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CAMBRIDGE
International Education

Cambridge International AS & A Level

GEOGRAPHY **9696/11**

Paper 1 Core Physical Geography **May/June 2026**

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme contains the instructions and marking guidance that our examiners used to mark candidate responses for this component.

Before they start marking, examiners complete a standardisation process. They review a range of candidate responses and discuss the mark scheme in detail to agree which answers can and cannot be accepted. Examiners award marks where it is clear that candidate responses have met the requirements of the mark scheme. These requirements may vary between different components or different versions of the same component, depending on the exact requirements of the question and the candidate responses seen during the standardisation process.

Sometimes, our mark schemes may allow marks to be awarded to responses which contain elements that are factually incorrect or for content not covered by the syllabus. We do this in response to the demands of a specific question to support candidates and make sure that our assessments are fair. However, these allowances should not be used as a guide for teaching and learning.

We cannot discuss the mark scheme with schools, and we recommend that schools read the mark scheme together with the assessment material and the Principal Examiner Report for Teachers.

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General marking principles

All examiners must apply these marking principles when marking candidate responses.

1	Examiners must award marks for each response in line with: • the specific **content** defined in the mark scheme • the specific **skills** defined in the mark scheme or in the level descriptions • the **standard of response** required as exemplified by the standardisation scripts.
2	Examiners must award **whole marks** (not half marks, or other fractions).
3	Examiners must award marks **positively**. This means that: • marks are not deducted for errors or omissions • marks are awarded for correct/valid answers as defined in the mark scheme and also for **other valid answers** which go beyond the scope of the syllabus and mark scheme referring to your team leader as appropriate • the quality of spelling, punctuation and grammar are judged **only** when the mark scheme indicates that these features are **specifically assessed** in the question. However, the meaning of all responses must be unambiguous.
4	Examiners must **consistently** apply the requirements of the mark scheme and any rules for what to do when candidates have not followed instructions correctly.
5	Examiners must use the **full range of marks** defined in the mark scheme, unless limited by the quality of the candidate responses seen.
6	Examiners must award marks according to the mark scheme and **must not** award marks with grade thresholds or grade descriptions in mind.

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Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning	Use
	Correct point	Point-marked questions only: Section A, Section B part (a)
	Incorrect	Point-marked questions only: Section A, Section B part (a)
L4	Level 4	Levels-marked questions only: Section B part (c)
L3	Level 3	Levels-marked questions only: Section B parts (b) and (c)
L2	Level 2	Levels-marked questions only: Section B parts (b) and (c)
L1	Level 1	Levels-marked questions only: Section B parts (b) and (c)
0	Level 0 – No creditable response	Levels-marked questions only: Section B parts (b) and (c)
Highlighter	Creditworthy part of an extended response	Levels-marked questions only: Section B parts (b) and (c)
EVAL	Evaluative point	Levels-marked questions only: Section B part (c)
^	Omission or further development/ detail needed to gain credit	All questions
	Unclear or validity is doubted	All questions
DEV	Developed point	All questions

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Annotation	Meaning	Use
EG	Appropriate example or case study given	All questions
IRRL	Irrelevant	All questions
NAQ	Material that does not answer the question	All questions
	Highlighting a significant part of an extended response – to be used with another annotation e.g. IRRL or EVAL	Levels-marked questions only: Section B parts (b) and (c)
SEEN	1. Diagram or essay plan has been seen but no specific credit given 2. Additional page has been checked	1. Any diagrams or essay plans 2. All blank pages in the provided generic answer booklet and/or extension answer booklet(s).
R	Rubric error	Optional questions only (place at start of question not being credited): Section B (Candidates answer one question)

Examiners must consider the following guidance when marking the essay questions:

Candidates are free to develop their own approach to the question and responses will vary depending on the approach chosen. Whichever approach is chosen, essays which address the question and support their argument with relevant examples will be credited. There may be detailed consideration of a case study/one or more examples, or a broadly conceived response, drawing on several examples to illustrate the factors involved.

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Section A

Answer **all** questions in this section. All questions are worth 10 marks.

Hydrology and fluvial geomorphology

Question	Answer	Marks
1(a)	**Figure 1.1 shows the mean river discharge for Grey River / Māwheranui, New Zealand.** **Describe the pattern of mean river discharge shown in Figure 1.1.** Description of the pattern could include: • discharge increases downstream/decreases upstream • greatest discharge is in the last 10 km of the river's course • most lengths of the river have a mean discharge of less than 50 cumecs • the highest mean discharge is to the west of the area/near the sea • the lowest mean discharge is to the east of the area/in the mountains • most of the water that has a discharge higher than 50 cumecs flows towards the north-west or south-west • lowest values cover the greatest area/widely scattered/in all first order tributaries **1 mark** for each description. **Max. 3 marks** if no use of data. **Max. 1 mark** if only describe place by place.	**4**
1(b)	**Suggest <u>one</u> reason for the pattern of mean river discharge shown in Figure 1.1.** Reasons could include: • in upper course, tributaries are generally receiving water directly from precipitation/springs/snowmelt/surface runoff, whereas larger tributaries are fed by groundwater sources as well • channel width and depth increase in lower parts of the drainage basin, so the tributaries can hold more water • as more tributaries join, the volume of the water increases **1 mark** for reason with an additional **1 mark** for development.	**2**

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Question	Answer	Marks
1(c)	**Explain why the discharge of a river changes over time.** Explanation could include: • weather conditions – leading to higher and lower rates of discharge (e.g. periods of heavy rainfall, dry seasons) • change in land use for example if an area became urbanised then discharge will change – impermeable surfaces lead to more overland flow; changes in vegetation – afforestation/deforestation will increase/decrease interception • flood control measures such as dams • through extraction and use of water – irrigation, etc. • change in surface properties e.g. frozen ground • seasonality – e.g. impact of snowmelt • climate change **1 mark** for each simple explanation, **2 marks** for a developed explanation and **3 marks** for a well-developed explanation up to the maximum.	**4**

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Atmosphere and weather

Question	Answer	Marks
2(a)	**Figure 2.1 is a photograph which shows a weather phenomenon.** **State the type of weather phenomenon shown in Figure 2.1.** (Radiation / inversion / valley / advection) Fog / low cloud / mist	**1**
2(b)	**Suggest how the weather phenomenon shown in Figure 2.1 was formed.** Either explanation of radiation fog or advection fog can be accepted. Radiation fog – ground cools rapidly and cools the air above it Advection fog – warmer moist air from the sea flows over cold surface Reasons could include: • often occurs at night because there is no incoming radiation • fog is formed by cooling of warm moist air/the land cools the air above by thermal radiation • leading to condensation of the water vapour • calm conditions where wind speeds are low • the relief may have influenced the formation as the cooler denser air drops and flows downhill; fog forms in the valley • layer of warm air above the cooled air creates a temperature inversion **1 mark** for each reason with an additional **1 mark** for each development up to the maximum.	**4**
2(c)	**Explain how the albedo of different land surfaces may affect the diurnal energy budget of an area.** Explanation could include: • albedo is a measure of the amount of incoming (shortwave) solar radiation that is reflected back to space • lighter colours e.g. snow reflect shortwave radiation so have high albedo. Very little radiation is absorbed and has as local cooling effect. • darker colours absorb shortwave radiation rather than reflecting it – heat (e.g. tarmac in urban areas, coniferous forests) leading to higher temperatures therefore, darker surfaces absorb the radiation leading to a potential warming of the area, and local increase of heat • there is no outgoing (reflected) shortwave radiation at nighttime – only longwave • diurnal energy budget is the difference between the incoming and outgoing radiation over a 24-hour period/night and day • consider any other relevant components of the diurnal energy budget influenced by the albedo **1 mark** for each simple explanation, **2 marks** for a developed explanation up to the maximum. **Max. 3 marks** if no comment on diurnal energy budget.	**5**

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Rocks and weathering

Question	Answer	Marks
3(a)(i)	**Figure 3.1 shows a diagram of mass movement.** **State the type of mass movement shown in Figure 3.1.** (Rotational) Slip/slide. Allow slump/landslide.	**1**
3(a)(ii)	**State <u>two</u> pieces of evidence that mass movement has occurred in Figure 3.1.** Evidence could include: • cracks/distortions in buildings • crack in road surface • trees with bent trunk/bending downslope • tilting telegraph pole • tension cracks/scars/steps in upper slope • sediment at base of slope • decrease in slope angle as move down slope **1 mark** for each piece of evidence.	**2**
3(b)	**Using Figure 3.1, suggest reasons for the mass movement.** Reasons could include: • steepness of the slope can increase the effect of gravity • presence of saturated ground and springs decreasing the stability of the slope – increase sheer stress/decrease sheer strength with lubrication • buildings on slope increase load on ground – increase sheer stress • road – vibrations from heavy traffic over time; construction of the road may have undercut the slope and weakened it at the base • unconsolidated rock – poor cohesion so vulnerable as no sheer strength • earthquakes/animal burrowing/deforestation – not on diagram but creditable **1 mark** for each simple suggestion with an additional **1 mark** for each development up to the maximum.	**3**

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Question	Answer	Marks
3(c)	**Explain how rock structure influences mass movement.** Explanation could include: • well jointed rocks allow the passage of water through the joints, increasing lubrication, weight, etc. • joints etc. can lead to increased weathering of the rock e.g. freeze–thaw, carbonation, root action • permeable/porous rocks can also lead to increased weathering • geology is a key component – rocks with a more blocky/jointed structure are weaker internally increasing potential mass movement, as are unconsolidated rocks • the direction of the bedding planes may also affect the location and direction of mass movement – for example if the planes are sloping towards the base of the valley, then the structure may be more prone to collapse **1 mark** for each simple explanation, **2 marks** for a developed explanation. Credit use of diagrams.	**4**

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Section B

Answer **one** question from this section. All questions are worth 30 marks.

Hydrology and fluvial geomorphology

Question	Answer	Marks
4(a)(i)	**Describe the process of transportation in a river channel.** Description could include: • the process by which sediment is moved by water (within the river channel) • takes place when velocity overcomes friction • as velocity increases so does the size/weight of the material which can be carried • this can be by solution, suspension, saltation or traction **1 mark** for each description. Credit use of diagram.	**3**
4(a)(ii)	**Explain the formation of a meander.** Explanation could be based on the following: • pool riffle sequence • creating swinging of the thalweg line to the outside of the bend • helicoidal flow • lateral erosion • greater erosion on the outside of a bend • channel is deepened where there is greater erosion • slower velocity on the inside of the bed, causing deposition • migration of meanders **1 mark** for each simple explanation, **up to 4 marks** for a developed explanation, up to the maximum.	**4**

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Question	Answer	Marks
4(b)	**Explain how drainage basin characteristics can influence a storm hydrograph.** The drainage basin characteristics that could be discussed include: • size of the drainage basin – small basins collect less water (lower peak discharge) but respond more quickly (shorter lag time) • shape of drainage basin – round basins versus elongated basins • drainage density – higher density has quicker response time • porosity and permeability of the soil – impermeable geology encourages runoff (steeper rising limb) • slopes in the drainage basin – steep slopes increase runoff (steeper rising limb) • vegetation type – high density vegetation increases interception • land use – urban areas have impermeable surfaces and artificial drains etc. (steep rising and falling limb, high peak discharge), agriculture e.g. seasonal changes as crops are harvested A candidate may select a few of these and discuss them in detail (for example explaining how a higher drainage density leads to a more flashy hydrograph). Or a candidate may mention a range of these, but in less detail. The candidate may explain the differences between urban areas vs rural areas (which have a more delayed or longer lag time) or agricultural land use. Each explanation must relate to how this affects the storm hydrograph. Award marks based on the quality of the explanation and breadth of the response using the marking levels below. **Level 3 (6–8)** Response clearly explains how drainage basin characteristics can influence a storm hydrograph. Response is well founded in detailed knowledge and strong conceptual understanding of the topic. Examples used are appropriate and integrated effectively into the response. **Level 2 (3–5)** Response explains how drainage basin characteristics can influence a storm hydrograph. Response develops on a largely secure base of knowledge and understanding. Examples may lack detail or development. **Level 1 (1–2)** Response describes how drainage basin characteristics can influence a storm hydrograph. Knowledge is basic and understanding may be inaccurate. Examples are in name only or lacking entirely. **Level 0 (0)** No creditable response.	**8**

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Question	Answer	Marks
4(c)	**With the aid of examples, assess the view that physical factors are more important than human factors in causing a river to flood.** Physical factors causing a river to flood could include: • amount and type of precipitation, high rainfall or intense rainfall/storms • seasonality – snowmelt, monsoons • steep slopes • impermeable geology • vegetation • soil conditions (infiltration capacity) and antecedent moisture Human factors causing a river to flood could include: • deforestation in an area • artificial surfaces (urbanisation) • modification of channels upstream • draining wetlands (former storage areas) • climate change Candidates may consider the causes separately or through one flood event consider the contributing factors that caused the flood and how important they were. Award marks based on the quality of the response using the marking levels below. **Level 4 (12–15)** Response thoroughly assesses the view that physical factors are more important than human factors in causing a river to flood. Examples used are appropriate and integrated effectively into the response. Response is well founded in detailed knowledge and strong conceptual understanding of the topic. **Level 3 (8–11)** Response assesses the view that physical factors are more important than human factors in causing a river to flood but may be unbalanced. Examples may lack detail or development. Response develops on a largely secure base of knowledge and understanding. **Level 2 (4–7)** Response shows general knowledge and understanding of the view that physical factors are more important than human factors in causing a river to flood. Response is mainly descriptive or explanatory with limited use of examples and understanding of the topic may be partial or inaccurate. Some concluding remarks. General responses without the use of example(s) will not get above the middle of Level 2 (6 marks). **Level 1 (1–3)** Response may broadly discuss physical factors and/or human factors in causing a river to flood but does not address the question and does not come to a convincing conclusion. Response is descriptive, knowledge is basic and understanding is poor. **Level 0 (0)** No creditable response.	**15**

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Atmosphere and weather

Question	Answer	Marks
5(a)(i)	**Define the atmospheric terms 'convection' and 'humidity'.** Convection is the movement of air via sensible heat transfer (1). Warm air (1) (expands and) rises (1). Humidity is the amount / concentration / % of water vapour/moisture (1) in the air (1). **Max. 2 marks** for each definition.	**4**
5(a)(ii)	**Briefly explain latent heat transfer.** Latent heat transfer is the energy absorbed or released when water changes state (1). It has two stages: Evaporation. Water absorbs heat energy (1) to change from a liquid into a gas (water vapour) (1). This has a cooling effect on the surface (1). Condensation. As the water vapour rises and cools, it turns back into a liquid (water droplets/rain) (1). This process releases the stored heat (1) warming the surrounding atmosphere (1).	**3**

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Question	Answer	Marks
5(b)	**Describe and explain how global temperatures are influenced by latitude.** Sun provides radiation input. The lower the latitude, near the Equator, the higher the temperature as the angle of the sun is at its most direct, meaning there is more received solar radiation. The radiation is more concentrated compared to the poles; therefore, higher temperatures are found within the tropics. As latitude increases, the angle of the sun decreases and so the energy is dispersed over a greater area, causing temperatures to be lower. The solar radiation also passes through a greater thickness of atmosphere, scattering and absorbing solar radiation meaning temperatures are lower. Consideration of varying albedo rates, especially at the poles, is also valid. These variations are heightened by the Earth's tilt, in Northern Hemisphere winter the North Pole is tilted away from the sun, so long periods of little or no insolation occur. This does not happen at the Equator, so temperatures remain high all year. The pattern of global temperatures is influenced by the transfer of heat from the Equator to the poles, with a return flow of cooler air to the Equator. This forms the general atmospheric circulation and the generation of ocean currents. Credit diagram/s. Award marks based on the quality of explanation and breadth of the response using the marking levels below. **Level 3 (6–8)** Response clearly describes and explains how global temperatures are influenced by latitude. Response is well founded in detailed knowledge and strong conceptual understanding of the topic. Examples used are appropriate and integrated effectively into the response. **Level 2 (3–5)** Response describes and explains how global temperatures are influenced by latitude. Response develops on a largely secure base of knowledge and understanding. Examples may lack detail or development. **Level 1 (1–2)** Response describes how global temperatures are influenced by latitude. Knowledge is basic and understanding may be inaccurate. Examples are in name only or lacking entirely. **Level 0 (0)** No creditable response.	**8**

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Question	Answer	Marks
5(c)	**'Increasing temperature is the most significant atmospheric impact of global warming.'** **With the aid of examples, how far do you agree with this statement?** Increased temperature can be discussed referring to overall mean trends, extreme temperatures and using examples of places. This could include melting ice and changes in snow cover and thus the change in albedo. Candidates may develop this to explain the significance of a positive feedback loop resulting in a potential increase in global warming. Increase in amount of freshwater entering oceans and impact on heat transfer. Increased heat waves/droughts. However, there are other atmospheric impacts of global warming – greater evaporation leads to increased cloud cover/rainfall, changes in pressure systems and impacts which then result in changes to ocean currents. A candidate may consider how significant each impact is in the atmosphere and the knock-on effects this then has. Weather patterns such as El Niño may be discussed. Candidates may recognise temperature has a role in all of these. Candidates may assess significance in terms of scale, location of impacts on people and/or the environment, but the overriding argument should be based on atmospheric impacts. Award marks based on the quality of the response using the marking levels below. **Level 4 (12–15)** Response thoroughly assesses the extent to which increasing temperature is the most significant atmospheric impact of global warming. Examples used are appropriate and integrated effectively into the response. Response is well founded in detailed knowledge and strong conceptual understanding of the topic. **Level 3 (8–11)** Response assesses the extent to which increasing temperature is the most significant atmospheric impact of global warming but may be unbalanced. Examples may lack detail or development. Response develops on a largely secure base of knowledge and understanding. **Level 2 (4–7)** Response shows general knowledge and understanding of the extent to which increasing temperature is the most significant atmospheric impact of global warming. Response is mainly descriptive or explanatory with limited use of examples and understanding of the topic may be partial or inaccurate. Some concluding remarks. General responses without the use of example(s) will not get above the middle of Level 2 (6 marks). **Level 1 (1–3)** Response may broadly discuss the atmospheric impacts of global warming but does not address the question and does not come to a convincing conclusion. Response is descriptive, knowledge is basic and understanding is poor.	**15**

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Question	Answer	Marks
5(c)	**Level 0 (0)** No creditable response.	

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Rocks and weathering

Question	Answer	Marks
6(a)(i)	**Define the terms 'rainsplash' and 'sheetwash'.** Rainsplash is when high impact precipitation (1) hits bare soil (1) which dislodges soil particles (1). Sheetwash is the downslope, surface movement of water (1) in a flat/thin/uniform sheet or layer (1). Typically occurs when ground is saturated/compacted, so water cannot infiltrate (1). **Max. 2 marks** for each definition.	**4**
6(a)(ii)	**Briefly explain how grading can reduce mass movement on a slope.** • grading reduces the slope angle of the natural slope (1) • removes material from the top of the slope – either transported away, or added to the toe of the slope (1) • mass movement is reduced because the downslope influence of gravity is reduced / increases stability of slope (1) **1 mark** for each explanatory point.	**3**

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Question	Answer	Marks
6(b)	**Explain the processes <u>and</u> landforms that occur at convergent (destructive) plate boundaries.** Convergent (destructive) plate boundaries are where plates are moving towards each other. One plate subducts under the other. Processes which could be explained are: • slab pull • convection currents • subduction • melting in the Benioff zone Landforms include: • fold mountains • island arcs • accretionary wedges • ocean trenches • volcanoes Credit the use of diagram(s) where they serve to illustrate or describe/explain the answer correctly. Award marks based on the quality of the explanation and breadth of the response using the marking levels below. **Level 3 (6–8)** Response clearly explains the processes <u>and</u> landforms that occur at convergent (destructive) plate boundaries. Response is well founded in detailed knowledge and strong conceptual understanding of the topic. Examples used are appropriate and integrated effectively into the response. **Level 2 (3–5)** Response explains the processes <u>and</u> landforms that occur at convergent (destructive) plate boundaries. Response develops on a largely secure base of knowledge and understanding. Examples may lack detail or development. **Level 1 (1–2)** Response describes the processes <u>and/or</u> landforms that occur at convergent (destructive) plate boundaries. Knowledge is basic and understanding may be inaccurate. Examples are in name only or lacking entirely. **Level 0 (0)** No creditable response.	**8**

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Question	Answer	Marks
6(c)	**With the aid of examples, assess the extent to which temperature is more significant than rainfall in affecting the type and rate of weathering in an area.** Temperature changes are usually associated with physical weathering e.g. freeze–thaw is a result of the temperature fluctuating around 0°C. Temperature changes also lead to processes such as exfoliation, salt crystal growth and thermal expansion. Rainfall is associated with chemical weathering processes of carbonation, hydration and hydrolysis. Typically, more rainfall may lead to deeper and more significant chemical weathering. Reference to the Peltier diagram is acceptable here to show the role of water and temperature. The rate of weathering is also to be discussed which in most cases is increased by higher rainfall, temperatures and more blocky/jointed rock. Temperature and rainfall can also have an effect on amount of vegetation which can cause weathering. Award marks based on the quality of the response using the marking levels below. **Level 4 (12–15)** Response thoroughly assesses the extent to which temperature is more significant than rainfall in affecting the type and rate of weathering in an area. Examples used are appropriate and integrated effectively into the response. Response is well founded in detailed knowledge and strong conceptual understanding of the topic. **Level 3 (8–11)** Response assesses the extent to which temperature is more significant than rainfall in affecting the type and rate of weathering in an area but may be unbalanced. Examples may lack detail or development. Response develops on a largely secure base of knowledge and understanding. **Level 2 (4–7)** Response shows general knowledge and understanding of the extent to which temperature is more significant than rainfall in affecting the type and rate of weathering in an area. Response is mainly descriptive or explanatory with limited use of examples and understanding of the topic may be partial or inaccurate. Some concluding remarks. General responses without the use of example(s) will not get above the middle of Level 2 (6 marks). **Level 1 (1–3)** Response may broadly discuss how temperature and rainfall affect the type and/or rate of weathering in an area but does not address the question and does not come to a convincing conclusion. Response is descriptive, knowledge is basic and understanding is poor. **Level 0 (0)** No creditable response.	**15**

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