Cambridge Assessment International Education

Cambridge IGCSE™

GEOGRAPHY **0460/13**

Paper 1 Geographical Themes **October/November 2022**

MARK SCHEME

Maximum Mark: 75

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.

Cambridge International is publishing the mark schemes for the October/November 2022 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

© UCLES 2022

[Turn over

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.

© UCLES 2022

Each question carries 25 marks. Candidates cannot earn above the maximum marks available within each sub section.

The marking scheme attempts to give guidance about the requirements of each answer and lists a number of responses, which will earn marks along with the general principles to be applied when marking each question.
It should be noted that candidates can earn marks if their answers are phrased differently provided, they convey the same meaning as those in the mark scheme. THE CANDIDATES DO NOT NEED TO USE THE SAME WORDING TO EARN MARKS.

The notation `etc.` at the end of an answer in the mark scheme signifies that there may well be other correct responses or examples that can be given credit. Providing the statement is true, relevant to the question asked and not repetition of a previous point made, credit should be given.

A point made within one sub-section which is an answer to the question set in a different sub-section should not be given credit as each sub-section asks different questions which require independent answers.

The mark scheme uses semi colons (;) to separate marks and diagonals to separate alternative answers.

During coordination the mark scheme is modified to add points agreed after discussion or to delete any points not allowed. All examiners should ensure that their modified scheme is fully up-to-date before marking begins.

Marking Mechanics.

Point marking is used for sections (a) and (b) of each question, although marks are available in specified questions for development of appropriate points. Ticks should be used to clearly indicate where a mark has been allowed. Where a development point has been allowed the symbol ‘DEV’ should be placed adjacent to the tick. The number of ticks should always be equal to the total number of marks awarded. Only one development mark for each mark scheme point please.

Where a candidate makes a point which is not quite sufficient for credit an upturned `V` insert symbol should be used. If after careful consideration a mark is awarded which gives `benefit of doubt` to the candidate, the letter `J` should be placed adjacent to the tick (i.e., the candidate has `just` achieved the mark).

Crosses are acceptable to signify wrong answers and the letters `I/R` should be used to indicate those which are irrelevant.

Levels of response marking is used for section (c) of each question.
Thus, it is the quality of the response that determines which level an answer has achieved rather than the quantity of statements contained within it. However, once assigned to a level the mark achieved within that level is determined by the number of points made.

Levels 1 and 2 are distinguished by whether statements are simple (level 1) or developed/elaborated (level 2). A candidate can immediately enter L2 by making developed points without making any L1 statements. In order to achieve L3 a candidate must have already reached the top end of L2 – in addition his/her answer should have a clear example and if the answer is place specific as well (7 marks). Highlight place specific detail.

Where statements are assigned levels by the examiner this should be indicated by the use of L1 and L2 next to the statements. Ticks should **not** be used on answers that are marked using levels of response marking. L1 annotation should be removed once a L2 is awarded for an answer. L3 annotation is not used. There is no need for a summary level at the end of a response.

© UCLES 2022

Summary:
Level 1 (1 to 3 marks):
1 simple statement (1 mark)
2 simple statements (2 marks)
3 simple statements (3 marks)

Level 2 (4 to 6 marks):
1 developed statement (4 marks)
2 developed statements (5 marks)
3 or more developed statements with e.g. (6 marks)

Level 3 (7 marks)
3 or more developed statements + named example with at least one piece of place specific detail.

© UCLES 2022

Question	Answer	Marks
1(a)(i)	Births minus deaths/birth rate minus death rate 1 mark	**1**
1(a)(ii)	(Births – deaths) 14 270 – 15 670 = –1400 (Immigration – emigration) 13 030 – 6940 = 6090 1 319 130 – 1400 + 6090 = 1 323 820 One mark for total and one for showing calculation, as long as it includes all elements. 2 @ 1 mark	**2**
1(a)(iii)	Ideas such as: Provide workers/skills; Will accept low pay/dirty jobs; Will pay taxes; Multi-cultural society/more diverse culture; Set up services (or example – food outlet, restaurant), etc.; Provides a larger market/demand for local production/sales/services or example such as schools; More economic development/GNP/national income/contribute to economy/country gets more money; 3 @ 1 mark	**3**
1(a)(iv)	Difficulties such as: Finding somewhere to live/cannot afford/poor quality housing; High cost of living/high cost of/can`t afford food/schooling/healthcare/food, etc.; Language problems; Jobs are hard to obtain/low paid/dirty jobs/exploitation; (Racial/religious) discrimination/hostility/people complain about them taking their jobs; Away from family/friends/do not know people; Hard to adapt to/get used to different religion/culture/culture shock; Threat of deportation/difficult to get legal documents/visa/cannot get citizenship; Difficulties faced on journey or examples; etc. 4 @ 1 mark	**4**

Question	Answer	Marks
1(b)(i)	Ideas such as: They both increase (needs to be clearly stated); Natural increase is negative but net migration is positive/migration is higher than natural increase; Natural increase remains very similar but net migration changes/increases more; Net migration fluctuates more etc.; Use of comparative statistics: Accept statistics for 2014 and 2018 only unless referring to fluctuation. Need 4 statistics or 2 statistics for increase by idea. Fluctuation needs appropriate number to illustrate comparison. Natural population increase –2000 (2014) –1400(2018)/increased by 600 Migration –700 (2014) 6000(2018)/increased by 6700; 3 @ 1 mark	**3**
1(b)(ii)	Ideas such as: Under use of resources (or example)/lots of resources but not many people; Low level of production; Little economic growth/economic development; Lack of labour force/skills; Labour is expensive; Need to attract immigrants/problems caused by immigration; Under use of/difficult to fund community facilities/services (or example – schools, etc.); High taxes/lack of government income/low tax revenue for government; Small market/demand for locally produced goods/services; etc. 5 @ 1 mark or development	**5**

Question	Answer	Marks
1(c)	**Levels marking** Level 1 (1–3 marks) Statements including limited detail which explain why birth rates are high. Level 2 (4–6 marks) Uses named example. More developed statements which explain why birth rates are high. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to ideas such as: Poor access to/lack of contraceptives; Lack of education about birth control; Some religions are against contraception; Little education about adverse impacts of large families; Dependence on agriculture; Children sent out to work/economic assets; High IMR; Traditional attitudes encourage large families; Many women don`t have careers; Lack of pensions/children look after elderly; Polygamy; Lack of abortions, etc. Place specific reference is likely to consist of: Named parts of the chosen country, Population data, etc.	**7**

© UCLES 2022

Question	Answer	Marks
2(a)(i)	Built up area/town/city 1 mark	**1**
2(a)(ii)	*Between 5 and 9.9 million on west coast*: San Diego/San Francisco. *Between 2 and 4.9 million in the centre of USA*: Denver/Kansas City/St Louis. 2 @ 1 mark	**2**
2(a)(iii)	Administrative centre = council offices and law courts; Industrial town = factories and mines; Port = docks and warehouses; Resort = hotels and restaurants;	**3**
2(a)(iv)	Ideas such as: List of settlements in rank order/order of size/importance; E.g., New York <u>much higher in the hierarchy</u> than Kansas City; There are few large settlements; There are lots of small settlements; OR there are more large than small settlements (alternative to two lines above). E.g., Fig. 2.1 shows only 3 settlements/Los Angeles, New York, and Chicago with over 10 million; E.g., 17 settlements with 2 – 4.9 million; 4 @ 1 mark	**4**
2(b)(i)	Ideas such as: Coastal location/next to sea/on the shore; Deep water/large boats/cruise ships can reach land; <u>Sheltered/safer</u> area/bay/estuary; Flat land for dock/warehouse facilities, etc. 3 @ 1 mark	**3**
2(b)(ii)	Ideas such as: Large population; It will offer high order services/large shops (or example); All communities need shops/to buy food (any example); <u>Retailing/sales of</u> imported products (or example – e.g., fish); <u>Retailing/sales</u> to people on ferries/cruise ships/tourists; Hammerfest will act as a retail centre for surrounding (smaller) communities/have a large sphere of influence; Easy access by road/public transport, etc. 5 @ 1 mark or development	**5**

Question	Answer	Marks
2(c)	**Levels marking** Level 1 (1–3 marks) Statements including limited detail which describe the strategies used to reduce the problems caused by traffic. Level 2 (4–6 marks) Uses named example. More developed statements which describe the strategies used to reduce the problems caused by traffic. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements with some place specific reference. Content Guide: Answers are likely to refer to ideas such as: New road building; Investment in public transport; Cycle lanes; Park and Ride; Congestion charging; Regular checks of vehicle emissions/use of electric vehicles, etc. **Note:** Credit description and not explanation/impact of strategy Place specific reference is likely to consist of: Locational details, Specific details of the schemes, Named parts of urban areas, etc.	**7**

Question	Answer	Marks
3(a)(i)	Annual range of temperature is low 1 mark	**1**
3(a)(ii)	Ideas such as: Clustered/linear/in belt; On/near/along equator; 10°N to 3°S/ 1000 km North to 300 km approx.; Mainly north of the equator/between tropic of cancer and equator; West Africa/Central Africa; Small area on/near tropic of Capricorn/Madagascar; etc. 2 @ 1 mark	**2**
3(a)(iii)	Ideas such as: High daytime but cold night temperatures; Lack of clouds; High insolation during day/overhead sun/direct sun; Heat escapes at night, etc. 3 @ 1 mark	**3**
3(a)(iv)	Ideas such as hot deserts: Have high air pressure; Descending air; Low/no evaporation/transpiration; Wind direction/trade winds over large areas of land/land locked/long way from sea; Effect of cold current; Effect of rain shadow, etc. 4 @ 1 mark	**4**
3(b)(i)	Ideas such as: Plant in Fig. 3.2 has spikes/thorns/prickles but plant in Fig. 3.3 does not; Plant in Fig. 3.2 has fleshy stem/no leaves but plant in Fig. 3.3 has (thin) leaves/thin stem; Plant in Fig. 3.2 does not have a flower/has a fruit but Fig. 3.3 has a flower/no fruit; Plant in Fig. 3.2 is light green, but Fig. 3.3 is dark green/darker green; etc. **Note:** Must state fig. nos. 3 @ 1 mark	**3**

© UCLES 2022

Question	Answer	Marks
3(b)(ii)	Ideas such as: Seeds/plants remain dormant during long dry spells/lose their leaves; Only flower for a short period of time after rain; Waxy/narrow/spiky leaves reduce rates of transpiration/water loss; Spikes protect plants from predators; Tap roots/long roots/wide spreading roots to search for water; (Fleshy) stem stores water; Light colours to reflect sunlight; Stomata at base/small to reduce transpiration/water loss/respiration; 5 @ 1 mark or development	**5**
3(c)	**Levels marking** Level 1 (1–3 marks) Statements including limited detail which describe the characteristics of tropical rainforest vegetation. Level 2 (4–6 marks) Uses named example. More developed or linked statements which describe and explain the characteristics of tropical rainforest vegetation. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements which describe and explain the characteristics of tropical rainforest vegetation, including some specific details. Content Guide: Answers are likely to refer to: Density/height of vegetation; Diversity/lots of types of vegetation; Layers; Buttress roots; Drip tip leaves; Specified links within ecosystem, e.g., food chains; Nutrient cycles, etc. Place specific reference is likely to consist of: Locational details, Named flora/fauna, etc.	**7**

Question	Answer	Marks
4(a)(i)	3.14 – 3.15 (m^3/s) 1 mark	**1**
4(a)(ii)	*Groundwater flow:* Water which flows/moves through/in the rocks/aquifer; *Throughflow:* Water which flows through the soil; 2 @ 1 mark	**2**
4(a)(iii)	Ideas such as: Rain does not land directly on river/channel/rain has to move to river from other areas in the drainage basin; Overland flow/surface runoff/flowing across the surface takes time/has to make its way (to the river); Throughflow/water flowing through the soil/infiltration takes time/ has to make its way (to the river); Groundwater flow/baseflow/water flowing through the rock/percolation takes time/has to make its way (to the river); Rain could be intercepted by vegetation and so takes time/then has to make its way (to the river); etc. 3 @ 1 mark	**3**
4(a)(iv)	*Building large areas of housing in the valley:* Increases discharge/more water/deeper/faster flow/floods/peak discharge is sooner/shortens lag time; (1) Because surfaces are impermeable/drainage makes movement of water more rapid/less transpiration/less infiltration; (1) *Afforestation on slopes of valleys:* Reduces discharge/less water/shallower/slower flow/prevents flooding/delays peak discharge/increases lag time; (1) As rainfall is intercepted by trees/used by trees/water is taken up by roots; (1) 4 @ 1 mark	**4**
4(b)(i)	Ideas such as: A is a river cliff but B is a slip off slope; A is steep/steeper but B is gently sloping/flatter; A is a bank made out of soil, but B is pebbles/rocks/stones; A is higher, etc. 3 @ 1 mark	**3**

Question	Answer	Marks
4(b)(ii)	Ideas such as: River flows around a meander/on a meander; Helicoidal flow; Erosion on outer bend/at A; Fast(er) flow/high energy on outer bend/at A; Hydraulic action/abrasion (or description of process); Deposition on inside bend/at B; Slow(er) flow/low energy on inside bend/at B, etc. 5 @ 1 mark or development	**5**
4(c)	**Levels marking** Level 1 (1–3 marks) Statements including limited detail which describe the opportunities provided by a river for people who live close to it. Level 2 (4–6 marks) Uses named example. More developed statements which describe the opportunities provided by a river for people who live close to it. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Comprehensive and accurate statements, including some place specific details. Content Guide: Answers are likely to refer to: Agriculture; Irrigation; Transport routes; Domestic water supply; Industrial water supply; HEP; Water mills; Fishing; Work in tourism, etc. Place specific reference is likely to consist of: Locational details, named places alongside river, etc.	**7**

Question	Answer	Marks
5(a)(i)	A farmer who produces crops/produce for himself/family/tribe, etc. 1 mark	**1**
5(a)(ii)	Ideas such as: They have water constantly/they do not go for long spells without water; They have a bigger area/use land which was too dry; (With water) plants grow more/faster/bigger/healthy growth, etc. 2 @ 1 mark	**2**
5(a)(iii)	Ideas such as: They are using low/intermediate technology; Simple/easy to set up/maintain; Uses easily available material; They have the skills to be able to use these methods/don't need to be educated to use it; They are relatively low cost/cheap; They do not require sources of fuel (electricity)/they use manpower/animal power, etc. 3 @ 1 mark	**3**
5(a)(iv)	Methods such as: Crop rotation; Use of fertilizers/animal manure; Insecticides/pesticides/herbicides; Greenhouses/glasshouses; Mulching; Use high yield varieties of crops/HYV/or example; Mechanization; Aeroponics/hydroponics; Terracing; Reclaiming/draining land; More workers; etc. One mark for the identification of each method and the second mark for an explanation of why it increases output. E.g., 1: Use of fertilizers (1) enables farmers to provide crops with all the nutrients required (1). E.g., 2: Use of insecticides (1) prevents crops from being eaten by insects (1). 4 @ 1 mark	**4**

Question	Answer	Marks
5(b)(i)	Processes such as: Ploughing; Planting (seeds); Using fertilizer; Using pesticide/herbicide/insecticide; Weeding; Harvesting (crops); Irrigation/watering; Storage/storing, etc. 3 @ 1 mark	**3**
5(b)(ii)	Ideas such as: Flat/gently sloping land; Lots of land; Enables mechanization (dev); Precipitation/rainfall; Mild/warm/hot/temperate; Adequate length of growing season/frost free days; Sunshine; (Sunshine) for ripening (dev); Fertile soil; So, less money has to be spent on fertilizer; etc. 5 @ 1 mark or development	**5**

© UCLES 2022

Question	Answer	Marks
5(c)	**Levels marking** Level 1 (1–3 marks) Statements including limited detail which explain why many people have suffered starvation and malnutrition. Level 2 (4–6 marks) Uses named example. More developed statements which explain why many people have suffered starvation and malnutrition. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements, including some place specific reference. Content Guide: Answers could refer to any economic activity at any scale and are likely to refer to issues such as: Can't grow enough crops/livestock die; Drought; War; Pests or examples; Poverty/can't afford to buy food/can't afford to import; Can't afford irrigation; Overuse of the land; Population increase/high birth rate; Export of cash crops; Poor farming methods; Lack of cultivable land; Unequal distribution of land; Flooding; Poor storage of food; Poor distribution/transportation of food/aid; Corruption; etc. Place specific reference is likely to consist of: Locational details/named areas within country chosen Specific details of issues/dates, etc.	**7**

Question	Answer	Marks
6(a)(i)	Carbon dioxide/Methane/Carbon monoxide/Water vapour/Nitrous oxide/Ozone, etc. 1 mark	**1**
6(a)(ii)	Ideas such as: Sun's rays pass through the atmosphere; Rays bounce off/radiate from the surface of the earth; The rays/heat is trapped/does not escape; Etc. 2 @ 1 mark	**2**
6(a)(iii)	Ideas such as: Burning of/using fossil fuels or, e.g., oil/coal; Power stations/electricity; Car exhausts/engines/use of cars; Industrialisation/factories/manufacturing company; Use of aircraft; Deforestation/logging; (Methane) from rice fields/grazing livestock; Increasing population; etc. 3 @ 1 mark	**3**
6(a)(iv)	Ideas such as: Global warming/greenhouse effect/temperature increase; Melting of ice caps/glaciers; Rising sea levels; Increasing sea temperatures; Flooding of coastal areas/islands; Altering of climate patterns (or example); Drought/less rainfall; Desertification; More rainfall; Increasing severity/occurrence of tropical storms; Crop failure/starvation; Wild fires; Destroys habitat; Extinction/kills wildlife/coral bleaching; Etc. 4 @ 1 mark	**4**
6(b)(i)	Completion of divided bar: Correct order; Dividing lines at 36/56 and 74/accurate dividing lines in wrong order; Key and graph shading. 3 @ 1 mark	**3**

© UCLES 2022

Question	Answer	Marks
6(b)(ii)	Ideas such as: Kills/injures wildlife/fish; Decline of fishing industry/less fish to eat; Poisonous seafood harms people; Impact on food chains; Extinction of species/loss of biodiversity; Bleaching/damage of coral reefs; Eutrophication/algal bloom/depleted oxygen levels; Loss of tourism; Smells; Visual impact; etc. 5 @ 1 mark or development	**5**

Question	Answer	Marks
6(c)	**Levels marking** Level 1 (1–3 marks) Statements including limited detail which describe how risks of an economic activity to the local natural environment are being managed. Level 2 (4–6 marks) Uses named example. More developed statements which explain how risks of an economic activity to the local natural environment are being managed. (**Note:** Max 5 if no named or inappropriate example) Level 3 (7 marks) Uses named example. Comprehensive and accurate statements including some place specific reference. Content Guide: Answers are likely to refer to: Logging; Tourism; Manufacturing industry; Quarrying; Agriculture, etc. **Note:** Any example of economic activity can be used at any scale. Development should be management method, not impact. Management strategies are likely to include: Planning restrictions; Legislation; Protection of ecosystems; National Parks; Control of numbers; Technological improvements; Use of renewable energy etc. Place specific reference is likely to consist of: Locational details/names of places within chosen area, Specific details/statistics.	**7**

© UCLES 2022