WJEC
CBAC

GCE EXAMINERS' REPORTS

GEOLOGY (New)
AS/Advanced

SUMMER 2009

Introduction

Summer 2009 is the first award of the new AS. For all specifications there have been changes to the content of the units, and in many new marking criteria have been introduced and unit weightings altered. Also in some subjects there has been the withdrawal of internal assessment. However, the biggest change in most subjects has been the reduction from a three to a two unit assessment.

In moving to the new specification awarding bodies have sought to maintain the overall United Kingdom standard for AS, as measured by the proportion of candidates achieving grade A and by the proportion achieving a pass grade in each subject. Comparability between 'old' and 'new' specifications is measured in terms of the overall subject outcome and not in terms of unit outcomes. Many of the units in the new specifications will bear little relation to those in the old specifications. Even where they are very similar, it is quite likely that outcomes will be different. The expectation is that the number of grade As at unit level will decrease in a specification where the number of units is reduced, whilst the number of passes will increase. The overall cash-in outcome, however, will be maintained. These same principles will apply to the new A level where a six unit assessment is reduced to a four unit assessment.

Statistical Information

This booklet contains summary details for each unit: number entered; maximum mark available; mean mark achieved; grade ranges. *N.B. These refer to 'raw marks' used in the initial assessment, rather than to the uniform marks reported when results are issued.*

Annual Statistical Report

The annual *Statistical Report* (issued in the second half of the Autumn Term) gives overall outcomes of all examinations administered by WJEC.

GEOLOGY

General Certificate of Education 2009

Advanced Subsidiary

Principal Examiner: Mr. David Evans

Unit Statistics

The following statistics include all candidates entered for the unit, whether or not they 'cashed in' for an award. The attention of centres is drawn to the fact that the statistics listed should be viewed strictly within the context of this unit and that differences will undoubtedly occur between one year and the next and also between subjects in the same year.

Unit	Entry	Max Mark	Mean Mark
GL1	1337	60	32.4

Grade Ranges

A	42
B	36
C	30
D	25
E	20

N.B. The marks given above are raw marks and not uniform marks.

GL1

This proved to be fair yet demanding paper, with candidates given the opportunity to display knowledge and some more advanced skills such as mathematics, map interpretation, and graphical analysis.

Q.1 Many candidates recognised that igneous body P was a linear, discordant feature and correctly interpreted it as a dyke.

(b) Many candidates noted the presence of more coarse minerals in the centre, but lost a mark by not including specific reference to crystal sizes using Figure 1b. Most students linked the finer crystal size at the edges to more rapid cooling, with many explaining this in terms of the effect of the cold country rock.

(c) Relied on simple knowledge to use the evidence of crystal size and the mafic nature of the rock to recognise that this was the medium grained rock dolerite. Many candidates did not identify the rock correctly suggesting a lack of revision of knowledge based aspects of the specification.

Whilst there is more than one version of the classification of igneous rocks, all versions would put the crystal size of 1.2 mm in the medium crystal size category. Care was taken when setting the paper to ensure that all candidates should be able to recognise this as a rock of medium crystal size.

(d) The weaker candidates simply described the crystal sizes at both localities for which no credit could be given. The explanation was correctly noted as due to locality 2 cooling more slowly due to its position in the centre of a larger intrusion than locality 1.

(ii) Only the best candidates went on to recognise the chilled margin of igneous body P.

(e) The majority of candidates scored well with use being made of cross-cutting and chilled margin evidence accumulated from elsewhere in the question.

Q.2 This question was the most successfully undertaken of the four on this paper.

(a) Marks were awarded for simple textural statements regarding size, shape and sorting of the components and recognition of the cement. Despite the relatively poor quality of the diagram Figure 2b, the marks should have been straightforward to gain. All too often there were basic errors in answers with many igneous terms used.

(b) Many candidates surprisingly failed to gain all 3 marks despite the many prompts in the question. Many candidates did not notice the scale bar which could perhaps have been more prominent and so credit was given to students who drew the circle 3 cm in reality, or who adopted another scale of their own.

(c)&(d) Usually well answered, where the alignment of magnetite, preserved once the lava had cooled past the Curie temperature was readily noted. Most candidates read the graph correctly although a minority of weaker candidates confused the axes and gave inappropriate responses.

(e) Many candidates gained full marks and the mark scheme allowed for a wide variety of responses from the wealth of evidence available.

Q.3 This question was found to be the most demanding of the paper and involved the most complicated skill of 3-D interpretation. It also tested metamorphism, a topic traditionally found more difficult by candidates.

(a) (i) This was a simple recall of knowledge and was done very badly, with many answers involving rocks that were not even metamorphic.

(ii)&(iii) Were done more successfully with a large majority of candidates gaining both marks.

(b) (i) The key to success was to note the presence of the marble within the slate belt and the recognition of slate as a relatively low temperature and pressure regional metamorphic rock.

(ii) The marble was clearly a contact metamorphic rock due to its location within the aureole of the pluton and the best answers developed this, noting the need for high temperature but low pressure in order to correctly locate B on the graph.

(c) This was the most difficult section of the paper and only the best candidates were able to gain all three marks. The evidence for model 3 being correct hinged on the recognition of the significance of the sinuous fault line on Figure 3a which suggests a low-angle fault in cross section, and the concept of the coarse-grained igneous rock ruling out its origin within a lava flow.

Q.4 (a) Many candidates were able to recall the appropriateness or otherwise of the K/Ar and ^{14}C methods for lavas. Many too recognised that goniatites would not be present in lava, but fewer noted that goniaites were extinct well before 5 Ma and indeed can only be used for relative rather than absolute dating.

(b) (i) Most students correctly measured the distance.

(ii) Many struggled to handle the units correctly.

(c) It was pleasing to see that this question was well answered with clear understanding of the direction of plate movement and the role of mantle and plate boundary processes in this.

GEOLOGY

General Certificate of Education 2009

Advanced Subsidiary/Advanced

Principal Moderator: Mr. Craig Wall

Unit Statistics

The following statistics include all candidates entered for the unit, whether or not they 'cashed in' for an award. The attention of centres is drawn to the fact that the statistics listed should be viewed strictly within the context of this unit and that differences will undoubtedly occur between one year and the next and also between subjects in the same year.

Unit	Entry	Max Mark	Mean Mark
GL2a	1148	60	34.0

Grade Ranges

A	41
B	36
C	32
D	28
E	24

N.B. The marks given above are raw marks and not uniform marks.

GL2a

The paper tested the range of skills and techniques flagged up in Unit GL1 of the specification. The demands made by the paper on candidates were designed to be broadly comparable with what is now the legacy of previous years. It was essentially the same paper as the 2009 legacy with the first 54 marks being common. The only difference was in Question 6, which replaced Question 5 (b) of the legacy paper. It was also a pioneer paper in that for the first time it had to be, like GL2b, centre marked with moderation by the WJEC team (these being the same experienced examiners of the legacy team). A mark scheme was published on the day of the test and guidance in its application was available via an e-mail to the Principal Examiner for this unit. The scheme did suggest that it couldn't give every possible alternative and that alternatives could be accepted. The moderation process indicated that this did occur in some centres, but others stuck rigidly to the published scheme. These alternatives in fact anticipated changes to the legacy mark scheme agreed by the team at the post-examination conference questions 2 (a), (b) and 4(a) (i). A decision was therefore made to give benefit to candidates and apply these changes during the moderation process to those centres who had marked only to the published scheme. This also overcame the apparent mis-match between the two schemes when centres had entered candidates for both specifications. There were a few centres who were deemed too generous and again the moderation process adjusted their marks. There were 86 centres who entered candidates for this specification. 70 were not scaled, 11 were scaled upwards and 5 were scaled downwards. The statistics are almost identical with the 2008 legacy paper which, unlike that of 2009, had the full ability range of candidates. It is concluded that, despite the changes, this year's paper performed at a similar level to previous ones.

Q.1 (a) Many candidates accurately read the question stems and so were able to structure their answers to gain maximum credit. A few, however, attempted to suggest reasons why Rock Unit F in Photograph 1 was the intrusion with others suggesting that Rock Unit A was an extrusion.

(ii) A description of "crystalline" alone was not credited as this is applicable to both extrusive and intrusive rocks. The coarse crystals in Specimen A and the fact that Locality II on Map 1 was not within a chilled margin usually allowed candidates to correctly argue that the texture resulted from a slow cooling rate typical of a large intrusion. Credit was also given to candidates who identified the specimen as granite and then gave the explanation that these rocks typically form in intrusions.

(b) (i) Most candidates linked the change in trend of Rock Unit a with the fault at Locality III.

(ii) Not all were able to correctly argue the relative ages – a study of Map 1 clearly shows that the main outcrop of the intrusion cuts the fault and is therefore younger.

(c) It was pleasing to note that almost all candidates followed the rubric and only ticked three boxes (the mark scheme penalised those who tick more). K to L is a transect from shale into an aureole and therefore tested the textural changes brought about by contact metamorphism, but the responses were disappointing with relatively few candidates gaining full marks.

Q.2 (a) Required a description of the test (not just a name) and a result which could have been obtained by the specified equipment. This is testing the ability to plan and implement. The mineral data sheet indicates that hardness is a useful property for diagnosis of gypsum and this was compulsory; many other tests were described and credited but not that for cleavage given that the specimens were fibrous aggregates. A negative test for acid was originally not going to be credited, but as many candidates had used this to eliminate calcite, the examiners' conference, held after a selection of scripts had been viewed, decided that this was acceptable. A very small number of candidates obviously used Specimen D (red sandstone) here and this may have been a consequence of the changes brought about by WJEC in that it didn't have the specimens pre-labelled but asked centres to identify them to candidates. Feedback from centres suggested that some were placed in labelled boxes and others linked them to a centre produced sheet of photographs. Centre staff are asked to examine the specimens on arrival and so photographs are allowed, but these must be given the same security as the specimens and papers until the test is taken.

(b) Was poorly answered. Transect M to N on Map 1 is a measurement of the width of outcrop while Figure 1 is the true thickness of the rock unit; many candidates stated "depth" (i.e. as in a borehole) but this wasn't credited. If Specimen D was examined using a hand lens then answers addressing the size (a medium to medium-fine sandstone), shape (majority are rounded) and the nature of the contact between grains (not interlocking, with pores) gained full credit provided the scale on Figure 2 was correctly utilised. Drawings of fibrous gypsum were sometimes seen – the problem mentioned previously or just carelessness by candidates who didn't appreciate the change in letter in the stem?

This required a correct evaluation and evidence for the mark for each rock unit. All were deposited in *"a desert environment by fluvial and/or aeolian processes"*. Photograph 2 showed desiccation cracks and Figure 1 indicated fine textured sediment. Candidates who appreciated this usually correctly stated false with an adequate explanation of why Rock Unit C wasn't aeolian. Gypsum (Specimen C) is also an evaporate mineral. Photograph 4 and Figure 1 gave information that it was too coarse to have been transported and deposited by wind – a fact realized by many candidates. Glacial origins for Rock Unit E were not credited. Photograph 3(cross-bedding), Figure 1 and Specimen D allowed candidates to argue that it could have been an aeolian dune, but equally, those from centres who have examined red beds in the field suggested a fluvial origin. Both routes gained credit!

Q.3 (a) Some candidates penalized themselves by drawing the whole of Photograph 5 rather than just the circled area. Some excellent drawings were seen, but careless observation, e.g. in the number or shape of thecae reduced the total awarded in most cases.

(ii) "Graptolite" almost always the answer but some candidates went further by identifying the fossil as "*Didymograptus*" – impressive answers for only 1 mark!

(b) This allowed both preservation and environmental statements to be credited.

Q.4 (a) (i) Although most candidates were able to correctly identify the rock units they were often less successful in determining their relative ages, which are clearly indicated by dip symbols on Maps 1 and 2. Fault F1 has a reverse movement, but where candidates had incorrectly stated that Rock Unit B was the younger, a normal movement was credited if arrows were drawn to indicate this. This is to avoid a double penalty to the candidate for getting a previous part of the question wrong. It is also hoped that candidates realize that the younger beds go down in dip-slip movements!

(ii) A surprising number got this wrong.

(b) (i) This required that candidates draw axial plane traces across the surface outcrop. It was argued, and accepted, at the examiners' conference that the use of the word "either" in the stem could have been interpreted as being only on one side of the fault. As usual, however, the award of full marks was only given for accuracy in position, length and labelling of the APT.

(ii) This saw many candidates mistakenly taking the direction of dip of the limb as the fold trend.

(c) (i) Many correct answers were seen.

(ii)&(iii) Not all were as successful. The movement was to the right but even if this gained credit, candidates then had difficulty in giving evidence. The displacement of one bed is not conclusive, as dip-slip faults also have this effect. Answers which mentioned offset of the fold axis or fold limbs were the commonest to gain credit.

Q.5 The very flexible mark scheme traditionally used in questions of the type continues to allow credit to be given for any good interpretation of the information given on Map 1. There are some centres who obviously spend considerable time and effort on map work and here candidates' scores on this question are of a much higher standard than the rest of their responses within the paper, as well of other centres.

Q.6 This was an innovation to the "practical" paper. It was inherited from GL1 where it had attempted to credit geological understanding gained in the field as well as the classroom. The chosen topic this year was the "*principle of superposition of strata".* Reference was made to the relative age of Rock units C, D and E on Map1. The question was about how this principle is applied to get these relative ages. Answers could have been entirely from a candidate's own fieldwork where similar problems have had to be solved, but it also could have been answered using Map 1, Figure 1 and Photographs 2-4. Credit was given for "basics" and then "examples". The final mark scheme gives details. Very few candidates gained full credit on this question; most were able to get enough on the basics to gain half marks, although the inversion, or not, of beds was often not commented on. Weaker candidates either didn't do it or answered by making it into a "legacy style" column with events indicated by arrows.

GEOLOGY

General Certificate of Education 2009

Advanced Subsidiary

GL2b Investigative Geology

Principal Moderator: Dr. Alan Seago

Unit Statistics

The following statistics include all candidates entered for the unit, whether or not they 'cashed in' for an award. The attention of centres is drawn to the fact that the statistics listed should be viewed strictly within the context of this unit and that differences will undoubtedly occur between one year and the next and also between subjects in the same year.

Unit	Entry	Max Mark	Mean Mark
GL2b	232	60	40.6

Grade Ranges

A	48
B	42
C	36
D	30
E	24

N.B. The marks given above are raw marks and not uniform marks.

GL2b

Twenty three centres submitted field investigations for moderation. It is pleasing to report that centres are taking note of comments made in individual centre reports in previous years so that there is a continuing improvement in the suitability of tasks being undertaken and the quality of candidates' work. There has been a vast reduction in the number of centres where scaling is required and the amount of scaling that has to be applied. There are two main reasons why scaling has to be applied:

- reliable rank order but marks generous or severe
- failure to show how criteria have been achieved by annotation of candidates' work.

Centres are not now creating difficulties for themselves and for the moderators by submitting field investigations from outside the context of GL1 skills. Centres should be aware of the required context of the investigation at all times as described in the specifications.

The centres are to be congratulated on:

- the standard of work produced by the candidates
- the opportunities given to the candidates to study geology in such suitable areas
- and in most cases the accuracy of the assessment.

The enthusiasm for geology and expertise of the teaching staff in centres is obvious from the quality and effort put into coursework submissions.

There were one of two examples of errors in administration particularly by new centres such as using the incorrect forms, not doubling the marks to a mark of 60, discrepancies between marks on the work and on the forms and not authenticating the work of the candidates.

The better investigations include the demonstration of basic field skills such as rock identification and textures, identification of field structures using dip and strike/field sketches, sedimentary logging and fossil identification. The data collected can be manipulated and presented in cartographical or graphical form. Some excellent field investigations are now being seen which are well suited to the assessment framework. It is good to see geological field skills being demonstrated with a high degree of competence. There were, however, a minority of investigations which would have been more suited to GCSE lacking, as they did, any scope for advanced analytical skills and any degree of complexity. It was disappointing to see the 'building stones' investigation appear once again after a welcome absence for a number of years now. The basic field skills of measuring dip and strike, drawing field sketches of geological features, constructing logs and mapping of relatively straightforward structures cannot be demonstrated in this investigation. Moderators, whilst appreciating that large numbers may be difficult to accommodate, would hope to see candidates given greater opportunity to demonstrate a wider range of geological skills, particularly if suitable geological locations ware within easy reach of the centre.

In some cases there was no risk assessment although the number of instances is decreasing. It was pleasing to see the extensive use of the Planning Tracking sheet. Some thought has to be given at the planning stage as to whether the data being collected is suitable for processing and analysis e.g. histograms, cross-sections, logs, rose diagrams, maps and geological histories. A number of centres are now making preliminary visits to sites in order to allow some forward planning by candidates, which often results in better Planning marks. Some candidates devoted insufficient time on the retrieval and evaluation of relevant material from different sources.

Some field notes consisted entirely of tables of data and it would be an improvement to see a variety of data collection including field sketches and rock descriptions etc. In a number of cases, opportunities for the collection of basic field data have been missed. Observations such as rock identification, grain size, sorting, direction of cross-bedding, clast roundness/ orientation, field sketches, dip and strike measurements should normally be part of every investigation where appropriate. There is no need for candidates to repeat observations made in the field notebook within a report unless it contributes significantly to the analysis. It is more advantageous for candidates to concentrate their efforts on the analysis and evaluation. In a minority of cases it was difficult to distinguish between field data and secondary data or individual work and collective work. Centres and candidates should ensure that nature of the work is clearly identified for moderation. Candidates are making good use of their IT skills.

A mixture of tasks was undertaken, with a rough break down being investigations into:

- interpretation of sedimentary environments (sedimentary logs, fossils and rock description)
- mapping exercises (leading to drawing up of geological sections and history)
- analysis of fossil assemblages
- joint orientation related to faulting (rose diagrams and stereonets)
- structural analysis (faulting and folding styles related to compression or tension or to specific orogenies)
- textures of Quaternary coarse grained sediment
- nature and relative age of igneous intrusions
- evidence for contact metamorphism around a granite intrusion.

Centres should be congratulated on the variety of opportunities given to candidates in areas of outstanding geology such as, North Wales, Isle of Arran, Pembrokeshire, Ogmore, Yorkshire coast, Alderley Edge, Gower Peninsula, Dorset, Black Mountain, Lake District, Devon and Cornwall. Other centres made good use of suitable local geological locations.

Centres should be aware that there is help available from WJEC. Published exemplars of coursework investigations can be obtained from WJEC offices and INSET activities are provided. Moderators' reports on the current moderation process are sent out to centres. Centres are urged to act on any recommendations in the Moderators Reports. The Moderators do not enjoy moderating work which achieves low marks as this is going to be disappointing for the centre and the candidates, especially when there is often so much suitable geology on the centre's doorstep which with a little help and guidance can result in a successful submission. There are guidelines in the specification such as Planning Aid p62 and suggested investigations p22.

Alternatively the centre could discuss suitable investigations with me through e-mail/ telephone as several centres do. This can include advice on the suitability of coursework investigations prior to carrying them out and examination of candidate's draft field investigations. Any centre having a problem with applying the assessment framework should contact WJEC well in advance of the submission date. If a centre requires further clarification of the Moderator's Report or assistance with future presentations please contact me at the following e-mail address as345@tutor.open.ac.uk.

GEOLOGY

General Certificate of Education 2009

Advanced Subsidiary/Advanced

Principal Examiner: Mr. Peter Loader

Unit Statistics

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Unit	Entry	Max Mark	Mean Mark
GL3	1191	50	31.0

Grade Ranges

A	34
B	30
C	26
D	23
E	20

N.B. The marks given above are raw marks and not uniform marks.

GL3

General

As expected and despite the change to the new specification, the overall quality of the responses was similar to previous years, as this part of the specification had changed the least. The data response questions were similar to the legacy paper and both were accessible to weaker candidates, though they discriminated well. The quality of the essays was variable with full marks given for each of the essay questions. Question 3 was by far the more popular.

SECTION A

General

Both questions proved to be very accessible to the majority of candidates with marks spread evenly between the two.

Q.1 (a) This was poorly answered with little understanding by many of what was required. Candidates were unaware of the term “source” and how to respond. Granite and uranium were rarely considered with many vaguely suggesting fractures or an igneous origin.

(b) (i) Although the maximum value was correctly identified by most students there were a number who were unable to correctly give the range.

(ii) Again the key word “account” was poorly understood and many candidates simply “described” the variation without further explanation.

(c) (i) The majority of candidates obtained the two marks by identifying that the rapid/anomalous increase before the earthquake might be a precursor.

(ii) This proved to be a good discriminator. Many identified the variability in the data though few specifically quoted from the data in their answers. A wide range of answers were acceptable but some students stated the same reason but in different ways.

(d) Although this was generally well done, with answers quoting seismic, ground deformation, groundwater and inevitably animal behaviour, full marks were only given for good descriptions which mentioned changes or anomalies in the physical data collected by the technique. Few candidates quoted real examples.

Q.2 (a) (i) Generally this was well answered although where candidates did not provide working as instructed they restricted access to both marks.

(ii) Most candidates mentioned high temperature or rock stability but a significant number ignored fracturing and some stated that the rock was impermeable which would be an advantage as water would not leak out.

(b) (i) Most answered this correctly though the question asked for the “level” of damage which sometimes had to be inferred from the “type” given.

(ii) This provided a variable response. Death and building collapse are indicators of the level intensity and do not directly **affect** the intensity as measured on the Mercalli scale. Clear reference to the knowledge given in the specification was not always evident (depth, distance, local ground conditions and building standards). Many stated the geothermal project would be a major factor and candidates are still confusing terms “focus” and “epicentre”.

(c) This was poorly answered with many vague references to slipping plates resulting from pressure. Many considered lubrication along fault planes but only the more able candidates linked pore pressure increases to minor earthquakes as stress was released.

(d) This proved to be well answered by most candidates.

SECTION B

General

Question 3 was by far the most popular choice. Candidates are advised to take careful note of the statement at the beginning of the essay section which refers to where marks are to be awarded. Many lose marks because of poor grammar, spelling and punctuation but particularly as a result of poor legibility. The units used by candidates are also often confusing; though temperature is always quoted in ˚*C*, velocity is more often in *mph,* though occasionally in *ft/s*, *km/h* and *m/s*. Candidates should be encouraged to use SI units.

Q.3 (a) Mount St Helens was by far the most popular case study. Nevado del Ruiz was also very popular, and usually correctly spelt. Vesuvius was also popular but hardly ever spelt correctly. Candidates often stated that in the case of Mount St Helens it was the blast (sometime the pyroclastic flow) that caused the landslide rather than the reverse. Also many consider the Lake Nyos incident to be a gas eruption rather than gas leaking into the lake from groundwater over time and being overturned by a landslide. There was also confusion between the difference between a lateral blast, pyroclastic flow, lahar and even a lava flow.

However, whatever the case study there was wide disagreement as to the number of deaths, the speed and temperature of hazards etc. It should be noted that examiners are not so much concerned with the absolute statistical data as with the order of magnitude. Thus, examiners would expect candidates to remember that the temperature of the flow was in the order of several hundreds, and not tens or thousands of ˚*C*. Less able candidates specifically avoided giving any detail and used generalities (great, huge, massive) with little further qualification.

There is still a tendency amongst a significant number of candidates to write all they know about a topic. Therefore, instead of keeping to descriptions of eruptions and two hazards, there were many who found it necessary to refer plate boundaries in some detail.

(b) Generally well done. Most candidates are aware of the basics. The term viscous is regularly spelt incorrectly, as is andesite. The erroneous use of the terms “magma” and “lava” (lava for magma) and the usual confusion over the term “viscous” was again evident and there is general lack of awareness that a fluid basalt lava flow will become more viscous as it cools. Less able candidates often stated that low viscosity magmas have low gas content while the more able candidates pointed out that this might be due to the ease with which the gases can escape from low-viscosity magmas. There was the usual confusion between silica, silicates and quartz when discussing viscosity. The term “non-viscous” was often used to mean low viscosity.

The greatest challenge to candidates was to suggest what effect magma type might have on lahars. Less able candidates claimed there was none whilst a significant number of able candidates, who also stated this, also realised that temperature and gas content might have an effect. The best responses went on to suggest that the magma type might influence the shape of the volcano and hence the steepness of its flanks and the potential for more pyroclastics to form lahars. Attempts at such reasoning, which illustrate a candidate's ability to select and interpret geological information, are to be encouraged. Examiners are much more interested in candidates' ability to exhibit such skills than in just regurgitating "facts."

Q.4 This essay was not popular but some high marks were obtained.

(a) This caused few problems although there was some confusion when quoting examples as to the exact details. For example, having chosen a location such as Mt Etna, candidates are liable to claim that lahars, pyroclastic flows, lateral blasts etc all occur there. One candidate gave an excellent description of mass movement on continental shelves with resulting turbidity currents as an example of earthquake events.

(b) Generally this was very well done although less able candidates confused monitoring with "mitigation" and penalised themselves.

Q.5 This was not a popular choice.

(b) Part (b) was generally done better than (a). Candidates did not appear to have any difficulty with the question other than the planning and organisation and there was a great deal of needless repetition. Those that chose this question were able to freely answer with reference to waste disposal, mining , water supply, coastal management, tunnels, buildings , dams/reservoirs, but convincing case study material was rare.

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