



Cambridge Pre-U

GEOGRAPHY

9768/03

Paper 3 Geographical Issues

May/June 2023

MARK SCHEME

Maximum Mark: 105

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.

Generic Mark Scheme (GMS)

Level	Marks	Assessment criteria
5	22–25	<ul style="list-style-type: none"> • Wide-ranging, detailed and accurate knowledge and clear, high order understanding of the subject content • Relevant, detailed and accurate exemplification used effectively • Logical and clear organisation; good English expression; full and accurate use of geographical terminology • Well annotated and executed sketch maps/diagrams integrated fully with the text • Fully focused on the specific demands of the question • Systematic analysis and a critical approach to evaluation; appropriate application of concepts and theories • Conclusion shows high level insight and is logical and well founded on evidence and argument
4	18–21	<ul style="list-style-type: none"> • Good knowledge and depth of understanding of the subject content • Appropriate and well developed exemplification • Logical organisation; sound English expression; appropriate use of geographical terminology • Clearly annotated sketch maps/diagrams well integrated with the text • Well focused on the demands of the question • Elements of systematic analysis and ability to evaluate; generally appropriate application of concepts and theories • Conclusion is sound and based on evidence and argument
3	14–17	<ul style="list-style-type: none"> • Sound knowledge and understanding of the subject content lacking depth in some areas • Appropriate but partial exemplification, may not be integrated with the text • Generally clear communication but lacking some organisation; English expression and use of geographical terminology are mostly accurate • Sketch maps/diagrams generally used effectively and appropriately • Specific demands of the question mostly met • Some ability to analyse and evaluate; limited application of concepts and theories • Conclusion is limited and has some links to the rest of the response
2	10–13	<ul style="list-style-type: none"> • Some knowledge and understanding of the subject content lacking depth and detail • Exemplification used may be limited or not fully appropriate • Limited organisation; English expression is basic with some accurate use of geographical terminology • Sketch maps/diagrams may have inaccuracies and limited relevance • Question is addressed broadly or partially • Analysis, evaluation and application of concepts and theories are limited and may be superficial • Conclusion is basic and may not be linked to the rest of the response

Level	Marks	Assessment criteria
1	1–9	<ul style="list-style-type: none"> • Little knowledge and understanding of the subject content; response may also contain unconnected material • Exemplification, if used, is simple and poorly related to the text or may not be relevant • Lack of clarity and organisation; English expression is simple with inaccuracies; geographical terminology, if used, is basic or not understood • Sketch maps/diagrams are limited or poorly executed and may lack relevance • Question is understood weakly and may be addressed slightly • Superficial statements replace analysis and evaluation; application of concepts and theories may be minimal or absent • Conclusion may be absent or simply asserted
0	0	<ul style="list-style-type: none"> • No creditable response.

Section A

Answer **two** questions from this section.

Tectonic hazards

Question	Answer	Marks
1(a)	<p>Fig. 1.1 shows the distribution and recurrence intervals of lahars from Mount Rainier volcano, Washington state, USA.</p> <p>State two characteristics of lahars.</p> <p>There are several characteristics that could be mentioned:</p> <ul style="list-style-type: none"> • High content of ash and water • Travel at high speeds • Move large distance away from source of eruption • Tend to travel along channels <p>There are other characteristics that might be mentioned. Any two for two marks.</p>	2
1(b)	<p>Describe the distribution and recurrence intervals of lahars shown in Fig. 1.1.</p> <p>There needs to be a discussion of both distribution and recurrence intervals:</p> <ul style="list-style-type: none"> • Moderate size lahars can travel as far as large size lahars • Smallest size lahars are near/adjacent to Mt Rainier • All follow pre-existing channels • Most flow to the west or north-west • Some moderate volume lahars reach the coast • Small size lahars with low recurrence intervals are very limited in their extent <p>There does not need to be equal coverage of distribution and recurrence intervals but both have to be mentioned for full marks.</p>	4

Question	Answer	Marks
1(c)	<p>Briefly explain the formation of lahars.</p> <p>Indicative content:</p> <p>Lahars are fast moving volcanic mudflows, thus the explanation will be in terms of origin and nature of the materials involved (mostly ash) and source of water (melted snow and ice on the summit, intense rainfall often the result of thunderstorms created by the heat of the volcano). Lahars can occur any time after the eruption if there is a covering of unstable ash on the slopes. The explanation of movement is the same as for non-volcanic mudflows.</p> <ul style="list-style-type: none"> • Water from precipitation or snow melt • Increased weight caused by the weight of water • Reduced cohesion by increased water pressure in the fine-grained material • Steep slopes on the flanks of the volcano increasing the effect of gravity • Highly fluid thus follow pre-existing channels <p>Candidates show:</p> <p>Level 3 4–5 A thorough understanding of the formation of lahars with the use of examples.</p> <p>Level 2 2–3 Some understanding of the formation of lahars. Specific examples may be lacking in detail or lacking completely.</p> <p>Level 1 0–1 Little understanding of the formation of lahars with no relevant examples.</p>	5

Question	Answer	Marks
1(d)	<p>Assess the extent to which the products of volcanic eruptions vary in scale and impact.</p> <p>Indicative content:</p> <p>There needs to be an analysis of the various types of eruption and their associated products (e.g. ash falls, lava, pyroclastic flows, lahars, volcanic bombs, gas) with an assessment as to how these products vary in scale and damage potential. Ash falls can cover very large areas. Pyroclastic flows are theoretically the most damaging because of speed and high temperatures. Lava flows are slower and it might be possible to slow their movement and even divert them. Damage potential is usually associated with scale but might not be.</p> <p>Candidates show:</p> <p>Level 3 8–9 A thorough assessment of the extent to which the products of volcanic eruptions vary in scale and impact with the use of relevant examples.</p> <p>Level 2 5–7 A partial assessment of the extent to which the products of volcanic eruptions vary in scale and impact with the limited use of relevant examples.</p> <p>Level 1 0–4 A superficial assessment of the extent to which the products of volcanic eruptions vary in scale and impact with few, if any, relevant examples.</p>	9

Meteorological hazards

Question	Answer	Marks												
2(a)	<p>Fig. 2.1 shows the global distribution, tracks and timing of tropical cyclones.</p> <p>Name two types of local scale meteorological hazards.</p> <p>The syllabus lists: tornadoes, hail, blizzards, fog</p>	2												
2(b)	<p>Describe the global distribution and tracks of the tropical cyclones shown in Fig. 2.1.</p> <p>The main points that could be mentioned, often in combination, are:</p> <ul style="list-style-type: none"> • Distribution is over oceans • North and south of the equator • Move in a curved path, west and north-west in the northern hemisphere • Move south and south-west in the southern hemisphere • Mention might be made of the fact that none occur in the South Atlantic • More in the northern hemisphere • West movement off the west coast of North America is an anomaly <p>Any four points singly or in combination.</p>	4												
2(c)	<p>Briefly explain the formation of tropical cyclones.</p> <p>Indicative content:</p> <p>The explanation will revolve around the need for high surface water temperatures for intense evaporation and rapid uplift of moisture laden air, thus late summer/autumn in the tropics (August to November in the northern hemisphere and January to March in the southern hemisphere). Rapid uplift and latent heat produced by condensation leads to increased uplift. The direction of movement is the result of the Coriolis force (east to west) which is greatest on either side of the equator.</p> <p>Candidates show:</p> <table style="width: 100%; border: none;"> <tr> <td style="padding-left: 20px;">Level 3</td> <td style="text-align: right;">4–5</td> </tr> <tr> <td colspan="2">A thorough explanation of the formation of tropical cyclones.</td> </tr> <tr> <td style="padding-left: 20px;">Level 2</td> <td style="text-align: right;">2–3</td> </tr> <tr> <td colspan="2">Some explanation of the formation of tropical cyclones.</td> </tr> <tr> <td style="padding-left: 20px;">Level 1</td> <td style="text-align: right;">0–1</td> </tr> <tr> <td colspan="2">Little explanation of the formation of tropical cyclones.</td> </tr> </table>	Level 3	4–5	A thorough explanation of the formation of tropical cyclones.		Level 2	2–3	Some explanation of the formation of tropical cyclones.		Level 1	0–1	Little explanation of the formation of tropical cyclones.		5
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Question	Answer	Marks
2(d)	<p>'It is easier to modify the loss associated with local scale meteorological hazards than it is to modify the loss associated with regional scale meteorological hazards.'</p> <p>How far do you agree with this statement?</p> <p>Indicative content:</p> <p>The key is a description and analysis of the hazards associated with both local (tornadoes, hail, blizzards, fog) and regional scale meteorological hazards (tropical storms and cyclones). The basic analysis will probably be in terms of the scale and intensity of the hazards with regional scale probably thought to be more difficult to deal with. But modifying the loss is also a function of being able to predict the scale and intensity of the hazard. Thus, it might be thought that tornadoes, as they are more difficult to predict, might make it more difficult to modify the loss.</p> <p>Candidates show:</p> <p>Level 3 8–9 A thorough understanding and assessment of the question with relevant examples.</p> <p>Level 2 5–7 A partial understanding and assessment of the question with limited examples.</p> <p>Level 1 0–4 A superficial understanding and assessment of the question with few relevant examples.</p>	9

Hydrological hazards

Question	Answer	Marks
3(a)	<p>Fig. 3.1 shows annual discharges of the River Don and River Derwent, England, 1960–2015.</p> <p>Define the hydrological term <i>water deficit</i>.</p> <p>Water deficit is when water demand (1 mark) exceeds water supply (1 mark).</p> <p>A technical definition is: the cumulative difference between potential evapotranspiration (1 mark) and precipitation (1 mark).</p>	2
3(b)	<p>Compare the trend in the annual discharge of the River Don with the trend in the annual discharge of the River Derwent shown in Fig. 3.1.</p> <p>The main points that could be mentioned are:</p> <ul style="list-style-type: none"> • River Don has an overall rising trend whereas that of the River Derwent is a level trend • River Don has larger fluctuations in the trend than the River Derwent • River Don also has a larger range • River Derwent has a period, 1980–1995, when the trend is approximately level, River Don has very few years with a limited trend <p>Use of data, both discharge and year, is needed for full marks.</p>	4

Question	Answer	Marks
3(c)	<p>Outline factors that might affect annual river regimes.</p> <p>Indicative content:</p> <p>Annual river regimes are affected by factors that occur through the year that vary the amount of water reaching the river and not by permanent features of the drainage basin. Thus:</p> <ul style="list-style-type: none"> • Rainfall distribution throughout the year • Possibility of snow melt in the spring • Growth of leaves on deciduous trees reducing volume of water reaching the ground • Annual vegetation growth increasing evapotranspiration • Seasonal land use practices which will affect the flows and stores in the drainage basin <p>There are others that could be mentioned.</p> <p>Candidates show:</p> <p>Level 3 4–5 A thorough understanding of the factors that might affect annual river regimes with relevant examples.</p> <p>Level 2 2–3 A partial understanding of the factors that might affect annual river regimes with limited examples.</p> <p>Level 1 0–1 A superficial understanding of the factors that might affect annual river regimes.</p>	5

Question	Answer	Marks
3(d)	<p>'Intensity of rainfall is the most significant cause of river flooding.' How far do you agree with this statement?</p> <p>Indicative content:</p> <p>Floods are caused by the amount of water reaching the river channel. Rainfall is an important contribution but is intensity rather than amount the most significant factor? This could form part of the analysis. Snow/glacier melt is also significant as could be disasters such as dam collapse. It could also be argued that there are other factors (such as vegetation type, rock type and soils, land use changes) probably in combination – the analysis should be in terms of most significant factor. Evaluation of this plus the detail provided for the assessment will determine the level awarded.</p> <p>Candidates show:</p> <p>Level 3 8–9 A thorough assessment of the question with relevant examples.</p> <p>Level 2 5–7 A partial assessment of the question with limited examples.</p> <p>Level 1 0–4 A superficial assessment of the question with no or only partially relevant examples.</p>	9

Section BAnswer **two** questions from this section.**Crime issues**

Question	Answer	Marks
4(a)	<p>Fig. 4.1 shows the violent crime rate for the Metropolitan Police area, London, compared to the national violent crime rate, February 2018 to January 2019.</p> <p>State two crimes against property.</p> <p>The syllabus lists burglary, car crime and graffiti but there are others that could be mentioned.</p>	2
4(b)	<p>Describe the pattern of the violent crime rate percentage for the Metropolitan Police area shown in Fig. 4.1.</p> <p>Points that could be mentioned are:</p> <ul style="list-style-type: none"> • Low rates mostly in the west but with localised areas of higher rates • A central core of low rates • Moderate rates in the east • Small, isolated pockets of high rates mostly in the north-east • Localised areas with the highest rates <p>Four relevant general observations for four marks.</p>	4

Question	Answer	Marks
4(c)	<p>Suggest how high levels of criminal activity may have an economic impact on communities.</p> <p>Indicative content:</p> <p>Economic impacts on communities can be both direct and indirect. The effects on individuals can also have an effect of communities. Thus, burglary of local shops could have an effect on communities.</p> <p>Points that could be considered:</p> <ul style="list-style-type: none"> • Property prices can be affected • Home insurance premiums might rise • New businesses may avoid areas • Businesses might close down • Damage to property • Cost of target hardening • Personal injury – time off work etc. <p>Candidates show:</p> <p>Level 3 4–5 A thorough understanding as to how high levels of criminal activity may have an economic impact on communities.</p> <p>Level 2 2–3 A partial understanding as to how high levels of criminal activity may have an economic impact on communities.</p> <p>Level 1 0–1 A superficial understanding as to how high levels of criminal activity may have an economic impact on communities.</p>	5

Question	Answer	Marks
4(d)	<p>Assess the ways in which the characteristics of the physical and built environment may promote vulnerability to crime.</p> <p>Indicative content:</p> <p>The syllabus lists street layout and lighting, building design, height and density, presence of vegetation and amount of open space. But there are others that could be part of the analysis. The key is in terms of the assessment and examples that are used as the basis for that assessment.</p> <p>Candidates show:</p> <p>Level 3 8–9 A thorough understanding and a realistic assessment of the ways in which characteristics of the physical and built environment may promote vulnerability to crime with a good range of examples.</p> <p>Level 2 5–7 A partial understanding of the ways in which characteristics of the physical and built environment may promote vulnerability to crime with a limited range of examples.</p> <p>Level 1 0–4 Little understanding and a basic assessment of the ways in which characteristics of the physical and built environment may promote vulnerability to crime with minimal examples.</p>	9

Health issues

Question	Answer	Marks
5(a)	<p>Fig. 5.1 shows the global distribution of endemic malaria.</p> <p>State two environmental factors influencing health and the spread of disease.</p> <p>The syllabus lists climate change, pollution and water-borne diseases but there are other relevant factors that could be mentioned.</p>	2
5(b)	<p>Describe the global distribution of endemic malaria shown in Fig. 5.1.</p> <p>Points that could be mentioned are:</p> <ul style="list-style-type: none"> • Located in the tropics and sub-tropics • Very high endemicity in Central Africa • Moderate to low endemicity in South America • South and Southeast Asia moderate to low endemicity • No areas in Europe, USA and Australia <p>Four relevant points for four marks.</p>	4
5(c)	<p>Briefly explain how industry might be a cause of variations in health.</p> <p>Indicative content:</p> <p>The syllabus lists industrial diseases such as silicosis, but there are others such as asbestosis, hearing loss and industrial accidents. Generally working conditions will also have an effect on health. Primary industry, by its very nature, is more likely to have health-related issues than secondary industry. Quaternary industry may lead to health issues because of sedentary working environments. Industry can lead to economic development and the provision of better health services. Variations could be interpreted as variations in type, as well as spatial and temporal variations.</p> <p>Candidates show:</p> <p>Level 3 4–5 A well-balanced and thorough understanding as to how industry might be a cause of variations in health.</p> <p>Level 2 2–3 An unbalanced and partial understanding as to how industry might be a cause of variations in health.</p> <p>Level 1 0–1 Little understanding as to how industry might be a cause of variations in health.</p>	5

Question	Answer	Marks
5(d)	<p>‘Diet is the most significant factor influencing health and welfare.’ How far do you agree with this statement?</p> <p>Indicative content:</p> <p>This is a very broad question that can be answered in many ways. However, the discussion needs to focus on the way that diet might affect health and welfare. Diet could include specific foodstuffs or generally too much and too little food. In highly developed countries diet may be a contributory factor in obesity, diabetes and heart problems. In other areas, malnutrition may be a significant problem. These need to be seen in combination with other factors that are many and varied as it is an evaluative question.</p> <p>Candidates show:</p> <p>Level 3 8–9 A thorough understanding and realistic assessment as to whether diet is the most significant factor, compared to other relevant factors, influencing health and welfare.</p> <p>Level 2 5–7 A partial understanding and limited assessment as to whether diet is the most significant factor. Discussion of other relevant factors will be limited.</p> <p>Level 1 0–4 Little understanding and severely limited assessment as to whether diet is the most significant factor. There will be little discussion of other factors.</p>	9

Spatial inequality and poverty issues

Question	Answer	Marks
6(a)	<p>Fig. 6.1 shows multiple deprivation in Southampton, 2015.</p> <p>Define <i>social exclusion</i>.</p> <p>The lack of or denial of rights, goods, services etc. (1 mark) available to the majority of people in society (1 mark).</p>	2
6(b)	<p>Describe the distribution of multiple deprivation in Southampton shown in Fig. 6.1.</p> <p>The points that could be made are:</p> <ul style="list-style-type: none"> • Generally highly variable • Least deprivation in the north central area (Bassett, Shirley, Portswood) and south and south-east • High deprivation generally in patches around the periphery • Scattering of medium level deprivation <p>Reserve one mark for use of data from the map, this could be names of wards or deprivation levels.</p>	4
6(c)	<p>Briefly explain how economic growth can affect levels of poverty and inequality at a regional scale.</p> <p>Indicative content:</p> <p>The basis of an answer could be a discussion of differential economic growth between regions which forms the basis of the core-periphery idea and how economic growth in the core area or lack of growth in the periphery can influence the provision of services, jobs and increase levels of poverty and inequality. However, economic growth can also reduce inequality at the regional scale.</p> <p>Candidates show:</p> <p>Level 3 4–5 A thorough and well-balanced understanding as to how different levels of economic growth can affect levels of poverty and inequality at a regional scale.</p> <p>Level 2 2–3 A partial understanding as to how different levels of economic growth can affect levels of poverty and inequality at a regional scale.</p> <p>Level 1 0–1 Little understanding as to how different levels of economic growth can affect levels of poverty and inequality at a regional scale.</p>	5

Question	Answer	Marks
6(d)	<p>'Major international events are the most effective way of reducing inequality and poverty.'</p> <p>How far do you agree with this statement?</p> <p>Indicative content:</p> <p>Major international events provide jobs, both directly and indirectly, and perhaps improved infrastructure such as transport and communications and other services. Increased prestige might also be significant in the long term. The evaluation needs to consider 'most effective' and many answers might take a negative point of view. Also, there is the issue as to whether the effect of the event will 'trickle down' to alleviate poverty and inequality.</p> <p>Candidates show:</p> <p>Level 3 8–9 A thorough understanding and realistic assessment of the question with use of relevant specific examples.</p> <p>Level 2 5–7 A partial understanding and limited assessment of the question with few specific examples.</p> <p>Level 1 0–4 Little understanding and very limited assessment of the question with no or limited examples.</p>	9

Section CAnswer **one** question from this section.

Question	Answer	Marks
7	<p>With reference to the geographical issues of an area you have studied, assess the extent to which government action has reduced the problems faced.</p> <p>Your answer should refer to one or more of the following issues: crime, health or spatial inequality and poverty.</p> <p>Indicative content:</p> <p>The key is the description and analysis of the geographical issues that are chosen to assess the extent to which government action has reduced the problems associated with these issues. The issues can be taken from any of the three geographical issues in the syllabus (crime, health, spatial inequality and poverty).</p> <p>At lower levels, candidates will experience problems in relating government action to the problems faced and the range of issues discussed will be small. At higher levels, candidates will have a firm knowledge and understanding of a range of issues/problems faced and be able to discuss the effect of government action in dealing with these issues.</p>	25

Question	Answer	Marks
8	<p>‘Most geographical issues are the result of high population densities.’</p> <p>With reference to one or more issues (crime, health or spatial inequality and poverty), how far do you agree with this statement?</p> <p>Indicative content:</p> <p>As the question states, the issues can be taken from any of the three geographical issues in the syllabus (crime, health, spatial inequality and poverty). There is no necessity to cover all of them as much will depend on the issues chosen for study. However, within each of the elements there needs to be a range of separate issues.</p> <p>At lower levels, candidates will experience problems in discussing a range of issues and relating those issues to high population densities. At higher levels, candidates will be able to examine a wide range of issues and be able to examine whether they are the result of high population densities.</p>	25

Question	Answer	Marks
9	<p>‘The successful management of the impacts of geographical hazards depends more on the frequency of the hazards than their magnitude.’</p> <p>With reference to one or more hazards (tectonic, meteorological and hydrological), how far do you agree with this statement?</p> <p>Indicative content:</p> <p>The key is the understanding of the nature of geographical hazards chosen to discuss. The range of hazards discussed needs to be of sufficient variety so that the importance of both frequency and magnitude can be assessed.</p> <p>At lower levels, candidates will experience problems in relating the frequency and magnitude of the hazards to their successful management. At higher levels, candidates will have a firm understanding of the hazards and their successful management.</p>	25