechanisation of manufacturing; ('mechanisation' on its own = 1)<br>High demand for services;<br>Increased incomes to spend on services;<br>Higher level of education/skills/training (more people qualified for tertiary jobs)/skilled workforce increases;<br>Greater need for education/skills/training (so more jobs in education);<br>More free time to spend on leisure services/tourism/development of tourism requires more services;<br>People living longer so need for health services;<br>Advancements in <u>high</u> technology/ICT/opportunities for R&D;<br>Tertiary jobs are higher paid/less physical (so attract more people);<br>Tertiary jobs allow people to work from home;<br>Tertiary industry earns more profit for the country/increases GDP/GNP.<br><br>Points should be relevant to MEDCs.<br><br>Too vague:<br>More chance of promotion in tertiary;<br>More/many job opportunities.<br>Faster rate of development so more workers needed. | **3** |