

MARK SCHEME for the May/June 2013 series

9768 GEOGRAPHY

9768/01

Paper 1 (Geographical Issues), maximum raw mark 105

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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2013 series for most IGCSE, Pre-U, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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Section A

Tectonic Hazards

- 1 (a) Identify two secondary hazards resulting from earthquakes. [2]**

A variety of secondary hazards can be mentioned and include fires, systems such as electricity and gas shutting down, liquefaction, landslides, floods from burst dams etc., tsunamis, disease from polluted water, destruction of buildings etc.

- (b) Fig. 1 shows the global distribution of earthquake depths for the last one hundred years.**

Compare the patterns of earthquakes depths in Zone A and Zone B shown in Fig. 1. [4]

In Zone A, mainland North America, most of the earthquakes depths are shallow with a sprinkling of intermediate depth earthquakes. The shallow earthquakes are widely distributed whereas the intermediate depth earthquakes are in distinct locations. In Zone B the earthquake depths are mostly intermediate and deep with a distinct linear pattern reflecting the plate boundaries. There is a much clearer pattern to the depths in Zone B. For full marks there needs to be a comparison and not separate descriptions and with information about the different depths.

- (c) Explain why few deep earthquakes occur across Europe and Central Asia and along the west coast of North America. [5]**

The band across mainland Europe and central Asia is where continental plates collide without subduction, therefore shallower earthquakes. Where subduction does occur, in parts of the Mediterranean Basin, it is relatively minor and shallow and the movement of plates is comparatively slow. There is a conservative plate boundary along the west coast of North America with plates sliding past each other. This also produces shallow earthquakes.

Candidates show:

L3: a balanced and accurate explanation of both areas with a thorough grasp of plate tectonics and the different types of plate movements. **[4–5]**

L2: an explanation which is only partially complete and lacking in detail. Will probably show some confusion over the different plates and plate movements. **[2–3]**

L1: little understanding of plate tectonics as applied to these regions and will probably be inaccurate. May understand some plate movements but will not be comprehensive. **[0–1]**

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(d) Assess the extent to which it is possible to predict earthquakes. [9]

A number of predictive techniques should be discussed such as preliminary tremors, the escape of radon gas, sub-surface hydrological changes, the use of statistics of the frequency of past occurrence, animal behaviour, seismic gap etc. This should be coupled with an assessment of predictive success, probably with a conclusion that it is still very difficult if not impossible to predict the precise timing, precise location and intensity of any earthquake, but it will usually be possible to predict the general region where earthquakes might occur.

Candidates show:

L3: accurate knowledge of a variety of predictive techniques with a rational assessment of usefulness and accuracy. **[8–9]**

L2: a more limited knowledge of predictive techniques with an assessment, somewhat limited, and not entirely based on reasoned argument. **[5–7]**

L1: little accurate knowledge of predictive techniques and little assessment. May claim more success for prediction than is realistic. **[0–4]**

Hazardous Weather

2 (a) Photograph A shows a street in New York after the blizzard of 1888.

Suggest two hazards associated with the blizzard, shown in photograph A. [2]

There is a wide range of possible hazards e.g. traffic disruption, blocked streets, electricity cables collapsing, pedestrian injuries, snow sliding off roofs etc. Credit any that are reasonable.

(b) Fig. 2A shows the number of blizzard events and associated injuries for the State of Wisconsin, USA, between 1982 and 2009. Fig. 2B locates Wisconsin.

To what extent is there a pattern to the number of blizzard events shown in Fig. 2A? [4]

There is a general north-south and west-east pattern of increasing numbers of events. But there are anomalies such as in the far NW and in the central areas. Both the general pattern and anomalies are required with the use of the data.

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(c) Suggest reasons why the number of injuries shown in Fig. 2A is very low. [5]

The degree of awareness and preparedness of the population and the State organisations are the main reasons. The area is well prepared for such blizzards and emergency services are always on standby. Roads are cleared quickly. Weather forecasting is accurate and gives good warning of impending blizzards.

Candidates show:

L3: knowledge of a wide range of the issues mentioned above and an ability shown to use this knowledge to offer sensible explanations. **[4–5]**

L2: a more limited understanding of the main factors and may struggle somewhat to offer a sensible explanation. **[2–3]**

L1: a lack of understanding and struggles to offer rational explanations. **[0–1]**

(d) With reference to examples, discuss some of the ways in which the risks from hazardous weather can be modified. [9]

A variety of hazards in the syllabus can be discussed and the risk modification will vary with each. Modifying the risk involves monitoring, prediction and prevention which will vary with the type of hazardous weather. Good answers will examine a range of weather hazards and be able to discuss the risk modification techniques.

Candidates show:

L3: a good knowledge and understanding of a range of risks associated with a number of hazardous weather situations. This knowledge will be coupled with a realistic assessment of the ways the risks may be modified, covering monitoring, prediction and prevention. **[8–9]**

L2: a knowledge of a range of hazardous weather situations but will only provide a partial account of risk modification, probably failing to cover all three components noted under Level 3. **[5–7]**

L1: a partial knowledge and understanding of a limited range of hazardous weather situations with little understanding of risk modification. **[0–4]**

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Hydrological Hazards

3 (a) Fig. 3 shows the main components of a storm hydrograph.

Name and describe the component labelled A on Fig. 3. [2]

Thoroughflow; the lateral movement of water in the soil downslope. One mark for name and one for description.

(b) Fig. 4 shows the relative frequency of extreme flood events for the period 1985 to 2008.

Describe the pattern of high flood frequency shown in Fig. 4. [4]

There are clear zones where the frequency of flood events is high. The main ones are eastern coastal regions of South America, through Central America and parts of NE USA. There is another zone in Central Europe, East Africa and especially SE Asia. Marks should be awarded for the completeness of the description.

(c) Suggest reasons why many areas with a low risk of flooding show in Fig.4 experience high annual rainfall totals. [5]

Flooding is not always associated with high rainfall amounts. There are many factors that militate against flooding such as density of vegetation, nature of soils and geology and topography. It is not necessary to use information from the map but there are many clues. Many of the high risk areas are mountainous regions with steep slopes. South East Asia is affected by monsoon rainfall and also has areas of mountainous terrain. The Central American region is subject to tropical storms.

Candidates show:

L3: a thorough understanding of the causes of flooding and are able to relate this to an understanding of the question. At this level, the candidate will probably use information on the map but this is not essential. [4–5]

L2: a relatively sound understanding of the causes of floods but the range of factors discussed may be narrow. Will probably not use the map for clues. [2–3]

L1: a limited understanding of the causes of floods. Will probably be only able to provide a few, rather limited, reasons. [0–1]

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(d) With reference to examples, examine how the effects of floods may be mitigated. [9]

There is a range of mitigation procedures for flooding and include emergency responses, hard and soft engineering solutions. Both catchment management and channel controls are relevant. Catchment management includes land use change such as afforestation and more use of sustainable drainage especially in urban areas. These would be classed as soft engineering solutions. Channel controls include upstream dams, artificial levees, channel widening, straightening and diversion. Most of these would be regarded as hard engineering solutions. Emergency response will also be a significant factor.

Candidates show:

- L3:** convincing knowledge and understanding of mitigation procedures supported by reference to good specific examples. There will be a clear assessment of the efficacy of the various procedures. **[8–9]**
- L2:** knowledge of some procedures for mitigation supported by some reference to specific examples, although these examples are likely to be less detailed. Will probably not cover all three of the main procedures mentioned above. **[5–7]**
- L1:** limited knowledge and understanding of procedures, lacking supporting examples; assessment will be assertive if present. **[0–4]**

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Section B

The Geography of Crime

- 4 (a) Fig. 5 shows a cartoon illustrating defensible space.**

Identify two characteristics of defensible space shown in Fig. 5. [2]

There are a variety of characteristics and include gated communities, CCTV cameras, home owners associations which might include neighbourhood watch, secure buildings, windows etc.

- (b) Photograph B shows an inner city housing development.**

In what ways does the nature of the development encourage the incidence of crime? [4]

A variety of issues can be discussed. Lack of privacy, dark alleyways and stair wells, poor lighting, easy access and getaways by walkways, easy access to all the front doors. There are dark areas where drug use could occur. Anti-social behaviour may also be a problem. Two valid issues with explanation are sufficient for full marks.

- (c) Explain two ways in which the risk of crime may be reduced by changing the nature of the development shown in Photograph B. [5]**

Most of this relates to situational crime prevention and can include target hardening, controlling access, better lighting and surveillance. Any two are needed with discussion.

Candidates show:

L3: convincing knowledge of two ways in which crime might be prevented and that are relevant to the development. **[8–9]**

L2: a partial knowledge of two ways with limited detail. **[5–7]**

L1: a limited knowledge of ways backed up with sparse discussion. Might struggle with two ways and the ways might not be relevant. **[0–4]**

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- (d) Examine the social and economic impacts on communities of high levels of criminal activity. [9]**

Social impacts are many and varied and include physical injury, harassment from anti-social behaviour, sleep deprivation and stress from perception of the crime risk. Economic impacts include loss of belongings through burglary, damage to property and loss of earnings from physical injury for example. The mark awarded will depend on the relevance of the aspects and the detail supplied.

Candidates show:

- L3:** convincing knowledge and understanding of a range of both social and economic impacts at a variety of scales, supported by discussion of their relative severity. Exemplification will probably be present. **[8–9]**
- L2:** knowledge of some social and economic impacts but may be biased towards one or the other. Exemplification, if present, will lack detail. **[5–7]**
- L1:** knowledge of some impacts but lacking in detail and assessment. Will probably be very unbalanced between social and economic impacts. **[0–4]**

Health and Disease

- 5 Fig. 6 shows life expectancy by country for the year 2008.**

- (a) Define the term *life expectancy* [2]**

The average number of years a person is expected to live from birth.

- (b) To what extent is there a pattern of life expectancy (over 71 years), shown in Fig. 6? [4]**

There is a general pattern of high life expectancy in most of the developed countries. This is clear in North America and Western Europe. Japan and Australia and New Zealand are also in this category. There are also some countries in southern South America, North Africa and Middle East. Within this general pattern there are variations. There is a general pattern but with some exceptions. Both aspects need to be covered for full marks.

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- (c) Fig. 7 shows trends in life expectancy, by selected world regions, between 1950 and 2005.

Suggest reasons for the different trends for South America and Sub-Saharan Africa shown in Fig. 6. [5]

Initially there should be a description of the trends. There is a general rising trend for Sub-Saharan Africa until about 1990 when the trend declines. For South America there is a steady, consistent rising trend throughout the period. The initial general rise for both regions will probably be due to better standards of living, hospital care, suppression of diseases etc. Absolute values reflect level of development. The later dip in the Sub-Saharan trend could be down to a variety of reasons, such as overpopulation and its impact on resources, famine, disease (i.e. HIV/AIDS), wars. Natural disasters, such as drought, may also be significant. The countries of South America possess the resources to keep increasing standards of living and thus raising life expectancy.

Candidates show:

L3: an ability to interpret the graphs and provide convincing understanding of the reasons behind the trends. **[4–5]**

L2: an ability to interpret the graphs but the level of reasoning will be sound rather than good. **[2–3]**

L1: an ability to describe the trends in a very general way but will struggle to provide a convincing explanation. **[0–1]**

- (d) **With reference to examples, examine the ways non-governmental organisations (NGOs) can improve the health of the population in countries at lower levels of development. [9]**

There are variety of non-governmental organisations providing different types of aid, such as medicines, vaccinations, water aid, famine relief etc. Some of the aid is immediate such as in response to famines or other humanitarian crises. Others are for medium to long-term development. There is a great variety to choose from.

Candidates show:

L3: convincing knowledge of a range of ways and organisations, supported by reference to relevant specific examples. **[8–9]**

L2: knowledge of a more limited range of ways and organisations supported by specific examples that may be lacking in some detail. **[5–7]**

L1: knowledge of some ways and organisations but a limited understanding of their effects and little or no exemplification. **[0–4]**

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Spatial Inequality and Poverty

6 Table 1 lists the ranks of the Human Development Index (HDI) and percentage of the population living on less than \$1.25 a day for selected countries in 2008.

(a) Name two other indices of human poverty and inequality other than those used in Table 1. [2]

There are a variety to choose from such as Physical Quality of Life Index (PQLI), Human Poverty Index (HPI), and single criterion indices such as BNP per person, adult literacy rate, infant mortality.

(b) To what extent is there a relationship between Human Development Index rank and the percentage population living on less than \$1.25 a day? [4]

Generally high HDI values (lower rank) correlate with high percentage population living on less than \$1.25 a day and vice versa but there are exceptions. Thus Morocco has a relatively high HDI value but a relatively low percentage on less than \$1.25 a day compared to other countries. The same is true of Cameroon. Answers should cover both aspects with named examples.

(c) Fig. 8 shows the vicious poverty cycle.

Explain how this cycle may lead to spatial inequality in poverty. [5]

It is a cycle because of all the feedback loops. Thus, it will be very difficult for areas in poverty to break out of the system, whereas for areas lacking in poverty the situation is reversed. Thus poor areas will tend to become relatively poorer whereas richer areas will become relatively richer, thus increasing spatial inequality. It will also apply to individual countries as well as global regions. The core-periphery concept is a case in point.

L3: convincing knowledge and understanding of the workings of the poverty cycle and be able to apply it to specific situations. For no recognition of the spatial aspect a maximum of 4 marks.

[4–5]

L2: knowledge of the operation of the cycle but will only provide a partial synthesis and relation to specific situations.

[2–3]

L1: little understanding of the operation of the cycle with an inability to relate it to specific situations.

[0–1]

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(d) Critically examine the approaches used to reduce poverty and inequality. [9]

There is a great range to choose from including top-down, bottom-up strategies, international aid, intermediate/appropriate technology. These will operate at different scales. There needs to be specific strategies with an evaluation of their suitability in specific locations.

Candidates show:

L3: convincing knowledge of a range of strategies and how these are related to development, supported by reference to specific examples. **[8–9]**

L2: knowledge of a more limited range of strategies supported by some reference to specific examples. May not be balanced between poverty and inequality. **[5–7]**

L1: limited knowledge of strategies supported by few if any specific examples. Will probably analyse poverty and inequality as the same thing. **[0–4]**

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Section C

- 7 Examine the view that strategies to tackle the geographical issues faced by an area you have studied necessitate a multi-disciplinary approach. [25]**

Indicative content:

Candidates are expected to show knowledge and understanding of a range of strategies designed to tackle the different geographical issues their chosen area faces. These issues could come either from Section A or Section B or from both sections. The area chosen may be at any suitable scale from urban to rural to national or that of the world.

Candidates need to show how these strategies are interdisciplinary because of the nature of the issues and the fact that strategies to tackle one issue might impact on another issue.

At lower levels, responses are likely to concentrate on the description of the issues and chosen strategies but are likely to lack detailed exemplification. There is likely to be only a cursory analysis of the multi-disciplinary aspect. At higher levels, candidates show detailed knowledge and understanding of a range of issues and strategies and are able to explain their interactions and the need for a multi-disciplinary approach.

- 8 Discuss the extent to which the severity of the impact of geographical hazards is more the result of human activities than of natural causes. [25]**

Indicative content:

Candidates show knowledge and understanding of a range of hazards and the role of both human activities and natural causes in affecting the severity of the impact. The severity can be examined in terms of both increased and decreased severity and could include deliberate policies and accidental affects such as building in the wrong place or changing the nature of the land. With respect to flooding it could include changing catchment characteristics and hard and soft engineering. Similar issues could be related to weather and tectonic hazards. There does not need to be a coverage of all the hazards associated with Section A.

At lower levels, responses are likely to discuss only a limited range of hazards and may not differentiate between decreasing the severity and increasing severity of their impact. The answer will be supported by a limited range of examples, lacking in detail and accuracy. The balance between human activities and natural causes may be blurred. At higher levels, candidates show detailed knowledge of specific hazards and they will be able to relate them to human activity as well as natural causes. The exemplification will be accurate and detailed.

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- 9 'Most socio-economic geographical issues are also environmental issues.' Discuss the validity of this statement. [25]**

Indicative content:

The operations of the 'real world' do not exist in separate boxes. Candidates show an understanding of a range of geographical issues, which could come from either Section A or Section B, but there will probably be a concentration on issues in the Section B part of the syllabus. Most socio-economic issues, such as disease, poverty, inequality and even crime, have an environmental dimension, such as drought, environmental degradation, climate, soils, etc. The question asks for an assessment and this should be a major part of the answer and should form the basis for a convincing conclusion.

At lower levels, responses are likely to show some knowledge of socio-economic issues but not be able to relate them, convincingly, to environmental issues. The answer will be limited in exemplification. At higher levels, candidates show good knowledge and understanding of a range of socio-economic issues and will be able to relate them to appropriate environmental issues, supported by accurate and relevant examples.