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Cambridge Pre-U Certificate

GEOGRAPHY

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Paper 3 Geographical Issues

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MARK SCHEME

Maximum Mark: 105

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This document consists of **15** printed pages.

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.

| Question | Answer | Marks |
|-------------------------|---|----------|
| Section A | | |
| Tectonic Hazards | | |
| 1(a) | <p>Fig. 1 shows tectonic continental drift from 225 million years ago to the present time.</p> <p>State <u>two</u> differences between oceanic and continental tectonic plates.</p> <p>The main differences are: continental plates are older, thicker, with a lower density and composed of silica and aluminium (sial) and not basaltic material (sima).</p> | 2 |
| 1(b) | <p>Describe the movement of the continents shown in Fig. 1.</p> <p>The movement of the plates at all four time periods should be described with the breakup of Pangea into Laurasia and Gondwana leading to the evolution of the plates as they are today.</p> | 4 |
| 1(c) | <p>Briefly outline the role of palaeomagnetism in supporting plate tectonic theory.</p> <p>There should be recognition that magma emerging from spreading centres was magnetised according to the polarity of the earth and that as this polarity changed it led to stripes of palaeomagnetism which were replicated at each side of the spreading centre. This led to the realisation that the plates were drifting apart. This is especially true of the Mid-Atlantic ridge.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of palaeomagnetism and the processes occurring at spreading centres. [4–5]</p> <p>L2 some understanding of palaeomagnetism but with an incomplete assessment as to how this is related to plate tectonic theory. [2–3]</p> <p>L1 little understanding of the nature and significance of palaeomagnetism. [0–1]</p> | 5 |

| Question | Answer | Marks |
|----------|---|----------|
| 1(d) | <p>Evaluate the role of prediction and risk identification in minimising the impacts of <u>either</u> volcanic activity <u>or</u> earthquakes.</p> <p>The evaluation will vary depending on the hazard chosen but an analysis of both components is necessary for a good answer. Prediction is an important part of the discussion because prediction enables the best planning procedures to be put in place to minimise the risk. Risk identification leads to the production of hazard maps reflecting the type of risk identified which also underpin many risk minimising procedures. Hazard maps are probably more relevant for volcanic hazards as the location of the hazard is generally known as are the various hazardous volcanic processes and their likely effect.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of the hazards associated with either volcanic activity or earthquakes and are able to cover the two elements in detail with a realistic assessment of their role in minimising the impact of the hazards. [8–9]</p> <p>L2 a partial understanding of the hazards associated with either volcanic activity or earthquakes with a sound but incomplete assessment of their role in minimising the impact of the hazards. [5–7]</p> <p>L1 a superficial knowledge of the hazards with little assessment of the two elements in the question. [0–4]</p> | 9 |

| Question | Answer | Marks |
|-------------------------------|--|----------|
| Meteorological Hazards | | |
| 2(a) | <p>Fig. 2A shows hail probability in the USA for 24 May based on records from 1982 to 2011. Fig. 2B shows the states of the USA.</p> <p>Name <u>two</u> local scale meteorological hazards other than hail.</p> <p>The syllabus lists tornadoes, blizzards and fog but there may be others that are acceptable.</p> | 2 |
| 2(b) | <p>Describe the distribution of hail probability shown in Fig. 2A.</p> <p>There are four main elements that could be described: the concentration in the middle part of the continent, main focus in the SW portion of this area, an abrupt boundary to the west with a spread to the NE, and an isolated area in Florida. Mark as four points for four marks.</p> | 4 |
| 2(c) | <p>Briefly explain the processes that lead to the formation of hail.</p> <p>The distribution is very similar to the distribution of tornado activity as the two are very closely related. There needs to be the mixing of cold and warm air with intense uplift to a great height and the development of low pressure cells. This leads to intense condensation and coalescence of raindrop and then freezing to achieve the size of hail particles. Continued downdraught and updraught allow the ice particles to gradually increase in size. Because of the specific conditions hail is especially localised.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of the conditions needed for the formation of hail, possibly linking the explanation with that for tornado formation. [4–5]</p> <p>L2 some understanding of the conditions needed for the formation of hail but deficient in some respects. [2–3]</p> <p>L1 little understanding of the conditions needed for the formation of hail. [0–1]</p> | 5 |

| Question | Answer | Marks |
|----------|---|----------|
| 2(d) | <p>Evaluate the procedures that can be used to modify losses from the impact of meteorological hazards.</p> <p>The elements, noted in the syllabus, are rescue, relief and recovery. All three elements need to be discussed although the emphasis given to each might vary. This is elaborated in the Level descriptors. Some credit will be given to procedures that reduce the impact of the hazards as, indirectly, this will reduce losses. However for a mark above the middle of Level 2 there must be discussion of rescue, relief and recovery.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of roles of rescue, relief and recovery in modifying the losses occasioned by the impact of meteorological hazards and are able to provide a balanced account with a reasoned assessment of their relative roles. [8–9]</p> <p>L2 an incomplete understanding and evaluation of the relative roles of rescue, relief and recovery in modifying the losses, possibly omitting one of the three elements. [5–7]</p> <p>L1 little knowledge of the roles of rescue, relief and recovery in modifying the losses. [0–4]</p> | 9 |

| Question | Answer | Marks |
|-----------------------------|--|----------|
| Hydrological Hazards | | |
| 3(a) | <p>Fig. 3 shows the predicted percentage change in global water deficit between 2015 and 2030.</p> <p>Define the term <i>water deficit</i>.</p> <p>A precise definition is the amount of water by which potential evaporation exceeds actual evapotranspiration. Answers relating potential evapotranspiration to precipitation will get some credit. Stating that overuse of water can lead to water deficit will get no credit unless related to supply. The term deficit implies pluses and minuses.</p> | 2 |
| 3(b) | <p>Describe the distribution of predicted percentage increase in global water deficit shown in Fig. 3.</p> <p>There is a contrast between the far north and the rest of the globe. In terms of increasing water deficit South America stands out as well as SE Asia. Africa is relatively uniform with a slight increase in water deficit.</p> | 4 |
| 3(c) | <p>Briefly explain how human activities can lead to water shortages.</p> <p>Many answers will note that global warming might lead to situations where there is an imbalance between evaporation and rainfall amounts. However answers can also emphasise the overuse of water, such as the depletion of groundwater resources.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of the nature of water deficit and the role of human activity in creating it. [4–5]</p> <p>L2 a limited understanding of the nature of water deficit and the role of human activity. [2–3]</p> <p>L1 little understanding of the nature of water deficit or the role of human activity. [0–1]</p> | 5 |

| Question | Answer | Marks |
|----------|---|----------|
| 3(d) | <p data-bbox="308 248 935 282">‘River flooding can be effectively prevented.’</p> <p data-bbox="308 315 903 349">How far do you agree with this statement?</p> <p data-bbox="308 383 1310 551">There should be an understanding of the nature of river flooding and the reasons for it. Hard engineering preventing rivers overflowing their banks will feature highly. But understanding of the factors that lead to flooding will lead to discussion of the role of soft engineering and catchment management to attempt to control these factors.</p> <p data-bbox="308 584 544 618">Candidates how:</p> <p data-bbox="308 651 1326 719">L3 a thorough understanding of the nature of river flooding and are able to provide a reasoned assessment of the question. [8–9]</p> <p data-bbox="308 752 1326 853">L2 a partial understanding of river flooding with probably an emphasis on hard engineering techniques. A somewhat limited assessment of the question. [5–7]</p> <p data-bbox="308 887 1326 954">L1 only a rudimentary understanding of river flooding with a no or inaccurate assessment of the question. [0–4]</p> | 9 |

| Question | Answer | Marks |
|---------------------|---|----------|
| Section B | | |
| Crime Issues | | |
| 4(a) | <p>Fig. 4A shows types of recorded crime, committed in England and Wales in February 2016. Fig. 4B shows the types of recorded crime committed in Northern Ireland in February 2016.</p> <p>State <u>two</u> factors that might affect a person’s vulnerability to crime.</p> <p>The list includes gender, ethnicity, household/family structure, socio-economic circumstances, household occupation, accommodation type, location of housing.</p> | 2 |
| 4(b) | <p>Compare and contrast the relative proportion of types of recorded crime committed in England and Wales with those committed in Northern Ireland in February 2016 shown in Figure 4.</p> <p>There is a similarity in the proportion of anti-social behaviour and violent crimes. There is a great proportion of other crime in Northern Ireland and a smaller proportion of vehicle crime and burglary. There are four points that could be made for four marks.</p> | 4 |
| 4(c) | <p>Briefly outline the concept of ‘defensible space’ as a means of reducing the amount of crime.</p> <p>The idea is to reduce the risk of crime by improved design, target-hardening, mobilisation of communities and Neighbourhood Watch. These are listed in the syllabus but there may be more. At least two well developed examples of defensible space are needed.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of the nature of defensible space and are able to discuss its role in reducing the vulnerability to crime. [4–5]</p> <p>L2 limited understanding of defensible space and its role in reducing the vulnerability to crime. [2–3]</p> <p>L1 little understanding of defensible space in reducing the vulnerability to crime. [0–1]</p> | 5 |

| Question | Answer | Marks |
|----------|---|----------|
| 4(d) | <p>Assess the effectiveness of initiatives to reduce crime rates at a local scale.</p> <p>There are a number of initiatives that could be discussed such as mobilisation of communities and Neighbourhood Watch. The effectiveness will depend on community involvement and this will depend on the characteristics of the population. Also, the effectiveness will depend on the nature of the crime. The reduction of some crimes may be easier than others. The initiatives must be relevant to the local scale.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of relevant initiatives and are able to evaluate their effectiveness. [8–9]</p> <p>L2 some understanding of initiatives to reduce crime at a local scale but with only a partial evaluation of their effectiveness. [5–7]</p> <p>L1 little understanding of initiatives to reduce crime at a local scale with no or inaccurate evaluation. [0–4]</p> | 9 |

| Question | Answer | Marks |
|----------------------|---|----------|
| Health Issues | | |
| 5(a) | <p>Fig. 5 shows the risk of emergence of an influenza outbreak.</p> <p>Define the term <i>endemic</i> with respect to health.</p> <p>A disease regularly found among particular people or in a certain area.</p> | 2 |
| 5(b) | <p>Describe the pattern of risk shown in Fig. 5.</p> <p>North America emerges as an area where the where the risk of emergence is high. The same is true for most of Europe. Asia has a high risk of emergence. South America has a generally low risk of emergence while Africa is quite varied but with a generally high to extreme risk especially in central areas.</p> | 4 |
| 5(c) | <p>Outline <u>two</u> factors that affect the ability of a country to contain the spread of disease.</p> <p>There are a great number of factors that could be discussed such as provision of health care, communication, level of economic development of the country concerned, population density in some cases. There needs to be two relevant factors so mark 2/3 or 3/2.</p> <p>Candidates show:</p> <p>L3 a thorough knowledge of the factors that affect the ability of a country to contain the spread of disease. [4–5]</p> <p>L2 a limited knowledge of the significant factors that affect the ability of a country to contain the spread of disease. [2–3]</p> <p>L1 little knowledge of the factors that affect the ability of a country to contain the spread of disease. [0–1]</p> | 5 |
| 5(d) | <p>Assess the social and economic impact of famine.</p> <p>The impacts of famine will depend on the population structure, socio-economic status, family structure and local and national economies. Thus, some societies and populations will be more susceptible. There will be an impact on the individual, as well as on the country and government as a whole. Governments will have to mobilise more resources to combat the lack of food.</p> <p>Candidates show:</p> <p>L3 knowledge of a wide range of impacts of famine with an ability to assess the significance of these impacts. [8–9]</p> <p>L2 knowledge of some impacts of famine with a partial assessment of their significance. [5–7]</p> <p>L1 little knowledge of the impacts of famine and with no or inaccurate assessment. [0–4]</p> | 9 |

| Question | Answer | Marks |
|--|--|----------|
| Spatial Inequality and Poverty Issues | | |
| 6(a) | <p>Fig. 6 shows the proportion of the urban and rural population living below the national poverty line for selected countries in 2010.</p> <p>State <u>two</u> single criterion indices that can be used to measure inequality and poverty.</p> <p>There are many of these including Gross Domestic Product per person, Gender Inequality Index, adult literacy rate, infant mortality rate.</p> | 2 |
| 6(b) | <p>Compare and contrast the proportions of the urban and rural population living below the national poverty line for the countries shown in Fig. 6.</p> <p>The main point is that level of poverty is greater in rural areas but that the difference in rates varies between countries such as the contrast between Mexico and Vietnam. There are also major differences between countries in both rates. There needs to be comparison between urban and rural and between some countries. There needs to be general comments that can encompass all the countries shown.</p> | 4 |
| 6(c) | <p>Briefly outline the environmental factors that contribute to regional poverty and inequality.</p> <p>There is a contrast between long-term environmental disadvantage/degradation and short-term environmental events. At the regional scale it is likely to be long-term disadvantages that are the most relevant. Such environmental factors could be climatic, nature of soils and natural resources, topography such as isolation. Diseases related to environmental factors e.g. malaria are also relevant. At least two well developed factors are needed. The emphasis is on a regional scale thus comparing countries or issues at a local level are not relevant.</p> <p>Candidates show:</p> <p>L3 a thorough knowledge of relevant environmental factors how these might lead to regional poverty and inequality. [4–5]</p> <p>L2 a somewhat limited knowledge of relevant environmental factors and how these might lead to regional poverty and inequality. [2–3]</p> <p>L1 little knowledge of relevant environmental factors and how these might lead to regional poverty and inequality. [0–1]</p> | 5 |

| Question | Answer | Marks |
|----------|---|----------|
| 6(d) | <p>‘Level of development of a country is the main determinant of the consequences of poverty.’</p> <p>How far do you agree with this statement?</p> <p>The syllabus lists access to employment, access to health and education, mortality and life expectancy, as factors related to the level of development of a country that can influence poverty and its consequences. The question implies an evaluation of factors, other than level of development, are required, especially to receive a mark in Level 3. The emphasis is on consequences and not how the level of development leads to poverty.</p> <p>Candidates show:</p> <p>L3 a thorough understanding of the consequences of poverty with an ability to evaluate the role of level of development leading to these consequences. [8–9]</p> <p>L2 some understanding of the consequences of poverty and the role of government in determining these consequences but with only a partial assessment of the question. [5–7]</p> <p>L1 little understanding of the consequences of poverty and the role of government in determining these consequences with no or inaccurate assessment. [0–4]</p> | 9 |

| Question | Answer | Marks |
|------------------|---|-----------|
| Section C | | |
| 7 | <p>Discuss the view that the relative importance of the primary and secondary impacts of geographical hazards varies with the level of development of the area concerned.</p> <p>Indicative content:</p> <p>The key is the understanding of the difference between primary and secondary impacts. If this distinction is not valid then the answer will be a little confused. Primary and secondary impacts need defining at the start of the answer. This will then form a good basis for the subsequent discussion. These impacts will vary with the nature of the hazards.</p> <p>At lower levels, candidates will have only a very hazy understanding of the difference between primary and secondary impacts and be unable to relate the relative importance of these impacts in relation to the level of development of the area concerned. At higher levels, candidates will have a thorough understanding of the difference between primary and secondary impacts and be able to relate the importance of these impacts to the level of development of the area concerned.</p> | 25 |

| Question | Answer | Marks |
|----------|--|-----------|
| 8 | <p>With respect to the geographical issues in an area you have studied, evaluate the relative importance of the physical and human environments in influencing the impact and management of these issues.</p> <p>Indicative content:</p> <p>The key is the description and analysis of the geographical issues that the chosen area possesses. The relative importance of the physical and human environment will depend on the area chosen. The issues could come from Section A or Section B or both and the area chosen can be from local to global scale.</p> <p>At lower levels, candidates will have trouble in distinguishing between the physical and human environment and be unable to provide a reasonable evaluation. At higher levels, candidates will have a firm understanding of the physical and human environment and have sufficient knowledge to provide as good assessment of their relative importance with respect to the issues faced by the chosen area.</p> | 25 |

| Question | Answer | Marks |
|----------|---|-------|
| 9 | <p>‘The study of geographical issues should recognise the diversity of viewpoints and opinions relating to these issues.’</p> <p>How far do you agree with this statement?</p> <p>Indicative content:</p> <p>The key is the definition and description of the issues to be discussed. As they are issues there are always going to be differing views as to the nature and importance of those issues. These differing viewpoints will form the nature of the assessment.</p> <p>At lower levels, candidates will only be able to discuss a limited range of geographical issues and be unable to explain why there may be different viewpoints concerning these issues. At higher levels, candidates will be able to discuss a range of geographical issues and be able to critically assess different viewpoints concerning these issues.</p> | 25 |