

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Pre-U Certificate

MARK SCHEME for the October/November 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.

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Section A

Tectonic Hazards

- 1 (a) Identify two primary hazards resulting from lava flows. [2]**

Fire, destroying agriculture, buildings, communications, deaths.

Fig. 1 shows the extent of lava flows from the Mauna Loa volcano, Hawaii, USA, since 1843 and Fig. 2 shows a hazard map for the same volcano.

Using Figs. 1 and 2 examine the relationship between the lava flows and the hazard risk. [4]

There is a fairly close relationship. The main lava channel is identified as having the highest severity of hazard followed by a slightly decreased level of hazard in the zones where the lava flows spread out. The lowest level of risk coincides with zones where no lava flows have occurred since 1843.

- (b) Outline the information that may be used in producing a volcanic hazard risk map. [5]**

A variety of information will be required in producing a hazard risk map. The nature of the volcano, its eruption types, frequency and topography will all be important. Different types of eruption and their mode of travel and intensity will vary in their spatial aspects.

Candidates show:

L3 an accurate knowledge of a range of volcanic eruptions and products and the hazards they pose and will understand the factors that need to be considered. **[4–5]**

L2 a general understanding of the process of creating a hazard map which will be lacking in detail. Information concerning the types of eruption will be limited. **[2–3]**

L1 limited understanding of volcanic eruptions and the process of creating a hazard zonation map. **[0–1]**

- (c) Evaluate methods of predicting volcanic eruptions. [9]**

The question requires an assessment, not just a description, of the ways in which volcanic eruptions can be predicted. A number of predictive methods such as bulging, temperature changes, gas emissions, magnetic, and gravity changes and preliminary seismic shocks can be discussed and the reliability of these methods assessed using specific examples such as eruptions that have not been predicted and perhaps eruptions predicted that did not happen. There should be some assessment of the reliability of individual prediction techniques such as comparing surface changes with changing gas emissions.

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Candidates show:

- L3** a knowledge of a wide range of predictive methods and are able to assess their effectiveness in predicting eruptions. **[8–9]**
- L2** a knowledge of a limited range of predictive methods with a very general assessment. Knowledge of specific examples may be limited. **[5–7]**
- L1** some knowledge of some predictive methods but which is inaccurate in many ways. Any examples will probably be inaccurate or inappropriate. **[0–4]**

Hazardous Weather

- 2 (a) Define the Fujita scale measure.** **[2]**

The scale measures wind speed and potential damage.

- (b) Fig. 3 shows the average number of tornado reports, per 100 square miles, in the USA, 1957–2006.**

Describe the pattern of tornadoes shown in Fig. 3. **[4]**

For full marks both the general distribution and incidence needs to be described. The general distribution in the centre of North America should be noted as well as the significant clusters within that zone. Minor locations along the eastern seaboard and Florida might also be noted.

- (c) Examine the role of supercells in the formation of tornadoes.** **[5]**

Tornadoes develop from a a class of thunderstorms known as supercells. Supercells contain an area of organised rotation a few miles up in the atmosphere. As the area of rotation lowers it drags in cool, moist air from the downdrift region. The convergence of warm air in the uplift and this cool air causes a rotating wall cloud to form. Uplift intensifies forming an intense low pressure at the surface. The funnel then descends to the land surface.

Candidates show:

- L3** a thorough understanding of the nature and significance of supercells in the formation of tornadoes with good detail. **[4–5]**
- L2** an understanding of the role of supercells which is deficient in some respects. Answers will usually have a limited understanding as to how uplift occurs and the funnel develops. **[2–3]**
- L1** little understanding of supercells and the stages in the formation of tornadoes. Explanations may be limited to the mixing of cold and warm air. **[0–1]**

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(d) To what extent is it possible to modify the impacts of hazardous winds? [9]

Communities can assess risks, identify structures at risk, monitor critical lifelines, construct wind resistant shelters, produce new materials and new building designs and many more. A complete range of measures is not required but the key element will be the degree of assessment.

Candidates show:

L3 knowledge of a range of measures and are able to assess their effectiveness. [8–9]

L2 knowledge of a few measures, but the assessment of effectiveness will be assertive rather than based on examples. [5–7]

L1 very little knowledge of appropriate measures with limited description and analysis. [0–4]

Hydrological Hazards

3 (a) Define the term *water deficit*. [2]

Available water in a region is less than the regions demand; two components.

(b) Fig. 4 shows the river regimes for two mountain rivers in Washington State, USA, in 2002. Compare the annual patterns shown in Fig. 4. [4]

Both rivers show a marked seasonal variability with the main peak in May and June (summer). River A has the greater discharge and a more marked peak. River A also has a subsidiary peak in January. River B has a very steady and low discharge in the winter months and a small subsidiary peak in late August–early September. The answer should extract data from the graphs to back up the comparison.

(c) Suggest reasons why the regime for River A differs from that for River B. [5]

The differences are mainly in the size of the discharge and subsidiary peaks. Explanations for the early summer peaks could be snow melt or precipitation. River A clearly has a greater source of water. The relatively even flow of River B suggests a constant groundwater flow with the small peak in August the result of passing storms. The small peak for A in January suggests a bout of warmer weather and snow melt. There are several possible explanations and some candidates might invoke land use differences for the differences in magnitude.

Candidates show:

L3 an ability to recognise the peaks and troughs and produce a realistic explanation, which includes the possibility of snow melt. There is a possibility that land use changes and therefore water demands throughout the year might be considered. [4–5]

L2 an ability to recognise the peaks and troughs, but the explanation will mainly be in terms of precipitation pattern. Other factors will be ignored. [2–3]

L1 a difficulty in interpreting the figure with only the vaguest idea of an explanation. [0–1]

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- (d) **Examine the extent to which water deficits are the result of human rather than meteorological causes.** [9]

There needs to be a thorough understanding of water deficit and its causes. Meteorological causes mainly centre on drought whereas human causes are more varied with the over use of water for agriculture, domestic and industrial use. The assessment needs to be with relation to examples where water deficits are common, such as the Middle East and parts of Africa. The conflicting human demands and water sharing are possible examples such as in SW North America.

Candidates show:

- L3** a thorough understanding of water deficit and are able to compare natural causes with human-induced causes using accurate and relevant examples. [8–9]
- L2** some understanding of water deficit but may be unable to assess the relative importance of causes because of limited exemplar knowledge. [5–7]
- L1** limited understanding of water deficit with an inability to compare causes. Exemplar material will be limited or absent. [0–4]

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Section B

The Geography of Crime

- 4 (a) Name two types of international crime other than drug trafficking. [2]

Terrorism, illegal migration, people-smuggling, people trafficking, financial fraud.

- (b) Fig. 5 shows some of the main global flows of cocaine and cocaine consumption for 2008.

Describe the pattern shown in Fig. 5. [4]

The main flow is from the Andean region of South America, through Mexico into the USA, followed by the flow to Europe. Subsidiary flows are through the Caribbean and across to West Africa and into Europe. The main areas of consumption are North America and Europe. Two marks for the main flows and consumption areas and two marks if data are abstracted from the map.

- (c) Explain how drug-related crime may affect local communities. [5]

A variety of issues can be raised such as prostitution, burglary, vandalism, assault. The impact of these on the local community will be varied from direct physical assault and burglary to anti-social behaviour. Most of the crimes will be related to the need to obtain money for drugs.

Candidates show:

L3 a good understanding of drug-related crime and how it affects a variety of local communities. [4–5]

L2 some knowledge of drug-related crime which is limited in some aspects. The effect on local communities will be limited to very general statements. [2–3]

L1 a limited knowledge of drug-related crime and will provide a very basic assessment of the effect on local communities. [0–1]

- (d) “The causes of crime can be understood in terms of the relationship between the characteristics of the victims, the criminal and their environment.” Examine the validity of this statement. [9]

This is quite a broad question and can be approached in a variety of ways. The nature of the environment, built or otherwise, will generally determine the socio-economic characteristics of the victim, possibly the criminal, and the potential opportunity for crime as seen by the criminal. This should form the basis of the argument.

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Candidates show:

- L3** a thorough understanding of the three factors in the question and their possible relationships. An answer at this level should challenge the statement and assess the degree to which the relationships are valid. **[8–9]**
- L2** an understanding of the various factors but may be unable to link them in a meaningful way. The validity of the statement might be accepted and not challenged. **[5–7]**
- L1** only a limited understanding of the three factors and will be unable to provide a convincing argument linking them together. There will be limited assessment of the statement. **[0–4]**

Health and Disease

- 5 (a) Name two lifestyle choices that may lead to potential health problems. [2]**

There are a variety of lifestyle choices available such as diet, binge drinking, smoking, drug-taking, lack of exercise, work/life balance.

- (b) Fig. 6 shows a number of factors where affluence might affect health. Choose two of these factors and describe the possible relationships with health. [4]**

Two factors with a description of possible relationships with health. The factors can either have a positive or negative affect on health. Only 2 marks each so not much detail can be expected.

- (c) In what ways may health-care provision be improved? [5]**

The main way is by increasing the number of doctors, nurses and hospitals. There needs to be a consideration of the spatial spread of such provision, such as improving access to health care facilities in remote areas. Increased provision and response of emergency services is also relevant. Increasing vaccination provision could also be discussed. Discussion of both developed and developing countries might be part of the answer and also the role of government and non-governmental organisations.

Candidates show:

- L3** a thorough understanding of the question and are able to discuss a variety of ways of increasing provision. They will probably cover both developed and developing countries. **[4–5]**
- L2** a partial understanding of the question and will probably answer in a generic way with little mention of examples. **[2–3]**
- L1** a limited understanding of the question with discussion perhaps limited to a brief mention of increasing numbers of doctors and hospitals. **[0–1]**

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- (d) To what extent has international migration resulted in diseases becoming more widespread? [9]

The key element is the free movement of people and its role in the transmission of disease. But the statement will only be applicable to diseases that are spread by human contact. Thus, there should be assessment of the different types of disease and whether those diseases are affected by the movement of people.

Candidates show:

L3 a good understanding of diseases and how they are transmitted by using specific examples with their geographical distribution. There will be an ability to challenge the statement. [8–9]

L2 a general understanding of the question but they will produce a limited argument with few specific examples. [5–7]

L1 a limited ability to assess the validity of the statement and will struggle to provide relevant examples. [0–4]

Spatial Inequality and Poverty

- 6 Fig. 7 shows the per capita Gross Domestic Product (GDP) for the provinces of China in 2009, in US dollars.

- (a) Name two indicators other than Gross Domestic Product, used to measure poverty and inequality. [2]

There are many to choose from: Human Development Index, Physical Quality of Life Index, Human Poverty Index, adult literacy rate, infant mortality rate.

- (b) Describe the pattern of GDP shown in Fig. 7. [4]

The concentration of high values along the coast and in the east should be noted as well as lower values in the north-west and west (i.e. generally inland from the coast.) For full marks there should be some extraction of data from the map.

- (c) Outline two factors that could lead to regional inequality in poverty. [5]

A variety of factors could be discussed but the key element is the core-periphery concept. Nearness to coast and accessibility to trading partners and industrial growth is crucial. Nearness to the main industrial and population centres is also relevant. The more remote areas face transportation difficulties and the physical environment might be more challenging.

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Candidates show:

- L3** a thorough understanding of the core-periphery concept and the factors that underpin it. **[4–5]**
- L2** some understanding of the core-periphery concept but will have a somewhat superficial knowledge of the reasoning behind it. **[2–3]**
- L1** no understanding of core and periphery and are unable to articulate reasons for spatial inequality. **[0–1]**

(d) Assess the relative merits of top-down and bottom-up strategies to reduce poverty. [9]

The different types of aid should be discussed and whether they are top-down or bottom-up strategies. There are many examples of each such as aid tied to particular developments where the donor country expects a return. Bottom-up strategies tend to be more philanthropic and will tend to act locally or regionally. The role of non-governmental organisations will be important. The assessment should be in terms of the effectiveness of the various strategies, using specific examples.

Candidates show:

- L3** a thorough understanding of the differing approaches to reducing poverty and inequality and their relative effectiveness, using detailed and relevant examples. **[8–9]**
- L2** a partial understanding of the various strategies and might have some difficulty in deciding which type of strategy is which. The use of examples will be limited in some respect. **[5–7]**
- L1** very little knowledge of strategies and are unable to assess their effectiveness. Examples may be absent or inaccurate. **[0–4]**

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Section C

- 7 The world is becoming less hazardous with respect to natural hazards. Discuss the validity of this statement. [25]**

Indicative content:

Candidates show knowledge and understanding of a range of geographical hazards. The geographical hazards might include earthquakes, volcanoes, flooding, drought, and severe weather phenomena. The answer should concentrate on the ability to predict the hazards and mitigate against their effects. There should be an assessment of whether prediction is getting better and this will be related to the specific hazards chosen. Better answers will demonstrate that some hazards can be predicted but not others. The ability to manage these hazards should also be discussed.

At lower levels, there will be limited knowledge of the hazards, the risks they pose and an ability to predict or mitigate against them. The assessment of the statement will be assertive rather than based on specific examples.

- 8 With reference to an area you have studied, examine the view that the physical environmental issues are more important than the socio-economic issues. [25]**

Indicative content:

Candidates show knowledge and understanding of a range of environmental and socio-economic issues that a particular named area faces. The area chosen can be any suitable scale from urban to rural up to regional and national. Physical environmental issues might include hazards such as earthquakes, volcanoes, slope failure, flooding, drought, severe weather phenomena and pollution. Socio-economic issues might include crime, disease, inequality and poverty, education, employment, social exclusion and deprivation. Whichever issues are chosen there needs to be an assessment of the statement based on detailed argument rather than simple assertion. Better answers will provide a detailed assessment of the issues firmly based on the nature and geography of the chosen area.

At lower levels there will be a limited range of issues, with poor locational detail and an assessment that is assertive rather than based on reasoned argument.

- 9 The geographical issues faced by developed countries are different to those faced by developing countries. How far do you agree? [25]**

Indicative content:

The issues discussed can be either environmental hazards or socio-economic issues or both. A wide range of issues is possible, but the issues should be related to both developed and developing countries. Better candidates will note that environmental hazards might be similar but that their effects might vary. Some socio-economic issues are more prevalent in either developed or developing countries but there will be some issues in common. The level of exemplification will indicate the level of the answer.

At lower levels there will be a limited range of issues with poor reference to developed and developing countries. The assessment of the statement will be based on little reasoning or examples.