

INTERNATIONAL AS GEOGRAPHY GG01A

Paper 1A Physical Geography 1 Hot Desert Systems and Landscapes

Mark scheme

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Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same, correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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International AS Geography mark scheme

How to mark

Aims

When you are marking your allocation of scripts your main aims should be to:

- recognise and identify the achievements of students
- place students in the appropriate mark band and in the appropriate part of that mark band (high, low, middle) for **each** Assessment Objective
- record your judgements with brief notes, annotations and comments that are relevant to the mark scheme and make it clear to other examiners how you have arrived at the numerical mark awarded for each Assessment Objective
- ensure comparability of assessment for all students, regardless of question or examiner.

Approach

It is important to be **open-minded** and **positive** when marking scripts.

The specification recognises the variety of experiences and knowledge that students will have. It encourages them to study geography in a way that is relevant to them. The questions have been designed to give them opportunities to discuss what they have found out about geography. It is important to assess the quality of **what the student offers**.

Do not mark scripts based on the answer **you** would have written. The mark schemes have been composed to assess **quality of response** and not to identify expected items of knowledge.

Assessment Objectives

This component requires students to:

AO1	Demonstrate knowledge and understanding of places, environments, concepts, processes, interactions and change, at a variety of scales.
AO2	Apply knowledge and understanding in different contexts to interpret, analyse and evaluate geographical information and issues.
AO3	Use a variety of relevant quantitative, qualitative and fieldwork skills to: • investigate geographical questions and issues • interpret, analyse and evaluate data and evidence • construct arguments and draw conclusions.

The marking grids

Do not think of levels equaling grade boundaries.

Depending on the part of the examination, the levels will have different mark ranges assigned to them. This will reflect the different weighting of Assessment Objectives in particular tasks and across the examination as a whole.

Using the grids

Having familiarised yourself with the descriptors and indicative content, read through the answer and annotate it (as instructed below) to identify the qualities that are being looked for and that it shows. You can now check the levels and award a mark.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptors for that level. The descriptors for the level indicate the different qualities that might be seen in the student's answer for that level. If it meets all the descriptors for the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptors and the answer. With practice and familiarity you will find that for better answers you will be able to skip through the lower levels of the mark scheme quickly.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best-fit approach for defining the level and then use the variability of the response to help decide the mark within the level.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark.

It is often best to start in the middle of the level's mark range and then check and adjust. If there is a lot of indicative content fully identifiable in the work you need to give the highest mark in the level. If only some is identifiable or it is only partially fulfilled, then give the lower mark.

The exemplar materials used during standardisation will also help. There will be an answer in the standardising materials that will correspond with each level of the mark scheme. This answer will have been awarded a mark by the lead examiner. You can compare the student's answer with the example to determine if it is of the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the lead examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

In addition to the levels descriptors, question specific indicative content is provided as a guide for examiners. This is not intended to be exhaustive and you must credit other valid points.

An answer that contains nothing of relevance to the question must be awarded no marks.

Annotating scripts

You should write a summative comment at the end for each Assessment Objective and indicate the marks for each Assessment Objective being tested at the end of the answer in the margin in sequence. It is vital that the way you arrive at a mark should be recorded on the script. This will help you with making accurate judgements and it will help any subsequent markers to identify how you are thinking. Please do not write negative comments about students' work or their alleged aptitudes.

Section A – Living with Hazards

Total for this section: 40 marks

Question	Part	Marking guidance	Total marks
01	1	Which of the following does the Park model describe in relation to natural hazards? Key – C: Responses	1 AO1=1

Question	Part	Marking guidance	Total marks
01	2	Which of the following describes movement at a conservative plate margin? Key – D: Two plates sliding past each other	1 AO1=1

Question	Part	Marking guidance	Total marks
01	3	Which of the following is a primary effect of a natural hazard? Key – D: Roads and railway lines destroyed by ground shaking	1 AO1=1

Question	Part	Marking guidance	Total marks
01	4	Which of the following is an example of wildfire mitigation? Key – D: Using satellites for early identification and warning of wildfires	1 AO1=1

Question	Part	Marking guidance	Total marks
01	5	Which of the following are BOTH causes of tropical storms? Key – B: High ocean temperatures and rising warm air	1 AO1=1

Question	Part	Marking guidance	Total marks
02		Figure 1 shows the global number of deaths caused by natural hazards (1935–2023). Figure 2 shows the global economic damage caused by natural hazards (1935–2023). Analyse the data shown in FIGURE 1 and FIGURE 2.	6 AO3=6

Level	Marks	Descriptor
2	4–6	AO3 – Clear selection and analysis of the evidence that has been provided which makes appropriate use of data to support. Clear connections between different aspects of the data.
1	1–3	AO3 – Some basic selection and analysis of the evidence that has been provided which makes limited use of data to support. Basic or limited connections between different aspects of the data.
0	0	No creditable content.

Indicative Content

The question requires the candidate to analyse the patterns shown on the two graphs. Some countries and regions have been labelled on the map to aid this. The question also requires candidates to consider links between the graphs. Credit references that use both graphs to determine an overall pattern/links between the resources.

AO3

Deaths

- Highest in early 1959 (2 million).
- 4 years over 1 million (1942, 1943, 1959, 1965).
- All other years (except 1939) under half a million.
- Generally falling but fluctuating.
- Peak years (early 1940s; 1959; 1964).
- From 2010–2023 generally low and stable (under 100 000).
- 1955–1958 – virtually no deaths.

Economic damage

- 1935–1975 – generally low costs (generally under 10 billion US \$).
- From mid 1970s onwards – general increase but fluctuating.
- Greater variation since 1995 (10 years higher than 150 billion US \$).
- 5 years over 200 billion US \$ (2005, 2011, 2017, 2021, 2022).
- Highest 2011 – 365 billion US \$.
- Highest cost (approx 365 billion US \$– 2011).

Comparisons

- Increasing economic costs but fewer deaths.
- Peak years not always the same.

Question	Part	Marking guidance	Total marks
03		Assess the importance of human factors as causes of wildfires. AO1 – Demonstrates knowledge and understanding of the human causes of wildfires. AO2 – Applies knowledge and understanding to assess the importance of human factors as a cause of wildfires.	9 AO1=4 AO2=5

Level	Marks	Descriptor
3	7–9	AO1 – Demonstrates detailed knowledge and understanding of the human causes of wildfires. AO2 – Applies detailed knowledge and understanding to assess the human causes of wildfires.
2	4–6	AO1 – Demonstrates clear knowledge and understanding of the causes of wildfires. AO2 – Applies clear knowledge and understanding to assess the causes of wildfires.
1	1–3	AO1 – Demonstrates basic knowledge and understanding of the causes of wildfires. AO2 – Applies basic knowledge and understanding to assess the causes of wildfires.
0	0	No creditable content.

Indicative Content

Knowledge and understanding should be used to assess the relative importance of human factors as causes of wildfires.

Candidates can either discuss the importance of human causes OR make relative judgements between human and physical causes.

Max level 1 response only considers physical factors.

AO1

- Knowledge and understanding of the causes of wildfires
- Specific climatic conditions can favour the development of wildfires.
- Vegetation type plays a part in combustion and spread of wildfires.

- Relief and slope can affect the spread of wildfires.
- Cyclical events can influence the risk of wildfires.
- Climate change can increase/decrease the probability of wildfires (physical and human influence).
- Land clearance (agriculture/forestry/industry) might increase the risk of wildfires.
- Leisure activities and littering increases wildfire risk.

AO2

- Assessment of the importance of human factors in causing wildfires
- The majority of wildfires are caused by human actions or a combination of human and physical factors.
- Leisure activities (campfires/barbeques) and litter (glass/cigarettes) increases wildfire risk and are major causes of wildfires.
- Controlled fires that get out of control can be a significant factor.
- Arson or simply lighting fires for fun that then get out of control can be a significant factor.
- Physical conditions increase wildfire risk but human actions often initiate wildfires.
- Climatic conditions influence wildfire risk (temperature/precipitation/winds).
- Vegetation type influences ignition and spread of wildfires (part of the natural cycle – eucalyptus – level of oil content); grasses burn more slowly.
- Slope and gravity (higher rate of spread on slopes, burning material rolling down slopes).
- Cyclical events change weather patterns, increase drought conditions (El Niño).
- Climate change changes weather conditions.
- Clearing land for economic reasons/transport developments.
- Burning as part of the farming cycle/as part of land management practices.

Question	Part	Marking guidance	Total marks
04		‘The impacts of hazards and the responses to hazards are BOTH affected by the level of economic development of a community.’ To what extent do you agree with this statement? Use ONE OR MORE examples you have studied to support your answer. AO1 – Knowledge of how the impacts and responses to hazards are influenced by the economic situation of communities. AO2 – Application of knowledge and understanding of how the impacts and responses to hazards are influenced by the economic situation of communities.	20 AO1=10 AO2=10

Level	Marks	Descriptor
4	16–20	AO2 – Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. AO2 – Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout. AO2 – Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. AO1 – Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout. AO1 – Full and accurate knowledge and understanding of key concepts and processes throughout. AO1 – Detailed awareness of scale and temporal change which is well integrated where appropriate.
3	11–15	AO2 – Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question. AO2 – Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding. AO2 – Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. AO1 – Generally clear and relevant knowledge and understanding of place(s) and environments. AO1 – Generally clear and accurate knowledge and understanding of key concepts and processes.

		AO1 – Generally clear awareness of scale and temporal change which is integrated where appropriate.
2	6–10	AO2 – Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question. AO2 – Some partially relevant analysis and evaluation in the application of knowledge and understanding. AO2 – Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. AO1 – Some relevant knowledge and understanding of place(s) and environments which is partially relevant. AO1 – Some knowledge and understanding of key concepts, processes and interactions and change. AO1 – Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies.
1	1–5	AO2 – Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question. AO2 – Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence. AO2 – Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. AO1 – Very limited relevant knowledge and understanding of place(s) and environments. AO1 – Isolated knowledge and understanding of key concepts and processes. AO1 – Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies.
0	0	No creditable content.

Indicative Content

Content will be determined by the chosen example(s).

The term 'community' can be considered at different scales (where a hazard may have affected a country – Haiti/Monserrat OR a more localised area – Fukushima/Alberta wildfires).

Candidates might use a single example and consider how the level of economic development influences the impacts and response to a hazard (tropical storms in parts of the USA OR Bangladesh; earthquakes in California OR the Philippines) OR use more than one example to make comparative observations.

Max level 2 if candidates only consider either impacts **or** responses.

AO1

- Knowledge of the socio-economic and political background related to impact and response to hazards.
- Knowledge of the immediate and longer-term impacts of hazard event(s).
- Socio-economic background of the chosen locations.
- Awareness of primary and secondary impacts of hazard events.
- How impacts and responses to hazards are influenced by the level of economic development in communities.
- An understanding that there may be other factors that influence impacts and responses (frequency of events; magnitude; physical location and accessibility; political stability).

AO2

- Examples can be drawn from different parts of the world, where there are distinct socio-economic differences which influence impacts and responses.
- An understanding of the link between response and impact in relation to hazard events.
- How the economic situation of a community might influence short- and long-term impacts and responses to hazard events. (HDE – high economic costs/low deaths; LDE – lower economic costs/higher deaths).
- The distinction between primary and secondary impacts of hazard events. (HDE – more coordinated response/preparation/planning; LDE – less coordinated approach/preparation/planning so greater short/long-term impacts).
- An understanding of how planning, preparation and response might reflect levels of development.

Section B – Hot Desert Systems and Landscapes

Total for this section: 40 marks

Question	Part	Marking guidance	Total marks
05	1	‘Heating and cooling causes rocks to expand and contract, resulting in the rock surface peeling away.’ This describes which of the following processes? Key – C: Exfoliation	1 AO1=1

Question	Part	Marking guidance	Total marks
05	2	Which of the following are both erosional landforms found in desert landscapes? Key – D: Ventifact and Yardang	1 AO1=1

Question	Part	Marking guidance	Total marks
05	3	Which of the following is a source of energy in a hot desert landscape system? Key – D: Wind	1 AO1=1

Question	Part	Marking guidance	Total marks
05	4	‘The balance of inputs, outputs, transfers and stores in a desert system.’ This describes which of the following? Key – B: Sediment budget	1 AO1=1

Question	Part	Marking guidance	Total marks
05	5	Which of the following describes a pediment? Key – B: A gently sloping area at the base of a mountain	1 AO1=1

Question	Part	Marking guidance	Total marks
06		Figure 3 shows the human causes of declining soil quality in selected dryland areas. Analyse the data shown in Figure 3.	6 AO3=6

Level	Marks	Descriptor
2	4–6	AO3 – Clear selection and analysis of the evidence that has been provided which makes appropriate use of data to support. Clear connections between different aspects of the data.
1	1–3	AO3 – Some basic selection and analysis of the evidence that has been provided which makes limited use of data to support. Basic or limited connections between different aspects of the data.
0	0	No creditable content.

Indicative Content

The question requires the candidate to analyse the data shown on the map. Continents have been labelled on the map to aid this. The question requires analysis of the total area of declining soil quality and the factors causing the decline in soil quality. Credit references that use both the total area of declining soil quality and the factors causing the decline in soil quality.

AO3

- Asia has the largest amount of declining soil quality (370.3 million ha), followed by Africa (319.4 million ha).
- The other three regions have a similar amount of declining soil quality (79.1–87.5 million ha).
- Asia/Africa has approximately four times as much degraded land with declining soil quality as the other three areas.
- The causes of declining soil quality varies, there is no clear pattern.
- Overgrazing is over 30% in all five regions, and over 50% in Oceania and Africa.
- Overgrazing is highest % in Oceania (89.7%) and lowest in Asia (32.1%).
- Deforestation is highest % in South America (40.7%) and lowest in Oceania (4.8%).
- Overcultivation is highest % in North America (52.1%) and in Oceania it is zero.
- Overexploitation for domestic use is highest % in Africa (16.9%) and lowest in Oceania (5.5%).
- All regions, except Oceania, are affected by all four reasons.
- Asia has the most even spread of causes (lowest – 11.7% and highest 32.1%).
- Oceania has the least even spread of causes (lowest – zero and highest 89.7%).

Question	Part	Marking guidance	Total marks
07		Evaluate human responses to the issues associated with desertification. Use a case study at a local scale to support your answer. AO1 – Knowledge and understanding of human responses to desertification in hot deserts. AO2 – Applies knowledge and understanding to illustrate the significance of human responses to desertification in hot deserts.	9 AO1=4 AO2=5

Level	Marks	Descriptor
3	7–9	AO1 – Demonstrates detailed knowledge and understanding of human responses to desertification in hot deserts. AO2 – Applies knowledge and understanding to illustrate the significance of human responses to desertification in hot deserts.
2	4–6	AO1 – Demonstrates clear knowledge and understanding of human responses to desertification in hot deserts. AO2 – Applies clear knowledge and understanding to illustrate the significance of human responses to desertification in hot deserts.
1	1–3	AO1 – Demonstrates basic knowledge and understanding of human responses to desertification in hot deserts. AO2 – Applies basic knowledge and understanding to illustrate the significance of human responses to desertification in hot deserts.
0	0	No creditable content.

Indicative Content

AO1

- Human responses to the problem of desertification in relation to hot desert environments (resilience; mitigation; adaptation).
- Resilience – the ability of a system to deal with change (water harvesting and conservation; sustainable land management).
- Mitigation – reducing the risk of desertification (sustainable farming methods; water management; tree planting; reducing the need for biomass energy).
- Adaptation – adapting to changing conditions (changing farming methods and types of crops; reducing the amount of animals; using different energy sources; more efficient systems of water management).
- Possible strategies used to reduce/manage desertification – examples may include, tree planting, changing farming practices, water management schemes, soil improvement schemes, using different energy sources, use of appropriate technology.

AO2

- Responses might consider specific examples of management practices OR evaluate the general ideas of, resilience, mitigation and adaptation.
- The importance of resilience such as water harvesting and conservation; sustainable land management.
- The role played by mitigation, reducing the risk of desertification – sustainable farming methods; water management; tree planting; reducing the need for biomass energy.
- Adaptation – adapting to changing conditions – changing farming methods and types of crops; reducing the number of animals; using different energy sources; more efficient systems of water management
- The extent to which management strategies can reduce/manage the issues caused by desertification.
- The extent to which management strategies can manage specific issues which cause desertification.
- An evaluation of the selected methods identified in terms of how effective they have been in managing the issues of desertification.

Question	Part	Marking guidance	Total marks
08		To what extent is wind the most important factor in shaping desert landscapes? AO1 – Knowledge of the physical factors (wind and water) that shape desert landscapes. AO2 – Application of knowledge and understanding to evaluate the relative significance of the different factors (wind and water) that shape desert landscapes.	20 AO1=10 AO2=10

Level	Marks	Descriptor
4	16–20	AO2 – Detailed evaluative conclusion that is rational and firmly based on knowledge and understanding which is applied to the context of the question. AO2 – Detailed, coherent and relevant analysis and evaluation in the application of knowledge and understanding throughout. AO2 – Full evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. AO1 – Detailed, highly relevant and appropriate knowledge and understanding of place(s) and environments used throughout. AO1 – Full and accurate knowledge and understanding of key concepts and processes throughout. AO1 – Detailed awareness of scale and temporal change which is well integrated where appropriate.
3	11–15	AO2 – Clear evaluative conclusion that is based on knowledge and understanding which is applied to the context of the question. AO2 – Generally clear, coherent and relevant analysis and evaluation in the application of knowledge and understanding. AO2 – Generally clear evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. AO1 – Generally clear and relevant knowledge and understanding of place(s) and environments. AO1 – Generally clear and accurate knowledge and understanding of key concepts and processes. AO1 – Generally clear awareness of scale and temporal change which is integrated where appropriate.
2	6–10	AO2 – Some sense of an evaluative conclusion partially based upon knowledge and understanding which is applied to the context of the question.

		A02 – Some partially-relevant analysis and evaluation in the application of knowledge and understanding. A02 – Some evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. A01 – Some relevant knowledge and understanding of place(s) and environments which is partially relevant. A01 – Some knowledge and understanding of key concepts, processes and interactions and change. A01 – Some awareness of scale and temporal change which is sometimes integrated where appropriate. There may be a few inaccuracies.
1	1–5	A02 – Very limited and/or unsupported evaluative conclusion that is loosely based upon knowledge and understanding which is applied to the context of the question. A02 – Very limited analysis and evaluation in the application of knowledge and understanding. This lacks clarity and coherence. A02 – Very limited and rarely logical evidence of links between knowledge and understanding to the application of knowledge and understanding in different contexts. A01 – Very limited relevant knowledge and understanding of place(s) and environments. A01 – Isolated knowledge and understanding of key concepts and processes. A01 – Very limited awareness of scale and temporal change which is rarely integrated where appropriate. There may be a number of inaccuracies.
0	0	No creditable content.

Indicative Content

AO1

- How weathering breaks down rocks in hot deserts.
- The processes of weathering, erosion and deposition that shape hot desert landscapes.
- Different processes of weathering in hot deserts (mechanical; chemical).
- Processes of wind action in hot deserts including erosion, transportation and deposition.
- Landforms resulting from wind processes such as deflation hollows; desert pavements; ventifacts; yardangs; zeugen; sand dunes.
- The role of water in hot deserts.
- Landforms resulting from water processes such as wadis; alluvial fans; playas; pediments; canyons; mesas; buttes; inselbergs.
- The effect of time in shaping hot desert landscapes and how the influence of processes may change over time.

AO2

- The role of wind action in shaping desert landscapes and creates distinctive landforms in hot deserts such as deflation hollows; desert pavements; ventifacts; yardangs; zeugen; sand dunes.
- The extent to which water has a role in shaping desert landscapes and creates distinctive landforms in hot deserts such as wadis; alluvial fans; playas; pediments; canyons; mesas; buttes; inselbergs.
- The role of both wind and water processes are significant in shaping hot desert landscapes.
- Understanding that both wind and water are significant processes, and their relative significance may vary in relation to different locations.
- The relative significance of different factors may change over time in relation to the climatic conditions (changing precipitation and wind patterns may make the influence of water and wind more/less significant).

Assessment Objective grid

	AO1	AO2	AO3	Total
Section A				
01.1	1			1
01.2	1			1
01.3	1			1
01.4	1			1
01.5	1			1
02			6	6
03	4	5		9
04	10	10		20
Section B				
05.1	1			1
05.2	1			1
05.3	1			1
05.4	1			1
05.5	1			1
06			6	6
07	4	5		9
08	10	10		20
Unit total	38	30	12	80