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General Certificate of Secondary Education
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Geography A 40301H

(Specification 4030)

Unit 1: Physical Geography (Higher)

Report on the Examination

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General

There was a wide range of marks achieved on this paper from different routes through the paper. The most popular combination, as on Foundation Tier, was made up of Questions 1, 5 and 7. All questions were done well by some students whilst others fared less well, indicating that the questions were all able to discriminate. At times, it was clear that there were differences between centres, as well as within centres, and it appeared that some students struggled with certain aspects of the specification. It is worth stating clearly at this point that **all** the content specified within a particular topic must be taught. It may be that there are certain preferred elements that are favoured by pupils and teachers alike but the specification prescribes the content, and questions should be expected on any part of the content. There were clearly elements of the content that were examined this year – notably chalk escarpments/cuestas and vales, flood plains and a coastal habitat – where students' knowledge and understanding was weak. This in turn probably had an adverse effect on the average score, as many students were evidently not prepared for such questions. There is a requirement that the exam papers provide complete specification coverage within 5 years and so there should have been no surprises in the questions set, providing there was adequate knowledge and coverage of the specification content.

Another element that led to the lack of increase in the average for the paper related to the perennial need to de-construct the question. The following is an extract from last year's report:

Centres should ensure adequate practice of past questions, but also ensure that candidates can deal with questions they have not seen before. It is unlikely that a question done from the previous year's paper will come up again in the same format. Thus, deconstructing questions forces candidates to be flexible in their responses. Candidates should identify the command word or words (and be previously aware of its/their meaning), the concept(s) concerned and what they mean, any limiting factors – such as the need to refer to a case study – and then to paraphrase it in their own words in their head to ensure the question asked is the one being addressed.

There was evidence that students were still failing to address the actual question set in the paper. This was especially apparent on Question 1(e). The command word was 'Describe' so there was an expectation for students to draw on their own knowledge and write about the **effects** of an earthquake such as deaths, injuries, and the collapse of buildings and roads. The limiting factors were the need to draw out differences in these effects between a richer area of the world, such as L'Aquila, Italy or Christchurch, New Zealand, and a poorer area such as Sichuan, China or Haiti. So the 'paraphrase' or translation as referred to in last year's Report should have been along the lines of wanting to know how impacts of an earthquake vary between a rich and poor area of the world so that, for example, they should describe how there are far more deaths in poorer countries because so many more buildings collapsed. Case studies could be (and often were) used appropriately but there was no specific requirement to do so but the vast majority of students answered a different question, regarding how the responses and not the effects were different, or reasons why the effects were more severe in a poorer area. In each case, correct information was included but it did NOT answer the question asked**.** As a result, many candidates scored at a relatively low level – possibly one or two marks for effects were teased out of an answer that focused on contrasts in building quality, the presence of earthquake drills, etc.

The assessment of mapwork and other skills has always been integrated into the content of this specification. OS maps in this series were included in all Section B questions where there is an explicit attempt to ensure questions have a similar structure and, where appropriate, require similar skills. However, this does not mean that skills are being tested more here than in Section A, just that different skills are tested in the two sections as the overall number of marks for skills is the same. Generally, the OS map related questions were completed to a good standard. In this context, drawing a map of a location – especially when it is explicitly stated in the specification – is an appropriate way of examining spatial knowledge. This was the case in 2(d) where the content demands 'a case study of a quarry – its location etc.'

Students' knowledge and understanding of key terms should be developed through a working knowledge of the subjec throughout their course of study. Ideally, where students offer definitions of the key terms these should be underpinned by a clear knowledge that comes from what they have

deduced, rather than just having been copied from a textbook or other source. Knowing such definitions (and understanding them) should make straightforward any questions that require the definition of a terms or identification of the difference between two related terms. Candidates would then easily gain marks on the difference between the focus and epicentre of an earthquake, the difference between weather and climate and the difference between a food chain and a food web.

Some aspects were well done such as the use of Figure 2 in question (1d) to compare and/or contrast the two earthquakes; the different views of interested parties in the development of the quarry in 2(e); the ways in which a river transports its load and the sea erodes in 5(a) and 7(a) respectively. The mapwork skills questions in Section B were generally competently done and the diagrams used in 1(a)(ii) were often useful. Candidates should be encouraged to use these when explaining the formation of landforms, even without it being explicitly requested. Where candidates remembered the importance of sequence and process, landforms were well explained. A significant number sought to use case study material – even when not specifically required – and this good practice should be encouraged as it enhances the quality of answers and allows progress to be made through the levels.

SECTION A

Question 1 The Restless Earth

Part 1(a)(i) was well done, provided there was a focus on the information given in Figure 1. There had to be a sense of location through a clear reference to where ocean trenches are found. Thus, answers relating to their presence near to fold mountains or off the west coast of South America were valid, whilst those that referred to plate margins or drifted to explanation were not creditworthy in this question. There was a wide range of responses in 1(a)(ii). Diagrams were usually present but variable in quality and effectiveness. There was a need for clarity – the worst were inaccurate and had a vague idea of plates but movement was not identified. At the opposite end of the spectrum, candidates numbered their diagrams in a clear sequence and added detail of types of plate and movement, and more, to their diagrams. These candidates often referred to their diagrams in complementary text and gave a clear sequence and specific reference to process using appropriate terminology, such as geosyncline, subduction and convection currents. The weakest had vague ideas of plate movement. Fold mountains were better done overall than ocean trenches. Here, for some, there was confusion with constructive plate margins and the belief that a gap was left as plates moved apart (confusion with mid-Atlantic ridge perhaps?). There was no need to consider fold mountains and ocean trenches together and it was a valid approach to refer to destructive collision margins for fold mountains, and destructive subduction for ocean trenches. The best did see a link and used subduction zones for both fold mountains and ocean trenches

Overall, performance on 1(b) was good. Although some referred to magnitude, which indicated what was measured rather than how the Richter scale measured earthquakes, most obtained at least two marks. This was for recognition of the range of the scale, the fact that it was logarithmic and how this worked (plus exemplification of this) and, less secure, reference to the actual capture of the data. There was some confusion with the Mercalli scale.

Precision was the key in 1(c). Clear knowledge allowed rapid progress in establishing the difference between the focus and the epicentre. Some struggled to explain exactly what they meant and a minority got them the wrong way around.

There was a need to address the requirement for similarities and/or differences in 1(d) and not to write two separate accounts which penalised some. The information in Figure 2 was well used and most identified differences in the depth and focus. The best supported their points with reference to evidence, working out differences in depth and magnitude (and qualifying to demonstrate understanding), and used the scale to consider the range of the shockwaves.

The responses to part 1(e) were probably the most disappointing on the paper. The specification indicates the need to cover effects and responses to earthquakes in a rich and poorer area. This question focused on **effects** but time and again answers disregarded this and launched into reasons for differences, rather than an account of how they were different, or considered responses and how people dealt with the effects.

Question 2 Rocks, Resources and Scenery

Many students gave clear and precise answers to 2(a). Typical responses included reference to magma cooling and where this occurred (either intrusive and extrusive) and the presence of crystals.

Some confused distribution for location in 2(b) and wrote about granite being found in Scotland, Wales and the South West. However responses needed to indicate the spread of the granite and thus identify that most is found in Scotland with a small pocket in north west England to gain credit for the question set.

In 2(c)(i), specific, accurate knowledge was limited. The better responses accurately arrowed and labelled the scarp and dip slope, a dry valley, the clay vale and perhaps the spring line. There was some confusion with limestone features, with resurgences and swallow holes being mistakenly identified. The explanation of the escarpment/cuesta and vale for (c)(iii) was, on the whole, poorly done. Some candidates simply omitted the question. Weak attempts recognised that chalk was harder than clay and so would erode more slowly. Often, candidates seemed to be guessing about the role of earth movements and not perceiving the link to tilting. Where it was understood,

candidates developed a clear sequence indicating the tilting of the rock strata and the differential erosion and its impact. However, the final link to the scarp and dip slope was very rare.

Answers to part 2(d) showed evidence of a lack of knowledge of a specific location of a quarry despite the explicit statement in the specification. Some did not actually identify the name of a specific quarry. The question also revealed a limited ability to draw a meaningful sketch map which would seem a useful way of integrating skills into the content. Some students drew an outline of England and Wales and showed the location with a dot which attracted level 1. There were relatively few good responses where an accurate sketch map placed the quarry in a local context with village/town names, road numbers, railways and other information.

In contrast, 2(e) was much better done. Popular choices were the quarry owner and the school leaver in support of the quarry and the local cafe owner and second home owner against the quarry. The cafe owner at times was seen in support of the development and this was permissible if relevant points were included. Poorer responses focused on jobs and money in support but better candidates developed their points with regard to the lack of alternative employment and the importance in helping the local economy. Arguments against followed a similar pattern and some good contrasting responses were given regarding noise from traffic and blasting, and the dust and the level of visual intrusion for the second home owner in search of peace and a beautiful landscape.

Question 3 Challenge of Weather and Climate

Where students knew the definitions of weather and climate then part 3(a) was effectively answered. However, often candidates had an idea of the differences but struggled to express their ideas clearly and accurately enough. Some believed that climate was the average over one year. The best noted the day to day contrasts and the 30 year average for climate.

In 3(b)(i), most were able to obtain the 2 marks available. Here, students wrote in precise terms, noting the change throughout the year and offering evidence in support. Vague statements did not gain credit. There was some limited drift to rainfall which was not relevant. Most did not find 3(b)(ii) easy, despite the help given in the question. Often the answers were dominated by description with only some limited explanation. There was a recognition that Princetown was very wet because it was near the sea and high up, but relatively few could articulate why with regard to the moist air off the sea and the impact of the air being forced to rise.

Responses to 3(c) showed substantial variety. Some clearly knew a range of characteristics for both a summer and winter anticyclone and were explicit about the similarities, such as clear skies, and the differences, such as hot sunny summer days and cold and frosty winter mornings. Some failed to make these similarities and differences clear and wrote two separate accounts. Others were vague, had limited knowledge and were confused, believing that a winter anticyclone was a depression.

There was a need to label what was could be seen in Figure 9 and to position arrows accurately in 3(d)(i). The eye was clearly visible and for the mark to be awarded the arrow had to 'hit' the eye. Other labels referred to the eye wall, the anticlockwise spin, the varying thickness of the cloud. Some were just guessing, labelling warm and cold front. There were some candidates who drifted to or even focused on *effects* in 3(d)(ii) as was seen in answers to the final part of Question 1. However, this did not occur here on the same scale as most did correctly consider responses, with Hurricane Katrina and Cyclone Nargis being the most popular choices. The key to moving from level 1 to level 2 was to refer specifically to the case study, for example, recognition that thousands had been placed in the Superdome in New Orleans and that 80% of the city's population had been evacuated.

Question 4 Living World

Again, if definitions of a food chain and a food web were known then part 4(a)(i) was effectively answered. Often, however, students had an overall idea but struggled to be precise enough on both elements to obtain both marks. There was the notion of simple versus complex but with limited exemplification. In 4(a)(ii) there was a need to use the resource – Figure 10 - in an applied way rather than a literal way that described what the diagram looked like. The best responses began with the tree as the producer and described links, with the next level offering examples of the links identified on Figure 10. Part 4(a)(iii) was better answered with many realising that the tree would flourish as there would be fewer insects to eat the leaves; similarly the birds that ate the insects would suffer as there would be less food. Some overstated this, believing that everything would die which was inaccurate.

In 4(b), there was clearly some confusion with tropical rainforests and the overall the quality of responses were quite considerably variable. The command was to 'explain' but many focused on description. Thus, there was a recognition that trees lost their leaves in the autumn and perhaps a reference to recycling of nutrients but no clear engagement with why this happened with regard to the limited amount of sunlight for photosynthesis and the need to reduce transpiration loss. Where this was present, with reference to the root systems, candidates made significant progress. Some were very specific to the ecosystem and recognised how certain species, such as bluebells, adapted by flowering early before the trees had leaves to maximise the light available.

There was a tendency at times to lift information from the text in Figure 11 in 4(c). This was a standard level 1 response. However, many did go beyond this and could make clear a variety of ways in which the lodge was attractive to ecotourists – for example, reducing waste by using wood discarded by loggers thus reducing the need for further felling or by recognising that solar energy is non-polluting and that there is no carbon footprint.

Some were aware of the strategies and what they entailed in part 4(d). Others were aware of sustainable management. However, some struggled to link the two aspects and recognise how selective logging – restricting the number and type of trees that are felled - can lead to the preservation of the rainforest, not just providing a habitat for wildlife but also protecting the soil and ensuring a long term income.

SECTION B

Question 5 Water on the Land

Many were able to access the marks available in 5(a) and, indeed, many gave more points and detail than that required for the three marks available. There was much detail on processes and how they transported material and, for some, reference to the size involved. At the other end of the scale, there were simple listss of processes and some confusion between saltation and suspension plus some irrelevant drift to erosion.

In 5(b), most were able to obtain the marks. The most common answer in 5(b)(i) was 20m showing use of the contour lines on the map. However, others answered with some very large figures that bore no relationship to what was evident on the map. For 5(b)(ii) most recognised what happened at 411564 and used appropriate terminology, such as a tributary joining, or the presence of a bridge. Some perceived that the river split but this was allowed as a valid observation from the map. The vast majority noted the correct distance in 5(b)(iii). Part 5(b)(iv) was less well done with the 'describe' command largely being interpreted as 'identify'. Two marks were allowed for the recognition of any two features – usually the meander and embankment and then the flood plain. However, few went on to describe what the landforms were like as required. Some drifted into explanation or noted that in the future the meander may lead to the formation of an ox bow lake.

Overall, the explanation of the flood plain formation in 5(c) was poorly done. It seemed as if candidates were not prepared for this landform in the way they would have been for a waterfall or a meander even though it is equally clearly part of the specification. Often, flood plains were described or students cited their advantages for agriculture or how they could be used for flood protection. In fact, some candidates included anything apart from what was needed. Some just noted the river flooded but more than this was needed to attract credit. There had to be reference to the deposition process and why this happened, with some detail and recognition of repetition for level 2. Some candidates did have this reference to sequence and process, and a minority also noted and explained the importance of lateral erosion. This was, however, all too rare.

There was a need to describe where floods occurred in 5(d)(i), not just to refer to number. The responses should have given a clear sense of place. Often, at the lower end, answers were list-like and simple, with only basic points being noted. Level 2 responses were often aware of changes in location through the years or noted the clusters in certain areas or adjacent to certain rivers. Some appeared to be answering a different question in 5(d)(ii) by having two case studies and comparing the responses. A minority discussed the effects – at least in part - another reminder of the need to be fully aware of the meaning of subject specific terms. Common examples included Boscastle, Carlisle, Tewkesbury and Bangladesh, as well as the more outdated Lynmouth. If candidates overcame the

above points, they often answered well. Management was seen as one response though answers here were often quite generic. The key discriminators were to refer to more than one response and to be specific to the case study – in a precise way for level 3 – as seen in answers referring to how many helicopters were deployed in Boscastle, the need to search the harbour for people and recover the 84 cars found there, and the modification of the bridge which caused so many problems on 16th August 2004.

Question 6 Ice on the Land

Many were able to access the marks available in 6(a) and, indeed, many gave more points and detail than required for the three marks available. Most recognised the collection of rainwater in cracks in the rock, the subsequent reduction in temperature at night resulting in freezing, the expansion of the ice to put pressure on the rocks and the repetition of this causing bits to break off. Some wrote more than required whilst others were vague and imprecise so did not get all the available marks.

The correct compass direction was usually given in 6(b)(i) but some did reverse it. Most could identify the steep slopes but fewer achieved the height mark as there had to be some idea of the exact height, not just 'high', whereas the recognition of 'steep' from the contours was enough for the slope aspect. Some failed to do part 6(b)(iii) but where it was answered, some failed to be accurate in the positioning of the arrow head and some just guessed at any landforms – often rivers rather than landforms resulting from glacial erosion. The best accurately located and labelled features such as corrie tarn, arête, pyramidal peak, glacial trough and ribbon lake. A corrie is a favoured landform of glacial erosion but responses to 6(b)(iv) were variable and, at times, disappointing for a 4 mark question. Some believed that snow rather than ice was responsible for the corrie and some described rather than explained. Another type of response established – in detail – the formation of the ice but then stopped at this point. Others had an idea of the processes but could link them clearly to the formation. The best had a clear sequence, and were aware of the role of different processes and where they occurred to lead to the corrie.

There was a need to use Figure 16 in part 6(c). Too many wrote about what they believed should be there or may be there, rather than what was visible. Although there was some merit in describing activities, there was a need to refer to the photograph and describe the landscape shown 'in *this* Alpine area' and *then* indicate what activities there were likely to be, not just launch straight into activities. Good responses noted the sheer rock faces that may be used for rock climbing, the cable car to enjoy the views of the glacial landscape and the steep valley and access to skiing on snow covered mountains as seen in the distance.

As in Question 5(d), the use of the case study was the critical discriminator in part 6(d). It was also essential to engage with the management thrust of the question and not get side tracked into attractions and explanations of why tourists came and the services that were provided. Most used Chamonix as a case study and strategies had to ring true for this area for level 2 but precise information was needed for level 3. Thus, strategies relating to managing ski runs and avalanches were permissible for level 2 unless there was something specific to the runs in Chamonix (which would open up level 3). However, often it was the transport strategies – the clean energy buses and free public transport operated by the Chamonix municipality or planning (Tomorrow's Valley and the Espace Mont Blanc) - that led to level 3, though this was relatively rare.

Question 7 The Coastal Zone

Many were able to access the marks available in 7(a) and many gave more points and detail than required for the three marks available. There was much detail on processes and how they eroded material. Some referred to the strong backwash of destructive waves and noted where erosion was focused, as well as describing the processes. At the other end of the scale, there were some simple listss of processes, some confusion between attrition and abrasion and some irrelevant drift to transportation.

Most were able to transpose the feature found at the grid reference to identify the nature reserve in 7(b)(i). The distance measured generally attracted at least one mark but two marks were awarded where greater precision was demonstrated There were many accurate sketches for the shape that began and ended in the correct places and followed the outline of the spit, which had to be joined to the land and not seen as an island. Irrelevant detail was often added, such as the location of roads and car parks rather than specific features of the spit. Valid labels identified features which were in

evidence on the map, such as the sandy beach, the shingle to the east and the narrowest part, rather than processes such as longshore drift. As with the flood plain in Question 5, based on student responses to 7(b) (iv) spits did not seem to have been given the same coverage as headlands and bays or arches and stacks, even though they are given equal prominence in the specification. Many had little idea about their formation, at best recognising deposition or longshore drift as being responsible somehow. Better responses noted the change in direction of the coastline, the role of a dominant (and secondary) wind direction and the process of longshore drift. A few included diagrams to help and this should be encouraged even where a blank box is not provided.

As in question 6(c), there was a need to use the photograph - Figure 18 - in answer to part 7(c). Too many wrote about what they believed should be there or went on to explain why the vegetation changed in spite of the command word being 'describe'. Changes in the vegetation were clearly apparent from the photograph: its patchy nature nearer the sea; the dominance of grasses that were low and light yellow in colour. This should have been contrasted with the complete cover inland where the vegetation is seen to be taller and where there were more species present (indicated by the different colours) such as shrubs, and not just grasses.

Despite the fact that 'coastal areas provide a unique habitat' is one of the six key ideas for this topic and a case study of a coastal habitat is required in the specification content, many candidates had clearly not been prepared for Question (7d). Some candidates did not attempt the question, others wrote about management (which could have been relevant in the correct context) or wrote about the formation of headlands and bays, arches, stack and stumps – all of which was irrelevant. A *habitat* relates to the place where plants and animals live and these are the key component. Where candidates had considered sand dune areas or salt marshes (or indeed both in some occasions – although there is no need to cover both), candidates engaged with the question. There was reference to the exposure to strong winds and how vegetation adapts to this and the moving sand; similarly, the saline conditions of the salt marsh and specific species were referred to. Coastal protection to preserve the habitat was a valid inclusion at Keyhaven Marshes, for example, and the changing conditions with distance from the sea that led to different species becoming dominant were another valid approach. The key message is that if it is in the specification – and a coastal habitat clearly is – it must be taught.

Mark Ranges and Award of Grades

Grade boundaries and cumulative percentage grades are available on the Results statistics page of the AQA Website.

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