



Cambridge Pre-U

GEOGRAPHY

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Paper 4 Research Topic

May/June 2022

MARK SCHEME

Maximum Mark: 35

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.

Section A: Central Business DistrictsAnswer **both** questions: Question 1 and Question 2

Question	Answer	Marks
1(a)	<p>Study Fig. 1.1, which shows part of the Central Business District (CBD) of a major UK city.</p> <p>Using Fig. 1.1, state <u>two</u> pieces of evidence which suggest that this is part of the CBD.</p> <p>1 mark each for any two of the following:</p> <ul style="list-style-type: none"> • Very large church/cathedral • High rise office blocks • Narrow streets • Haphazard street pattern • High density buildings • Evidence of high-rise construction • Buildings of contrasting ages/styles • Other valid pieces of evidence 	2
1(b)	<p>Study Fig. 1.2, which shows the location of shops and financial services in the CBD of Hexham, a market town in Northumberland, UK.</p> <p>Compare the distribution of shops with financial services in the CBD shown in Fig. 1.2.</p> <p>Accept any valid comparisons. Reserve 1 mark for supporting reference to the map/compass directions/scale.</p> <ul style="list-style-type: none"> • Finance almost completely run E/W along Battle Hill, Cattle Market and Priestpople whereas shops run predominantly N/S along Fore Street, Market Place and Market Street • Shops cover a much larger area than Finance • Many outliers of shops e.g. SE of map whereas almost no outliers of Finance (except Pudding Row and Beaumont Street) 	4

Question	Answer	Marks
1(c)	<p>Study Fig. 1.3, which shows rateable values along two transects through the CBD of Hexham.</p> <p>Using Fig. 1.3, to what extent are the rateable values along the two transects similar?</p> <p>Accept any reasonable comparisons which could be valid, but there must be clear reference to/support from Fig. 1.3. A common approach might be to consider similarities first, then differences, then arrive at a judgement. Any well supported judgement is acceptable but expect many to suggest there are very few similarities.</p> <p>The following comparisons might be made:</p> <ul style="list-style-type: none"> • Similar values between 50 and 150 m • Both rise between 50 and 200 m • Both experience a max at 200 m • Rateable values lower overall W–E than N–S • Greatest difference is at 300 m (150 v 550) • Between 0 and 200 m N–S starts higher and rises more quickly than W–E • From 200 m N–S falls then rises then falls again to 350 at 400 m, but W–E there's a steady fall from 450 to 50 at 400 m <p>Level 3 (5–6) Clearly addresses the judgment aspect of the question. Accurate data support from the resources to support the assessment.</p> <p>Level 2 (3–4) Some attempt at a judgement, but they may be incomplete or address only N–S or only W–E. There may be some data support at the top end of this level.</p> <p>Level 1 (0–2) Little attempt to address the question; simple description. Data support inaccurate or lacking.</p>	6

Question	Answer	Marks
1(d)	<p>Assess the value of Figs. 1.1, 1.2 and 1.3 to those responsible for managing the CBDs of towns and cities.</p> <p>An opportunity for candidates to explore the strengths and limitations of the three resources provided to those responsible for managing CBDs. An approach based on sustainable management principles would enable the value of these Figs to be more easily judged.</p> <p>Strengths of Figs. 1.1 and 1.2 and 1.3 are the good visual impression and (for Figs. 1.2 and 1.3) the ease of comparison. The phrase ‘assess the value’ allows candidates to address not only what is there but also what is not e.g. Fig. 1.1 is missing labels, Fig. 1.2 has no date and is missing other land uses, and Fig. 1.3 is also undated and the exact location of the 2 transects is not specified.</p> <p>A range of other information would be useful – social and economic characteristics of the shoppers, ease of access, nature of office activities, car parking available, public transport options, along with planning issues and grants available from local and national government (e.g. Portas money).</p> <p>The command word ‘assess’ requires an assessment to be made and the best answers will address this by considering the advantages and limitations of the resources and then producing an assessment of their usefulness.</p> <p>Level 3 (6–8) A clear understanding of the strengths and limitations of the resources with evaluation to the fore. Knowledge of other resources/information which would be of use. Mature assessment.</p> <p>Level 2 (3–5) Discussion of the pros and cons of the resources but assessment weakly developed. Very limited knowledge of other resources which may be of use. Provides support for some observations.</p> <p>Level 1 (0–2) Little understanding of the question, perhaps simple description of the data. Support is inaccurate or lacking.</p>	8

Question	Answer	Marks
2(a)	<p>Study Fig. 2.1, which shows office buildings in Tokyo built between 1998 and 2018.</p> <p>Compare the location and height of the office buildings within the CBD with those outside the CBD shown in Fig. 2.1.</p> <p>Only 5 marks available so look for the quality of the comparisons. Both location and height are required. Accept any valid comparisons.</p> <p>Points made might include:</p> <ul style="list-style-type: none"> • Within the CBD a wide range of heights (up to 99 floors) but outside the CBD predominantly less floors (up to 45 floors)/fewer 46–99 floors • From 10 to 15 km much fewer/scattered and lower number of floors • Outside the CBD major concentrations centred around the 3 major stations Shinagawa, Shibuya and Ikebukuro, whereas in the CBD there is more of a linear pattern (NNE to SSW) and from the centre out towards the major stations (excluding Ikebukuro) <p>Level 3 (4–5) Clear and detailed comparisons of both location and height. Fig. 2.1 is well used to support the points.</p> <p>Level 2 (2–3) A valid attempt to address the question. The comparisons are weakly supported or incomplete. Limited map evidence is used to support the points made.</p> <p>Level 1 (0–1) Little attempt to address the question; faulty use of data.</p>	5

Question	Answer	Marks
2(b)	<p>‘Some towns and cities have been more successful in the sustainable management of their CBDs than others.’ From your wider study of Central Business Districts, how far do you agree?</p> <p>Given the mark and time (18 mins) allocation, there is no expectation of a comprehensive answer. Quality of argument will be the main discriminator rather than breadth of knowledge.</p> <p>An opportunity here for candidates to use the knowledge gained from their individual research.</p> <p>Credit well those who are able to support their explanation with useful exemplar support and address both ‘more successful’ and ‘than others’.</p> <p>There are a wide range of valid approaches and much will depend on the example towns and cities chosen. Some avenues which may be explored include the scale and nature of the problems, available funding, the skill and willingness of local and national governments.</p> <p>Accept any reasonable attempt to define success – for example, the evaluation may be framed within economic, social and environmental dimensions or within a sustainability context.</p> <p>Level 3 (8–10) A clear focus on the question with appropriate exemplar support. ‘Than others’ is addressed. There is a sophisticated understanding of the role of a number of factors. The answer is well supported.</p> <p>Level 2 (5–7) Provides explanation, but mostly focused on those cities which have been more successful. Provides some support. Sound knowledge and understanding, but overall lacking depth. May be limited in range, in explanation or in exemplification.</p> <p>Level 1 (0–4) The approach is largely descriptive and superficial with little or no attempt to address the question. Little exemplar support.</p>	10

Section B: Retail PatternsAnswer **both** questions: Question 3 and Question 4

Question	Answer	Marks
3(a)	<p>Study Fig. 3.1, which shows land use percentages in three shopping malls in the centre of Dundee, Scotland.</p> <p>Giving evidence from Fig. 3.1, which land use has the greatest range of values?</p> <ul style="list-style-type: none"> • Units selling comparison goods (1) • 60 or 85 to 25 (1) 	2
3(b)	<p>Using Fig. 3.1, compare the land use percentages in each of the three shopping malls.</p> <p>Accept any valid comparisons (both sides must be present) at 1 mark each. If no data support max. 3 marks.</p> <p>Some points which might be made:</p> <ul style="list-style-type: none"> • Overgate dominated by Comparison (85%) – more than twice as much as in the Forum and more than triple Wellgate • Wellgate predominantly Vacant (62%) – more than twice as much as comparison (25%) • Forum Centre Comparison and Vacant equal at about 37/38%, followed by Non-retail (15%) then Convenience (10%) 	4

Question	Answer	Marks
3(c)	<p>Study Fig. 3.2, which shows the distribution of takeaway food outlets in the centre of Dundee, 2019.</p> <p>Using Fig. 3.2, to what extent is there a clustering of the takeaway food outlets shown?</p> <p>There are only 6 marks available. Accept any valid comments about zoning/clustering.</p> <p>Some points which might be made:</p> <ul style="list-style-type: none"> • English/Scottish food – seem to be clustered around Caird Hall with some outliers e.g. to the N, near the Wellgate Centre and to the West • Italian/Indian/others food – a more linear pattern (ENE to WSW), again centred on Caird Hall. Strength of zoning not so strong as English/Scottish. Some outliers (HMS Unicorn to the E, Hawkhill to the West) • Chinese food – much more peripheral than the other two groups, predominantly to the N and E. Little evidence of clustering <p>The best answers will address ‘to what extent’, perhaps by making some comment about the strength of the clustering. Accept any judgement as long as it is backed up by the evidence quoted.</p> <p>Level 3 (5–6) Clear and detailed account well focussed on the question, covering the evaluative aspect of the question. The discussion will be well supported with clear reference from Fig. 3.2.</p> <p>Level 2 (3–4) Some useful points with some reference/support from Fig. 3.2. There may be brief reference to anomalies or support from Fig. 3.2 may be incomplete. Evaluation will lack depth.</p> <p>Level 1 (0–2) Little attempt to address the question; simple description with no reference to the question. Data support poorly chosen or inaccurate or lacking.</p>	6

Question	Answer	Marks
3(d)	<p>Assess the strengths and limitations of Figs. 3.1 and 3.2 to those responsible for the sustainable management of retailing in town centres.</p> <p>One approach would be to start by defining the term sustainable management which would enable candidates to make a meaningful assessment.</p> <p>Some points which might be made include:</p> <p>Fig. 3.1 – gives a good visual impression of types of land use over three shopping areas within the centre of Dundee. However, the graph is undated and does not cover the whole of the town centre. Additionally, some terms in the key might need explaining.</p> <p>Fig. 3.2 – the map gives a good visual impression and is dated. However, it covers only one type of retail.</p> <p>Clearly, a multitude of other data would be useful (pedestrian flows, rates, planning restrictions etc.). Accept any reasonable suggestions.</p> <p>A good answer will make a judgement of the value of the Figs to sustainable management, supported by the comments made in the discussion.</p> <p>Level 3 (6–8) A clear understanding of the strengths and limitations of the resources with evaluation to the fore. Knowledge of other resources/information which would be of use. Mature assessment.</p> <p>Level 2 (3–5) Discussion of the pros and cons of the resources but assessment weakly developed. Very limited knowledge of other resources which may be of use. Provides support for some observations.</p> <p>Level 1 (0–2) Little understanding of the question, perhaps simple description of the data. Support is inaccurate or lacking.</p>	8

Question	Answer	Marks
4(a)	<p>Study Fig. 4.1, which shows the number of store openings and closures in England, Scotland and Wales, 2014–2019.</p> <p>‘The number of stores in England, Scotland and Wales is on the decline.’ How far does Fig. 4.1 support this statement?</p> <p>Only 5 marks are available so do not expect much depth.</p> <p>Accept a judgement anywhere on the spectrum as long as it is supported by the evidence.</p> <p>Some points which might be made:</p> <ul style="list-style-type: none"> • 2014 to 2017 net closures of stores on decline (from 2049 to 0) • Since 2017 net closures increase (4402 in 2018) then decline (3647) • Agreement with statement, but the overall picture is varied <p>Level 3 (4–5) Clear and detailed discussion with assessment to the fore. Fig. 4.1 is well used to support the points made.</p> <p>Level 2 (2–3) A valid attempt to address the question. Evidence is used to support the points made. The assessment is superficial/thinly supported. Description alone might just reach this level.</p> <p>Level 1 (0–1) Little attempt to answer the question or describe the information shown on Fig. 4.1.</p>	5

Question	Answer	Marks
4(b)	<p>From your wider study of retail patterns, assess the challenges retailers must overcome to succeed.</p> <p>Given the mark and time (18 mins) allocation, there is no expectation of a comprehensive answer. Quality of argument will be the main discriminator rather than breadth of knowledge.</p> <p>An opportunity here for candidates to use the knowledge gained from their individual research.</p> <p>Good answers will consider a range of challenges which could usefully be classified into social, economic, environmental, technological and political dimensions. Much will depend on the examples chosen. Not all of these are required for a good answer.</p> <p>Good responses will be characterised by the quality of assessment and appropriate exemplar support.</p> <p>Level 3 (8–10) A clear focus on the question with appropriate exemplar support. There is a sophisticated understanding, addressing the assessment requirement of the question. Evaluation to the fore.</p> <p>Level 2 (5–7) Expresses a view and provides some support. Sound knowledge and understanding, perhaps overall lacking depth. May be limited in explanation or in exemplification.</p> <p>Level 1 (0–4) The approach is largely descriptive and superficial with little or no attempt to address the question. Little exemplar support.</p>	10

Section C: Environmental DegradationAnswer **both** questions: Question 5 and Question 6

Question	Answer	Marks
5(a)	<p>Study Fig. 5.1, which shows blue crab populations in Chesapeake Bay, USA, 2007–2016. Blue crabs are a major species of both the marine ecosystem and the economy of Chesapeake Bay.</p> <p>Giving evidence from Fig. 5.1, which year had the greatest difference between spawning-age females and the total population of blue crabs?</p> <ul style="list-style-type: none"> • 2012 = 1 mark • From 760 to 100 <u>or</u> 660 = 1 mark 	2
5(b)	<p>Contrast the trends in spawning-age females and the total population of blue crabs from 2007 to 2014 shown in Fig. 5.1.</p> <p>Accept any three valid contrasts, reserving 1 mark for data support.</p> <p>Valid points might include:</p> <ul style="list-style-type: none"> • Spawning-age females peak 2010 vs total population peak 2012 • Spawning-age females minimum 2014 vs total population minimum 2007 • 2007 to 2010 – spawning-age females more than double from 90 to 250, total population almost triples (250 to 660) • From 2010 both fluctuate, but total population at a much higher level than spawning-age females 	4

Question	Answer	Marks
5(c)	<p>Study Fig. 5.2, which shows nitrogen levels and targets by source in Chesapeake Bay, USA, in 2015 and 2017.</p> <p>Using Fig. 5.2, how successful were the Chesapeake Bay authorities in meeting the target levels of nitrogen?</p> <p>Accept any valid points, but there must be clear reference to/support from Fig. 5.2. An indicator of quality will be a focus on the evaluative aspect of the question.</p> <p>For full marks there must be reference to all five sources and a judgement about the degree of success. There will be some tolerance in the use of data.</p> <p>Some points that could be made include:</p> <p>Success:</p> <ul style="list-style-type: none"> • Agriculture level exceeds target in 2015 but not in 2017 • Wastewater below target in both years • Forest level exceeds target in 2015, but equal target for 2017 <p>Unsuccessful:</p> <ul style="list-style-type: none"> • Overall target not met • Septic target exceeded in 2015 and 2017 • Urban run-off target exceeded in both years • Overall, a mixed picture – some successes e.g. agriculture, forest but little improvement elsewhere <p>Level 3 (5–6) Clear assessment with a focus on the evaluative part of the question. Accurate data support from the resources is well used to inform the judgement.</p> <p>Level 2 (3–4) Some attempt at making an assessment. Provides data support at the top end of this level.</p> <p>Level 1 (0–2) Little attempt to address the question; simple description. Data support inaccurate or lacking.</p>	6

Question	Answer	Marks
5(d)	<p>Assess the value of Figs. 5.1 and 5.2 to those responsible for maintaining water quality in Chesapeake Bay.</p> <p>Candidates need to consider the limitations of Figs. 5.1 and 5.2 before arriving at an assessment.</p> <p>Fig. 5.1 gives a good visual impression of blue crab populations and covers a 10-year period. However, only goes to 2016, so is out of date. Relying on one species alone is unlikely to be enough – data about other fauna might be needed.</p> <p>Fig. 5.2 also gives a good visual impression of progress towards targets, but only for a relatively short time period. Other features e.g. phosphorous content, levels of eutrophication would increase the reliability.</p> <p>Location is missing from both diagrams, as are variations throughout the year.</p> <p>Other information which would be relevant might include a map to show the locations worst affected, more recent data, other sources of pollution (e.g. water traffic), information about visitor numbers and seasonal patterns of numbers. Accept any reasonable suggestions. An indicator of quality will be a justification for the other information suggested as well as the quality of the assessment.</p> <p>Level 3 (6–8) A clear assessment of the limitations of the resources. A structured format. Knowledge of other resources/information which would be of use along with justification.</p> <p>Level 2 (3–5) Discussion of the limitations of the resources but limited knowledge of other resources which may be of use (or vice versa).</p> <p>Level 1 (0–2) Little understanding of the question, perhaps simple description of the data. Support is inaccurate or lacking.</p>	8

Question	Answer	Marks
6(a)	<p>Study Fig. 6.1, which shows the number of people per country living on land expected to be below sea level by 2100.</p> <p>‘People living in countries at lower levels of economic development are most at risk from rising sea levels.’ How far does Fig. 6.1 support this statement?</p> <p>Only 5 marks are available so do not expect much depth. Accept a judgement anywhere on the spectrum as long as it is supported with information taken from Fig. 6.1.</p> <p>Some points which might be made:</p> <p>LICs/MICs</p> <ul style="list-style-type: none"> • India/SE Asia/Indonesia seem to be most at risk 10 to 50 million • S America (Brazil) 1 to 9.9 million • Large areas of Africa are at low risk (< 100 000) <p>HICs</p> <ul style="list-style-type: none"> • N America, UK, Germany and Japan at high risk (1 to 9.9 million) • N and E Europe and Australia are at low risk • Criticisms of the data itself e.g. people per country means localities are ignored <p>Accept any valid comments. Best answers will express a judgement supported by reference to the Figure.</p> <p>Level 3 (4–5) A clear assessment, with focus on the evaluative nature of the question. There is good use of information from the map.</p> <p>Level 2 (2–3) A valid attempt to address the question. A limited use of evidence to support the points made. A limited evaluation.</p> <p>Level 1 (0–1) Little attempt to answer the question or describe the information shown.</p>	5

Question	Answer	Marks
6(b)	<p>From your wider study of environmental degradation, explain why it is often difficult to manage environmental degradation at the international scale.</p> <p>Given the mark and time (18 mins) allocation, there is no expectation of a comprehensive answer. Quality of argument will be the main discriminator rather than breadth of knowledge.</p> <p>An opportunity here for candidates to use the knowledge gained from their individual research.</p> <p>Any point of view is acceptable, but credit well those who are able to support their view with useful exemplar support. The best candidates will address the evaluative aspect of the question – this will indicate Level 3. Candidates must use the evidence/case studies presented to arrive at a robust and balanced judgement.</p> <p>The best answers will address the phrase ‘often difficult’ in the question. A wide range of contexts is acceptable. Many candidates will address political issues, but look for others for a high-quality answer e.g. physical, economic and social.</p> <p>Level 3 (8–10) A clear focus on the question with appropriate exemplar support. There is a sophisticated understanding. The evaluation is well supported by exemplar material.</p> <p>Level 2 (5–7) Expresses a view and provides some support. Sound knowledge and understanding, perhaps overall lacking depth. May be limited in range or in explanation or in exemplification.</p> <p>Level 1 (0–4) The approach is largely descriptive and superficial with little or no attempt to address the question. Little exemplar support.</p>	10